OKLAHOMA DYSLEXIA AND DYSGRAPHIA HANDBOOK

July 2023

OKLAHOMA Education

Oklahoma
Dyslexia and Dysgraphia Handbook

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Preface

Acknowledgement

As a continuation of the stakeholder process to assure a broad representation for revision and edits to this handbook, a wide group of individuals, some with expertise in dyslexia, education, and/or the Oklahoma educational community, came together to develop revisions to the original handbook. We would like to acknowledge the members of the IDEA-B Advisory Panel, Dyslexia Workgroup.

History of Handbook

This handbook, originally published as The Dyslexia Handbook on July 1, 2019, was the document legislatively supported through two Oklahoma House Bills.

1. H.B.3313 (2018) authored by Representatives Rhonda Baker, Mike Osburn, and Tammy West, Oklahoma State House of Representatives; and Senators Stephanie Bice and Anastasia Pittman.
   Amended by
2. H.B.2768 (2022) authored by Representatives Randy Randleman and Garry Mize, Oklahoma House of Representatives; and Senator Rob Standridge, Oklahoma Senate.

This legislative action supported the need for a handbook to inform a wide audience of educators, parents, and students as they navigate questions and information regarding dyslexia.

The original taskforce comprised a diverse group of people with expertise in dyslexia and education who were brought together to develop this document. We would like to acknowledge the following members of the original Dyslexia and Education Task Force who were appointed by the Oklahoma Legislature.

- Chair - Michelle Keiper, Advocate - Decoding Dyslexia Oklahoma.
- Vice Chair - Dr. Julie Collins, Professor - University of Central Oklahoma.
- Representative - Donnie Condit, Oklahoma House of Representatives (2018).
- Representative - Mike Sanders, Oklahoma House of Representatives (2019).
- Kenya Coyle, Speech Language Pathologist.
- Michele DeBerry, Director of Special Services - Duncan Public Schools.
- Michelle Eidson, Principal - Deer Creek Public Schools.
- Vanessa Gerst, Reading Specialist - Deer Creek Public Schools.
- Amy Hill, Counselor - Mustang Public Schools.
- Janice Hodges, Classroom Teacher - Duncan Public Schools.
- Tiffany Jenkins, Parent.
- Andrea Kunkel, General Counsel - Cooperative Council for Oklahoma, School Administration.

- Renee Launey–Rodolf, Director - Office of Educational Quality and Accountability designee.
- Todd Loftin, Executive Director of Special Education - State Superintendent of Public Instruction designee.
- Charlie Martin (c/o Tami Martin), Student.
- Renee McFarland, Special Education Teacher - Sand Springs Public Schools.
- Eric O'Brien, Nationally Certified School Psychologist - Broken Arrow Public Schools (2018).
- Kelli Clark, Nationally Certified School Psychologist - Putnam City Schools (2019).
- Senator Ron Sharp - Oklahoma State Senate.
- Wendy Stacy, Director - ReadWrite Center.
- Dr. Goldie Thompson, Assistant Vice Chancellor - Oklahoma State Regents for Higher Education designee.
- Bret Towne, Superintendent - Edmond Public Schools.

The 2019 Dyslexia and Education Task Force was supported by the following offices and staff.

- Oklahoma House Education Staff, specifically Erin Kennedy - Oklahoma House Staff Attorney.
- Oklahoma State Department of Education Literacy Team, specifically Dr. Brook Meiller.
- Striving Readers Project Manager and Melissa Ahlgrim - Director of Reading Sufficiency.
- Kimberly Berry, Oklahoma ABLE Tech.
- Choctaw Public Schools, specifically Barbara Bayless - Reading Specialist.
- Kelli Hosford, Principal.
- Dr. Mary Dahlgren, National LETRS Trainer.
- Dr. Regina Boulware-Gooden, Contributor - Texas Dyslexia Handbook.

Intended Audience

This Oklahoma Dyslexia and Dysgraphia Handbook is meant to provide guidance to educators, students, families, and community members about dyslexia, dysgraphia, dyscalculia, and best practices for identification, intervention, and support for children with these disabilities. Information is provided in the following areas.

- Screening for risk.
- Effective core reading instruction.
- Intervention for students with dyslexia, dysgraphia, and dyscalculia.
- Comprehensive evaluations for special education eligibility.
- Resources to support students and parents/families.
- Resources to support educators.

The intent of this handbook is to reach a wide audience with comprehensive information and guidance to support effective instruction and intervention for students with dyslexia, dysgraphia, and dyscalculia. In addition, this handbook provides guidance to assist school-based decision-making teams in determining appropriate educational programming

decisions for students with dyslexia, dysgraphia, and dyscalculia. This handbook can also serve as a starting point when additional resources are needed to support students. Information provided in this handbook references legal requirements through state and federal laws, including:

- State statutes [§70-6-194 (p.390) and §70-18-109.5 (p.690)].
- Section 504 of the Rehabilitation Act of 1973 (Section 504).
- The Americans with Disabilities Act (ADA) as amended.
- Individuals with Disabilities Education Act (IDEA, 2004).

To complement this handbook, the development of additional dyslexia resources is ongoing. The Oklahoma State Department of Education (OSDE) has provided asynchronous professional development opportunities to fulfill the requirements set by H.B. 1228 (2019) for Dyslexia and Dysgraphia Awareness Training in schools. Other materials and resources are linked throughout this document in an effort to provide current and relevant information as these materials and resources update more regularly than revisions to the handbook.

How to Use the Handbook

The Oklahoma Dyslexia and Dysgraphia Handbook is intended to provide a wide audience with comprehensive information, guidance, and resources to support students who are at risk for characteristics of dyslexia, dysgraphia, and dyscalculia and students who are already identified as having one or more of these disabilities.

The table of contents is organized by unit to provide specific information relevant to dyslexia, dysgraphia, and dyscalculia. Organized under the main units, the chapters support individual student needs and thus may be relevant for students at risk of, or identified as having, dyslexia, dysgraphia, and/or dyscalculia.

Since this handbook is intended for such a wide audience, it has special callout boxes with icons to indicate what information is relevant for educators, students, and parents & families, as well as especially important information for all. Looking for these callout boxes in the handbook can support the reader in identifying particularly relevant information for their needs, context, and role.

			
Educator	**Student**	**Parents & Families**	**Important**

Each chapter supports understanding using “Self-Checks”. Chapters begin with these self-checks for readers to challenge their existing perceptions and understanding of these topics. Each chapter then provides deeper information and guidance related to the self-check questions. At the end of each chapter, the reader can verify their understanding and responses to the self-checks using the Key Takeaways. The reader is advised to go back to

the chapter content if they need more support in understanding each chapter's key takeaways.

Chapter 1: Introduction to Dyslexia, Dysgraphia, and Dyscalculia

"*Reading is the fundamental skill upon which all formal education depends. Research now shows that a child who doesn't learn the reading basics early is unlikely to learn them at all. Any child who doesn't learn to read early and well will not easily master other skills and knowledge, and is unlikely to ever flourish in school or in life.*"

– Louisa Moats, 1999

Knowledge Self-Check

1. Does Oklahoma recognize dyslexia, dysgraphia, and dyscalculia as a disability?
2. Are dyslexia, dysgraphia, and dyscalculia a rare occurrence?
3. What can families and students do to support students with dyslexia, dysgraphia, and dyscalculia?

Specific Learning Disability (SLD) is the umbrella term that includes conditions such as dyslexia, dysgraphia, and dyscalculia.

For more information on definitions and characteristics of these disorders, see Chapter 3: Defining Dyslexia, Chapter 7: Defining Dysgraphia, and Chapter 10: Defining Dyscalculia.

#SayDyslexia in Schools

Oklahoma recognizes dyslexia, dysgraphia, and dyscalculia as disabilities under the Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act. In October 2015, the United States Department of Education issued a Dear Colleague guidance letter to ensure a high-quality education for children with Specific Learning Disabilities (SLD). The purpose of the 2015 letter was to, "Clarify that there is nothing in the IDEA that would prohibit the use of the terms dyslexia, dyscalculia, and dysgraphia in IDEA evaluation, eligibility determinations, or IEP documents."

"Identifying a child's dyslexia doesn't limit their potential. It empowers them to understand the nature of their difficulties and strengths and their path for success."

– Josh Clark, The Schenck School

Members of the Dyslexia and Education Taskforce reached out to a group of students with dyslexia and asked them to share their experiences. These students reported that, after receiving an identification of dyslexia, effective reading intervention, and support through accommodations and assistive technology, they were able to work up to their potential. Students had a newfound level of confidence in their ability to learn and their educators shared the following statements about them.

- *"He is the hardest working student in my class."* - Teacher
- *"I wish every student gave the effort she does."* - Teacher
- *"Committed, loyal, hardworking."* - Coach

- *"Excellent ability to recall historical facts."* - Teacher
- *"Voracious learner, great perseverance."* - Teacher
- *"Outside the box thinker."* - Teacher
- *"Honor roll."* - Teacher
- *"He went further than any other student I have ever tested."* - School psychologist

What Dyslexia is NOT

- Dyslexia is NOT…reading or writing backwards.
- Dyslexia is NOT…caused by poor eyesight, vision processing problems, or hearing problems.
- Dyslexia is NOT…an intellectual or developmental disability.
- Dyslexia is NOT…more prevalent in boys than in girls.
- Dyslexia is NOT…a lack of educational opportunity or a lack of books in the home.
- Dyslexia is NOT…a lack of motivation or laziness, in fact students with dyslexia are working harder than their peers.
- Dyslexia is NOT...uncommon (it happens to 15-20% of population).
- Dyslexia is NOT...responsive to standard reading instruction.

Dispelling Myths of Dyslexia

Myth: People with dyslexia cannot read.
Fact: Incorrect. Most children and adults with dyslexia are able to read, even if it is at a basic level. Spelling is one of the classic red flags alerting parents and teachers of a serious underlying problem. The child may be unable to understand the basic code of the English language and cannot break down or reconstruct (with spelling) words using codes (letters).

Myth: More boys have dyslexia than girls.
Fact: Boys' reading disabilities are indeed identified more often than girls'. But studies indicate the actual prevalence of the disorder is nearly identical across gender.

What Dysgraphia is NOT

- Dysgraphia is NOT…evidence of a damaged motor nervous system.
- Dysgraphia is NOT…part of a developmental disability that has fine motor deficits (e.g., intellectual disability, autism, cerebral palsy).
- Dysgraphia is NOT…secondary to a medical condition (e.g., meningitis, significant head trauma, brain trauma).
- Dysgraphia is NOT…associated with generalized developmental motor or coordination difficulties (Developmental Coordination Disorder).
- Dysgraphia is NOT…impaired spelling or written expression with typical handwriting (legibility and rate).

Dispelling Myths of Dysgraphia

Myth: Messy handwriting indicates laziness.

Fact: Students who write slowly, sloppily, or fail to complete writing assignments well are sometimes labeled “lazy” or “unmotivated.” While not particularly uncommon, dysgraphia does often go undiagnosed, particularly in gifted children.[5] When a student is demonstrating difficulties with instructional tasks, including handwriting, it is important for educators to provide evidence-based interventions matched to need and for educators to continue monitoring student progress in the skill.

Myth: Writing issues like dysgraphia are uncommon.
Fact: The authors of ***The Mislabeled Child*** estimate that as many as one in five children have difficulty expressing themselves through writing. Still, dysgraphia often goes undiagnosed in students.[1]

What Dyscalculia is NOT

- Dyscalculia is NOT…reversing or confusing numbers.
- Dyscalculia is NOT…just math dyslexia.
- Dyscalculia is NOT…the same for all students.
- Dyscalculia is NOT…an indicator that a student can never do math.
- Dyscalculia is NOT…an indicator that a student will have dyslexia, dysgraphia, or autism.
- Dyscalculia is NOT…rare.

Dispelling Myths of Dyscalculia

Myth: Dyscalculia is just math dyslexia.
Fact: Dyscalculia is often referred to as math dyslexia; however, they are not the same conditions with interchangeable names. Simply put, “being bad at math” (or math anxiety) and having dyscalculia are two very different things.

Myth: People with dyscalculia can never do math.
Fact: Dyscalculia is no doubt a daunting developmental concern that does not have a cure. However, it can be remediated by using alternative approaches to learning. An example of an alternative approach could include a multisensory approach, which delivers information through various senses so children can absorb the most information out of the classes.

Lifelong Impact and Student Wellness

Research suggests that students with learning disabilities may experience higher levels of psychological distress compared to their peers without disabilities. They may be more likely to experience anxiety, depression, low self-esteem, and social difficulties due to challenges in academic performance, negative feedback, and perceived stigmatization. Therefore, early intervention of student skill deficits and maintaining encouraging learning environments are essential to supporting long-term, academic, and psychological outcomes for students with learning disabilities, including dyslexia, dysgraphia, and dyscalculia.

When asked by members of The Dyslexia and Education Task Force why it is important for educators to understand dyslexia, students and adolescents with dyslexia shared they had struggled with feelings of shame in relation to their reading difficulties. Too often, these

students' educators made comments that perpetuated these feelings of poor academic self-concept and self-efficacy, such as:

- *"Not all kids go to college."* - Kindergarten teacher
- *"You obviously are not doing your reading homework, because you are not getting better."* - Teacher
- *"Not a shining star."* - Teacher
- *"Doesn't want to learn."* - Teacher
- *"Lazy and inattentive."* - Teacher
- *"Unable to be taught."* - Special education teacher

Students have further described how their learning difficulties impact their emotional and social well-being and the importance of quality instruction and supportive educators.

- *"School is not a very enjoyable place, and she doesn't want to disappoint her teachers."* - Parent re: student experience
- *"If I have a teacher who isn't open to allowing me to use accommodations or is less flexible, I stress so much that I don't learn anything. I am always worried about disappointing my teachers."* - Student
- *"Allowing me to use my accommodations helps me keep up, even though I'm usually still behind."* - Student
- *"It is really hard when the whole class is waiting on me to finish taking notes from the board or finish assignments or tests. I never get any free time in the day, because I am also having to finish work when everyone else is done."* - Student

For several students with dyslexia, dysgraphia, and dyscalculia, lack of academic success, uneducated teacher response to learning difficulties, and associated low self-efficacy and self-esteem has created a negative view of the educational environment and academic tasks. This negative view may result in emotional symptoms including anxiety (including test anxiety) or even panic; agitation, anger, or aggression (such as temper tantrums in younger children); fear (including a fear or even phobia of going to school); and even physical symptoms of any of the above, such as nausea and vomiting, sweating, stomachache, etc.

When school, and the learning tasks students have struggled with, become a source of anxiety, working memory is directly affected and ongoing learning is impaired (Chernoff & Stone, 2014; Ramirez, Gunderson, Levine, & Beilock, 2013; Young, Wu, & Menon, 2012). Thus, school itself may continue to perpetuate learning difficulties for students who have developed educational anxiety. Further, students who experience anxiety around learning tasks may exhibit behavioral difficulties, such as aggression or school refusal, in an effort to escape or avoid these tasks. Educators are encouraged to consider the potential of academic difficulties, including dyslexia, dysgraphia, and dyscalculia for students who exhibit behavioral challenges.

For more information, see the International Dyslexia Association's (IDA's) fact sheet entitled, *The Dyslexia-Stress-Anxiety Connection, Implications for Academic Performance and Social Interactions*.

In addition to anxiety, students with dyslexia, dysgraphia, and dyscalculia may face increased risks for other mental health challenges, including depression, low self-esteem, and suicidal ideation. It is essential that families and educators understand that several

factors may contribute to an increased risk of suicide among individuals with learning disabilities.

Academic and Social Challenges: Dyslexia, dysgraphia, and dyscalculia can present academic and social difficulties which can lead to feelings of frustration, isolation, and inadequacy. Persistent struggles in these areas can contribute to a sense of hopelessness and despair, increasing a student's emotional vulnerability to suicidal thoughts.

Bullying and Stigmatization: Individuals with dyslexia, dysgraphia, and dyscalculia may face higher rates of bullying and stigmatization which can have a profound impact on their mental health. The experience of bullying and social exclusion can contribute to feelings of loneliness, depression, and a heightened risk for suicidal ideation.

Access to Support and Resources: Limited access to appropriate support, interventions, and mental health resources can contribute to an increased risk of suicide. Adequate support systems, including educational accommodations, mental health services, and a strong social support network, are crucial in mitigating this risk.

Please read on to learn how families and educators can mitigate negative lifelong impacts and promote student wellness.

Effective Instruction as a Protective Factor

Effective instruction can act as a protective factor against future psychological distress by providing students, including those with dyslexia, opportunities for academic success.

Building Self-Efficacy: Effective instruction focuses on building students' self-efficacy (or their belief in their ability to succeed). When students with dyslexia, dysgraphia, and dyscalculia receive explicit instruction, targeted interventions, and opportunities to experience success, their self-efficacy can increase. Higher self-efficacy is associated with better psychological well-being and resilience as students feel more confident in their abilities to overcome challenges.

Positive Feedback and Encouragement: Effective instruction emphasizes the provision of positive feedback and encouragement. Recognizing and celebrating students' efforts and progress, regardless of their pace, can foster a positive learning environment. Positive feedback promotes a sense of accomplishment, boosts self-esteem, and reduces the negative impact of academic setbacks which can contribute to lower levels of psychological distress.

Supportive Classroom Climate: Effective instruction promotes a supportive classroom climate. Teachers who create a safe and accepting environment, encourage peer collaboration, and promote positive social interactions can contribute to students' sense of belonging and overall well-being. By fostering positive relationships and a supportive classroom community, students with dyslexia, dysgraphia, and dyscalculia are less likely to experience social isolation or stigmatization, thereby reducing their psychological distress.

Collaborative efforts among educators, specialized professionals, and families can ensure that instructional approaches are evidence-based and are aligned with the unique

requirements of students with dyslexia, dysgraphia, and dyscalculia, thus mitigating psychological distress and promoting positive psychological outcomes.

For more information on implementing effective instruction for reading, see Chapter 5: Effective Core Reading Instruction and Chapter 6: Intervention for Students with Dyslexia.

For more information on implementing effective instruction for writing, see Chapter 9: Effective Instructional Practices for Students with Dysgraphia Across the Continuum.

For more information on implementing effective instruction for mathematics, see Chapter 12: Effective Instructional Practices for Students with Dyscalculia Across the Continuum.

Promoting Coping and Resilience

"Parents (and teachers too) of children with reading problems should make their number one goal the preservation of their child's self-esteem. This is the area of greatest vulnerability for children who are dyslexic."

– Shaywitz, 2003

Students with dyslexia, dysgraphia, and dyscalculia often face numerous academic and social challenges. Despite these challenges, many students with these disabilities demonstrate resilience and develop effective coping strategies. Resilience and coping strategies play a crucial role in promoting positive psychological outcomes for students with dyslexia, dysgraphia, and dyscalculia. Here's how resilience and coping strategies can benefit students.

Resilience: Resilience is the ability to bounce back from adversity, adapt to challenges, and maintain well-being in the face of stress or setbacks. Students with learning difficulties, such as dyslexia, dysgraphia, and dyscalculia, often encounter academic, social, and emotional difficulties, making resilience a valuable trait. Building resilience involves cultivating a growth mindset, emphasizing strengths, and fostering a positive outlook. Resilient students are more likely to view challenges as opportunities for growth, persist in the face of obstacles, and maintain a sense of self-efficacy.

Self-Advocacy: Developing self-advocacy skills empowers students with dyslexia, dysgraphia, and dyscalculia to express their needs, seek support, and advocate for themselves effectively. By understanding their learning strengths and weaknesses, setting realistic goals, and communicating their needs to teachers and peers, students can actively participate in their education. Educators and families can teach students about the dyslexic brain and how it works, to support increased self-advocacy. Self-advocacy enhances self-confidence, self-determination, and resilience, enabling students to navigate challenges and access appropriate resources.

Effective Coping Strategies: Coping strategies are behavioral, cognitive, or emotional techniques individuals use to manage stress and regulate their emotions. Students with dyslexia, dysgraphia, and dyscalculia can benefit from acquiring and utilizing effective coping strategies. These may include the three items listed below.

- ***Problem-Solving Skills:*** Teaching students systematic problem-solving techniques can help them tackle academic and social challenges. Breaking down tasks, brainstorming solutions, and evaluating the outcomes can enhance their ability to cope effectively.
- ***Behavior Regulation:*** Teaching students strategies to identify, understand, and manage their emotions and behaviors can contribute to their overall well-being. Techniques such as deep breathing, mindfulness exercises, and engaging in enjoyable activities can help students regulate and reduce stress.
- ***Skills to Support Learning:*** Taking short breaks with quick bursts of physical movement (jumping jacks, 30 second jog in place, windmills, exercises crossing midline, etc.) can help move information into long-term memory. Other learning support skills to support students in compensating (e.g. graphic organizers) should be taught and supported.
- ***Seeking Support:*** Encouraging students to seek support from teachers, peers, and family members can provide a valuable source of emotional and practical assistance. Establishing a supportive network and teaching students how to ask for help when needed can enhance their coping abilities.

Positive Mindset: Fostering a positive mindset is crucial for students with dyslexia, dysgraphia, and dyscalculia. Helping students reframe negative thoughts, challenge self-doubt, and focus on their strengths can enhance their resilience and coping abilities. Cultivating optimism and self-belief promotes a sense of agency and fosters a growth-oriented mindset, allowing students to persist in the face of challenges and setbacks.

Emotional Support and Encouragement: Providing emotional support and encouragement is vital for students with dyslexia, dysgraphia, and dyscalculia. Recognizing and validating their efforts, celebrating their achievements, and creating a safe and nurturing environment can boost their resilience and foster a positive self-concept. Encouragement from teachers, peers, and family members can enhance students' coping abilities and promote their psychological well-being.

Family and Parent Information

	**Parents & Families** Your child is struggling at school or at home. What's next? Positive partnerships between parents/caregivers and teachers are critical in ensuring progress toward learning goals for students. If you think your child has dyslexia, dysgraphia, or dyscalculia, or has other academic struggles, you should talk with your child's classroom teacher. Information from the universal and dyslexia screeners (for older students, your child's report card and other benchmark reading scores), in addition to your own observations about your child's learning, can help begin conversations with teachers and other school staff members about your child's progress. Use the Family Questionnaire in the Appendix to support your knowledge of what to look for.

	Developing a positive and collaborative relationship with the teacher(s), much like you have with a doctor, provides necessary supports for your child and will help them reach milestones and receive assistance when needed. Families are also encouraged to contact community resources for support. See Chapter 17: Resources and Additional Learning, for support in identifying State and Community Resource Support.

It is important to remember, if you are presented with “educational jargon” or terminology you don’t understand, it is your right to have that terminology explained to you in “real world terms” by the educational professionals with whom you are working. It is also important to remember children with dyslexia, dysgraphia, and dyscalculia are very capable of succeeding in school and of achieving success in a wide variety of professions.

If your child is in kindergarten through 3rd grade, ask your child’s classroom teacher if your child is on an Individualized Program of Reading Instruction (IPRI) for reading support. For all grades and subject areas, ask your child’s teacher if your child is receiving support through Response to Intervention (RTI) or Multi-Tiered System of Supports (MTSS) within the school. This will tell you how the school is documenting concerns about your child’s reading, writing, mathematics, or other skill areas. If your child has an IPRI or is receiving RTI/MTSS support, you can identify the area(s) of need your child is receiving support for, what intervention(s) they are receiving, and their response to those interventions. You can ask to see your child's scores and data, as well as ask for more information on the interventions being used, at any time

To prepare for and build your relationship with your child’s teacher(s):

- Review the grades and comments on your child’s report cards and progress reports.
- Review your child’s benchmark reading scores.
- Consider your child’s progress on proficiency indicators. (If you are not sure what literacy, written expression, and math proficiency milestones look like, review the Oklahoma Family Guides.)
- Discuss any homework battles and the amount of time your child spends on homework.
- Complete the Family Questionnaire within the Appendix.

Attend parent/teacher conferences and be ready to listen and share information. If you feel your concerns are not being addressed by the classroom teacher(s) as you’d like them to be, talking with the school counselor or principal can be your next point of contact. When a student has been receiving supports in the IPRI or RTI/MTSS process and is not making progress, additional testing and evaluation may be needed.

	**Parents & Families** How do you request additional testing or evaluation?

	School districts are responsible for establishing and implementing an ongoing Child Find system to locate, identify, and evaluate students suspected of having a disability, ages 3 through 21 years, who may need special education, regardless of the severity of the disability. Child Find activities include screening and early intervening services (i.e. SoonerStart). Parents may also, regardless of any Child Find activities, request in writing an initial evaluation for their child to determine if their child is eligible for special education services. Although a parent's request does not automatically trigger a requirement to evaluate, the school must thoroughly investigate the possible existence of a disability and potential need for services before refusing to evaluate, especially when the request is from a parent and the student is not progressing well or not making adequate progress in the general education curriculum. For more information, see Chapter 13: Special Education.

For more information on the IDEA, special education services, initial evaluations, or independent educational evaluations, please contact the Oklahoma State Department of Education or review the Oklahoma Special Education Policies and Procedures.

	**Parents & Families** Can my child be retained? Retention is a discussion between parents and schools. The Reading Sufficiency Act (RSA) has a particular list of requirements for promoting students to 4th grade. To learn more about these requirements, see Chapter 4: Screening for Risk of Characteristics of Dyslexia. For more detailed information about RSA, please visit www.sde.ok.gov/reading-sufficiency. It should be noted retention as a means to address a student's academic skill deficits should not be the only factor considered. Retention can benefit students who have additional factors that impact their school experience. If a teacher(s) recommends retention for your student, parents have the right to appeal this decision through the district's appeal process. The school board decision will be final, but parents/guardians can provide a written response of their disagreement to be placed in the student's permanent record (§70-24-114.1 p.794). If a student is retained, the student's teachers should clearly outline any changes to instruction and ensure that repeating the grade will be used to close gaps in the student's deficits.

	For more information regarding research on retention, please visit DecodingDyslexiaOK.org.

Buyer Beware

Unfortunately, in their pursuit to identify all tools and supports for their child, families and parents of dyslexic children have been taken advantage of. Please know that under federal law (IDEA), if you suspect your child has a disability, your child's school must consider this concern, review data, and complete an educational evaluation at no cost to the child's family. Before seeking a private evaluation, work with your child's school and learn the limitations to the supports that can be provided following a private evaluation.

For more information, see Chapter 13: Special Education Services.

Additionally, be forewarned there are no "silver bullets" or cures for dyslexia, dysgraphia, or dyscalculia. In your research, you may come across programs that claim the ability to help every student with reading, writing, or math. Be wary of programs or techniques using approaches that have not been shown to be effective. These approaches include the following four examples.

- Things that don't include practice with the subject in a systematic, explicit, multisensory method (some examples include colored lenses, overlays, vision therapy, spinal or cranial realignment therapy, crawling therapy, cognitive improvement therapy, midline crossover exercise therapy, and diet related claims). While some therapies may address another co-existing issue, these therapies do not cure dyslexia/
- Tutoring chains, ad hoc tutors, nannies, or volunteers who are not properly trained to work with children who have specific instructional needs. People who effectively remediate reading, writing, or math difficulties use evidence-based practices in these areas and have had specific training and coaching in these evidence-based practices.
- Therapies that do not include the actual practice of reading, writing, or calculating with the student. Therapies designed to improve eye coordination, near and far focus, depth perception, etc. may improve a student's use of their eyes while engaged in academic tasks, but they are not a replacement for teaching the necessary components for reading, writing, and calculation. Remember, dyslexia is a deficit in the phonological processing of the brain.
- Programs that guarantee an outcome. Read the fine print. Many programs guaranteeing results do not apply when the student has an identified disability, such as dyslexia, dysgraphia, or dyscalculia. If a disability is identified during the tutoring, a program's "guarantee" may be disregarded. It is very difficult to know what will work for each child and how long it will take for interventions to begin to close the gap. Programs that require very large sums of money upfront before the therapy/program begins should be a red flag. Proceed with caution and skepticism if the claims seem too good to be true.

The ***Components of Structured Literacy Intervention Checklist*** included in the Appendix of this handbook can be used to guide decisions about appropriate intervention programs. The International Dyslexia Association fact sheets on Effective Reading Instruction for Students with Dyslexia & Evaluating Educational Professionals can provide guidance on services for students.

Student Information

"The negative repercussions of being engulfed by a (math) learning disability at a young age completely crippled my self-esteem, and by the fifth grade I believed my worth was zero."

– E-mail from a 24-year-old with dyscalculia (Birsh & Carreker, pg. 506, 2022)

	Students The first thing to know is you are not alone! Many people have a difficult time learning to read, write, and calculate. Most likely, your classroom has four or five other students who also find reading to be very difficult. Even some adults struggle to read, and some teachers struggle to learn to read. You are not alone! There is help to give you the tools you need to be successful. Your parent(s) and teacher(s) want to and will help you. Podcast *How do we learn to read - and why is it hard?* Reading is your one-way ticket to adventure! You can ride fire-breathing dragons, explore outer space, or even save the world - all within the pages of a book. But have you ever wondered how we learn to read?

- **You Are Not Alone**
  - It's likely 4-5 other students are in your class who find reading difficult, and 1 in 5 students are affected by dyscalculia.
  - Some adults struggle to read.
  - Even some teachers struggled to read.
- **What Is Dyslexia?**
  - When people have difficulty learning to read, they might have dyslexia.
  - *Dys* means difficult and *lexia* means word.
  - Dyslexia means difficulty reading words.

- **What Is Dysgraphia?**
  - When people have difficulty learning to write, they might have dysgraphia.
  - *Dys* means difficult and *graphia* means write.
  - Dysgraphia means difficulty writing words.
- **What Is Dyscalculia?**
  - When people have difficulty learning to do math calculations, they might have dyscalculia.
  - *Dys* means difficult and *calculia* means calculate.

- Dyscalculia means difficulty with math calculations.

- **Why Is It Hard?**
  - We are born with the ability to speak words; we learn that by listening to others speak.
  - We are not born with the ability to read, write, or calculate.
  - It takes hard work and practice to become a reader, writer, and calculator.
  - Dyslexia, dysgraphia, and dyscalculia don't mean you aren't smart. In fact, these difficulties have nothing to do with intelligence.
  - Dyslexia means your brain processes letters and sounds differently which is why reading and spelling can be difficult.
  - Everyone is different and has their own strengths and challenges.
  - We all have strengths!
- **Who Is On Your Support Team?**
  - At school, you have a team, and you are a very important person on that team!
  - You are the heart of the team.
  - This team may include teachers, parents, coaches, or others.
  - Learning about your educational difficulties and communicating your needs is called self-advocacy.
  - Self-advocacy is sharing how you feel, sharing what you need to be successful, and sharing what is and what is not working for you.
  - It is important to know your strengths, challenges, and limits.
  - Members of your support team can help you achieve your goals.
- **Self-Advocacy**
  - Knowing your strengths and challenges, and asking for accommodations and/or modifications that work best for you, is self-advocacy.
  - Self-advocacy is not always easy, because it takes time to know what works and doesn't work for you.
  - Self-advocacy is a life-long skill that can improve your confidence and independence.
- **Impacts Beyond Reading, Writing, and Math**
  - Dyslexia can be discouraging and frustrating.
  - Students are often working very hard, yet they are still not feeling successful.
  - Feelings of not being understood or lacking support can lead to a sense of inferiority and failure shown through the emotions/situations listed below.
    - Anxiety.
    - Fear.

- Poor self image.
- Depression.
- Social problems - How Dyslexia Can Affect Kids Socially.
- Family problems/sibling rivalry.
  - Share with other teachers/school staff how they can help.
  - Seek out organizations that work with students with learning differences to help build community, foster pride, and spread knowledge and awareness.
    - Decoding Dyslexia Oklahoma
    - Eye to Eye: https://eyetoeyenational.org/for-students/
    - National Center for Learning Disabilities: https://www.ncld.org/category/news/engaged-and-empowered/

- **Closing**
  - Dyslexia, dysgraphia, and dyscalculia can make learning and school difficult.
  - Mistakes will happen, but you will continue to learn and grow.
  - Continue to pursue activities you love and further develop your strengths.
  - Know your accommodations and who your support system is at school.
  - Learn what accommodations work for you and advocate for what you need to be successful.
  - Even though dyslexia, dysgraphia, and dyscalculia are frustrating, let others know how they can support you. You are not alone in this journey so reach out for help and support as needed.

	**Students** Self-advocacy is not easy, and it takes time to learn how to do it well. One way to self-advocate and share your feelings with teachers is by creating a document or video to share with your teacher. The I'm Determined Project has created a guide called *It Is All About Me! Understanding My IEP* to help you create your own document or video. Check it out at I'm Determined.

Learning new things takes time and work, and learning differently does make it harder. Mistakes will happen; learn from them and keep moving forward. Make sure to celebrate your successes. It is important to know and understand how you learn best. Know what your accommodations are and who your support system is at school to ask for help. This support system may be a teacher, a counselor, or even a coach.

****All art within the student section was completed by an artist with dyslexia.**

Key Takeaways

1. **Does Oklahoma recognize dyslexia, dysgraphia, and dyscalculia as disabilities?**
   a. Oklahoma recognizes dyslexia as a disability under the Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act. Specific Learning Disability is the umbrella term that includes conditions such as dyslexia, dysgraphia, dyscalculia, etc. The Oklahoma State Department of Education provides technical assistance and professional development on implementing IDEA, including supporting students with dyslexia.
2. **Are dyslexia, dysgraphia, and dyscalculia a rare occurrence?**
   a. Dr. Sally Shaywitz, co-director of the Yale Center for Dyslexia and Creativity, estimates that 80-90% of children who struggle with learning disorders have dyslexia; that is as many as one in five students. The International Dyslexia Association (IDA) further notes the most common type of reading, writing, and/or spelling disability is dyslexia. These percentages/numbers quickly dispel the myth that dyslexia is rare.
3. **What can families and students do to support students with dyslexia, dysgraphia, and dyscalculia?**
   a. Families can work with their child's school to create positive partnerships ensuring open communication between the educators and the family. Students can practice self-advocacy skills by asking for help and support when they need it. More information is provided in other chapters on screening (Chapter 4), evaluation (Chapter 13), and supports for students and families (Chapter 17).

Chapter 2: Introduction to Instructional Systems

Knowledge Self-Check

1. What is the purpose of Response to Intervention (RtI) and Multi-Tiered System of Supports (MTSS)?
2. Should Universal Design for Learning (UDL) be implemented only for classrooms that have students with dyslexia, dysgraphia, and dyscalculia?
3. When should interventions end?

Introduction to Response to Intervention (RtI) and Multi-Tiered System of Supports (MTSS)

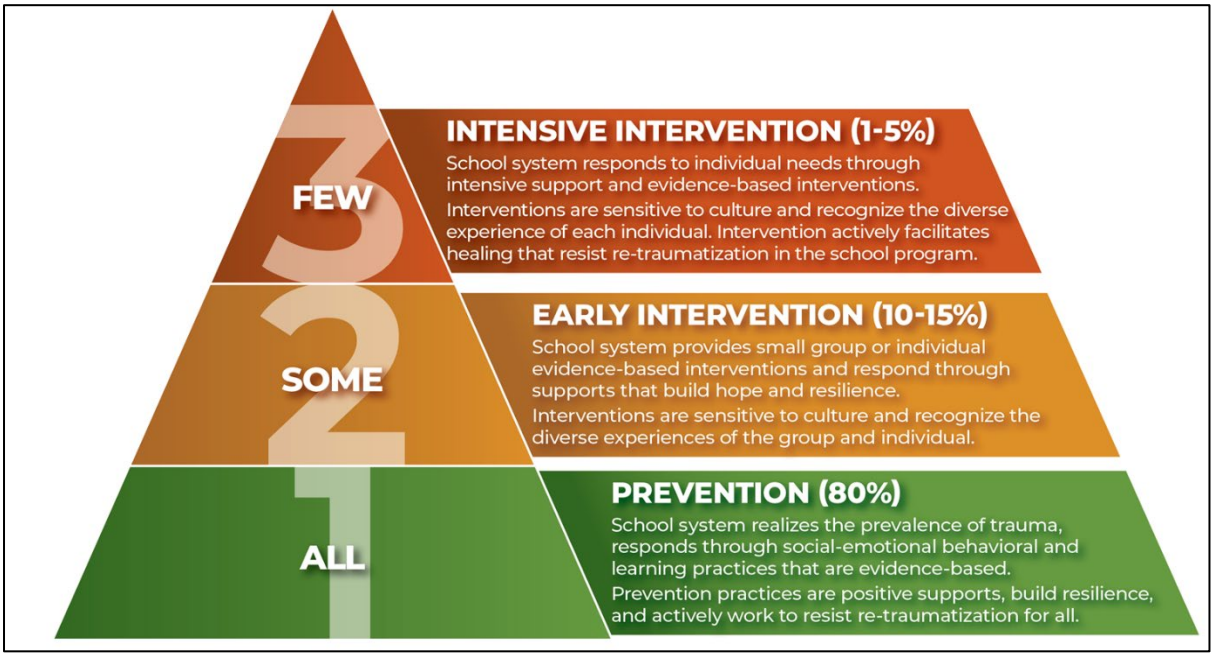
A Multi-Tiered System of Supports (MTSS) is a comprehensive continuum of evidence-based systemic practices to support a rapid response to students' needs in academic and behavioral skills, with regular observation to facilitate data-based instructional decision making (20 U.S.C. § 7801(33)). Response to Intervention (RtI) is another name for a structured, multi-tiered approach to help identify and support struggling students.

MTSS and RtI are not programs or referral processes to special education but rather multi-level, proactive, prevention systems to maximize all student achievement. While the use of a multi-tiered system is not intended as a pathway to special education services, data gathered through an MTSS may be used as part of a comprehensive evaluation for special education eligibility, so long as the MTSS/RtI process is not used to delay or deny the provision of a full and individual evaluation under the Individuals with Disabilities Education Act (IDEA).

The MTSS/RtI instructional framework begins with quality core instruction (Tier 1) for all students and universal screenings. Approximately 80% of students are expected to reach targeted goals under high-quality and effective Tier 1 instruction. Following screening measures, school teams use the data to identify students "at-risk" or those students who may experience difficulties and who are needing additional support and intervention. Within MTSS, identified students are then provided evidence-based interventions through layered supports at different levels of intensity matched to each student's level of need (Tiers 2 and 3). Typically, around 15% of students will need targeted Tier 2 interventions, while the remaining 5% of students require intensive and individualized interventions, or Tier 3 supports. Tier 2 and 3 interventions/supports may be provided in various group sizes based on the intensity of the intervention. The primary goal of MTSS is to prevent the need for more intensive services and/or special education services through a process of early intervention, progress monitoring, and intensifying support. However, even with high-quality prevention and foundational skill instruction, some students will have needs requiring Tier 2 or Tier 3 supports. It is essential to match supports to needs through data-based decision making.

★	**Important** Students receiving special education services are not restricted from supports in a multi-tiered model. IEP teams should consider the needs of each student and their matched resources throughout the school as part of each student's specially designed instruction (SDI). Direct services in an IEP need not only be provided by special educators; providers with necessary expertise (e.g., reading interventionists) should be considered as well.

Image: MTSS/RtI Instructional Framework Diagram



MTSS/RtI incorporate existing supports and strategies into a framework to support academic and behavioral change. Particularly within the broad scope of MTSS, this incorporating may include school-wide and district-wide (systematic) changes as needed, making leadership, widespread communication, and cooperative effort essential to its success.

For more information on MTSS implementation, please see sde.ok.gov/OKMTSS.

Instructional Tiers in a Multi-Tiered System of Supports/Response to Intervention (MTSS/RtI)

Tier 1 - Core Instruction for All Students

A high-quality core instruction is part of a preventative and responsive approach to acquiring all academic skills. Educators who use data to drive decisions, focus on a systematic and cumulative approach, and utilize explicit instruction are both able to support students before they demonstrate additional need and are able to respond to students who need additional support. Core instruction (Tier 1) is provided to all students in the general education classroom setting. Effective, evidenced-based instruction in reading, writing, and/or math will benefit all learners, but this is essential for students with dyslexia, dysgraphia, and/or

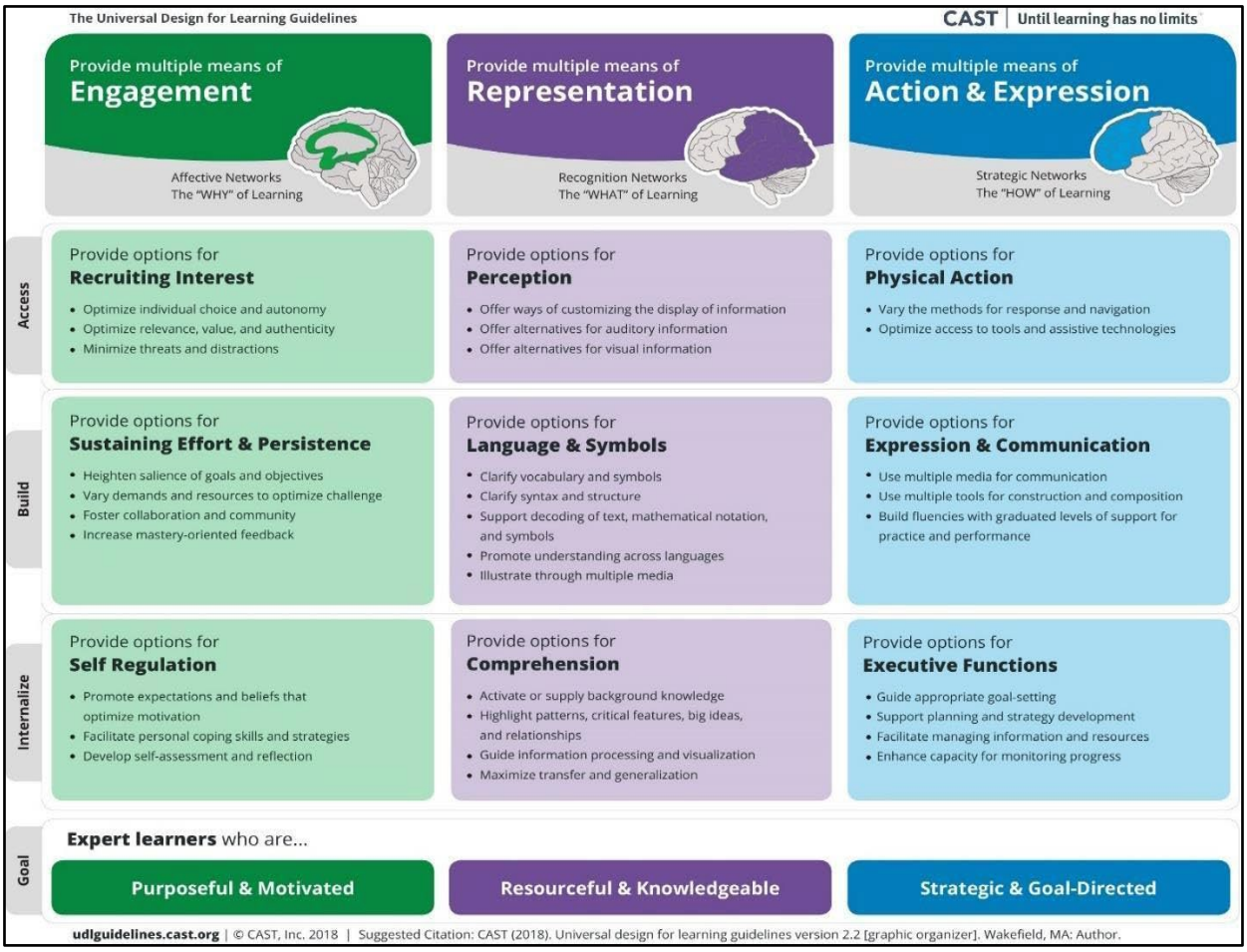
dyscalculia. Reading, writing, and math instruction are fundamental to a free and appropriate public education. High-quality core instruction begins in the classroom before the need for targeted instruction/intervention (Tier 2) or intensive intervention (Tier 3) are determined. Core instruction continues in the classroom for all students. But additional intervention supports are layered and supplemental for students with identified instructional needs.

Universal Design for Learning (UDL)

Within core instruction, educators can make use of UDL, a set of principles for curriculum development and instructional planning that gives all students equal opportunities to learn. UDL provides a blueprint for creating instructional goals, methods, materials, and assessments that eliminate barriers to access and thereby work for everyone. UDL is not a single, one-size-fits-all solution. It is flexible approaches that consider the barriers a student might face on an individual basis and that can be customized and adjusted for individual needs. The three principles of UDL are providing:

1. Multiple means of engagement.
2. Multiple means of representation.
   and
3. Multiple means of action and expression.

Image: The Universal Design for Learning (UDL) Guidelines Chart



UDL provides guidance and examples for a wide range of instructional approaches and formats to stimulate and motivate learning, including the use of technology and assistive

technology. UDL also incorporates principles of student choice and self-regulation as part of the design to foster independence in learning. UDL principles can benefit students in the classroom during effective instruction as well as during intervention periods.

	**Educators** The Center for Applied and Special Technology (CAST) has a wide-range of free resources for teachers, some developed by teachers, to build curricula utilizing the principles of UDL. Additionally, the OSDE has established a Universal Design for Learning Support page on their website.

Tier 2 - Targeted Intervention

In addition to high-quality classroom core instruction, some students may require targeted intervention that matches evidence-based intervention to an identified skill deficit. Targeted intervention, or Tier 2 intervention, differs from core classroom instruction, as it targets a narrower scope of instruction that is specifically matched to a skill deficit (e.g., targeting phonemic awareness). As with core instruction, targeted interventions should still utilize explicit instruction, appropriate sequencing of skills, and an educator with expertise in teaching the content. Dyslexia, dysgraphia, and dyscalculia exist on a continuum with varied skill deficits that should be targeted within homogenous skill intervention groups and with instructional delivery matched to student needs.

Tier 3 - Intensive Intervention

In addition to high-quality classroom core instruction, some students may require an intervention that would provide more intensity at an appropriate pacing to master the skills required for proficient reading, writing, and calculation. As with core instruction and Tier 2, intensive interventions should still utilize explicit instruction, appropriate sequencing of skills, and an educator with expertise in teaching the content. The difference in Tier 3 intervention is the individualized approach to designing intervention lessons, and Tier 3 is an increase in intensity from Tier 2. Dimensions of intensity and intensifying instruction are discussed more in depth below.

Documentation

Intervention decisions and provisions should all be documented consistently. This documentation should include how often and for how long intervention will be delivered, the specific evidence-based intervention to be used, the specific skill deficit to be intervened on, and the fidelity of the intervention.

Intensification

In order to be effective, instruction and intervention at every tiered support level (Tier 1, Tier 2, and Tier 3) must be the following criteria.

- An evidence-based intervention that is effective for students who have dyslexia, dysgraphia, dyscalculia, or other learning difficulties.
- Implemented by a trained or certified instructor (a professional within the system with expertise in the intervention).

- Provided and taught with fidelity.
- Sufficiently intensive (see the Dimensions of Intensification list below) to accomplish the instructional goal(s).
- Include frequent progress monitoring of the targeted skill.

Implementation fidelity is the degree to which a program, or the instructional practice, are implemented as designed and with an appropriate frequency and duration to support student progress. Implementation fidelity is important because it does the following three things.

1. Ensures the instruction is implemented as intended by the developer and as defined in the intervention plan.
2. Links student outcomes and progress to the instruction.
   and
3. Enables progress to be effectively monitored for student skill development and growth.

Progress monitoring is the process of assessing a student's growth in the targeted skill (student response to instruction), analyzing that growth in relation to an ambitious or realistic rate of improvement (ROI), and making instructional decisions based on the student's growth. Instructional decisions following progress monitoring include the following list.

- Continuing the intervention: the student is making sufficient progress toward a reasonable or ambitious instructional goal.
- Intensifying the intervention: the student is not making sufficient progress toward a reasonable or ambitious goal, so the intervention must be strengthened to support improved learning.
- Discontinuing the intervention: the student has met the reasonable and ambitious goal, learning gaps have closed, and the student is demonstrating sufficient skill to maintain progress with a reduction of support.

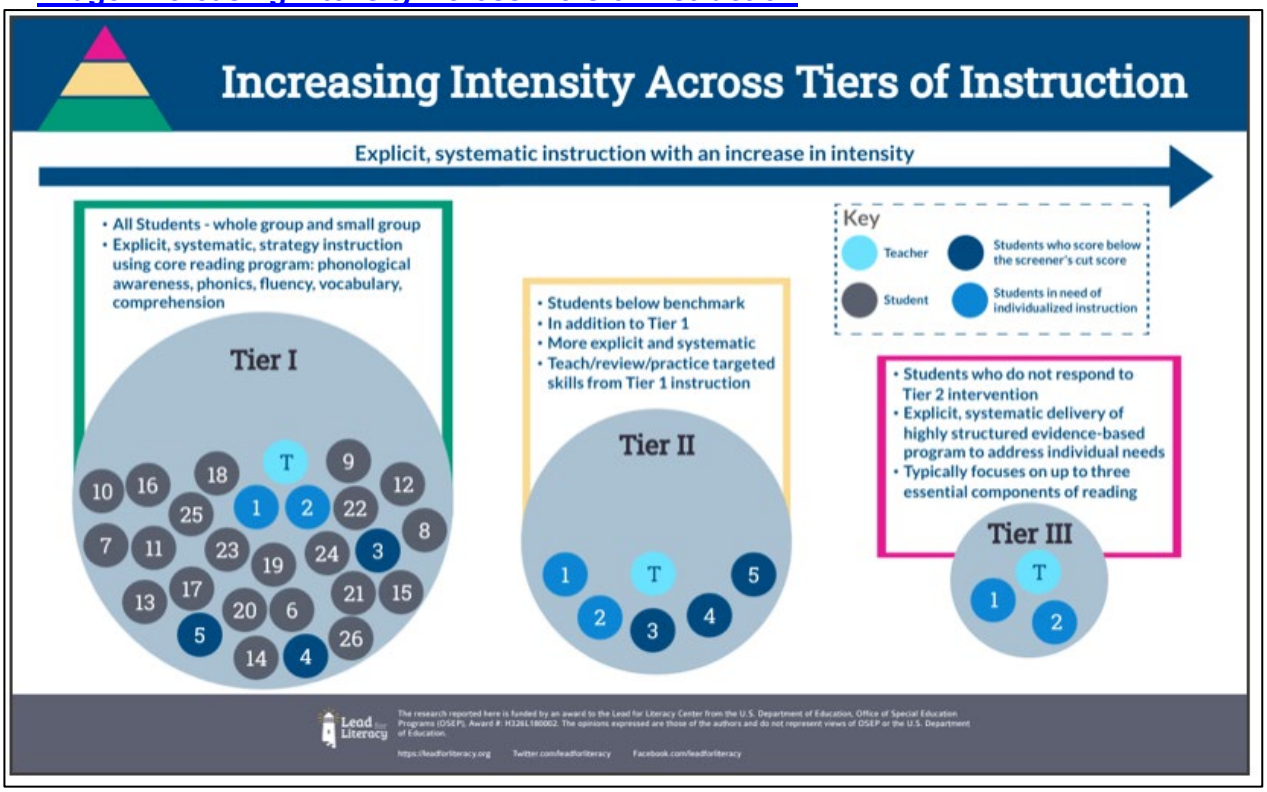
The intervention decision-making process is individualized based on student-level data. If a student's progress monitoring data indicates they are not making sufficient progress with the current intervention implemented with fidelity, then the intervention should be intensified. This process of increasing intensity across the tiers is demonstrated within the graphic titled "Increasing Intensity Across Tiers of Instruction."

If intensification is necessary, seven factors should be considered. These factors are referred to as the Dimensions of Intensification.

1. **Strength** - Evidence indicates the selected intervention is expected to lead to improved outcomes.
2. **Dosage** - The group size, duration, frequency, and structure of the intervention provides sufficient opportunities for progress.
3. **Alignment** - The intervention is based on the identified student need.
4. **Attention to Transfer** - The intervention assists the student in generalizing the learned skill to their core education or to other tasks.
5. **Comprehensiveness** - The intervention uses explicit instruction.
6. **Behavioral/Academic Support** - The student has opportunities to engage fully in the intervention.
7. **Individualization** - The intervention considers a data-based process (progress monitoring) to adjust as necessary according to the instructor's expertise.

Any one of these factors can intensify the intervention, and not all factors must be intensified at the same time. Consideration for initial and subsequent interventions should be based on the student's identified needs and progress monitoring.

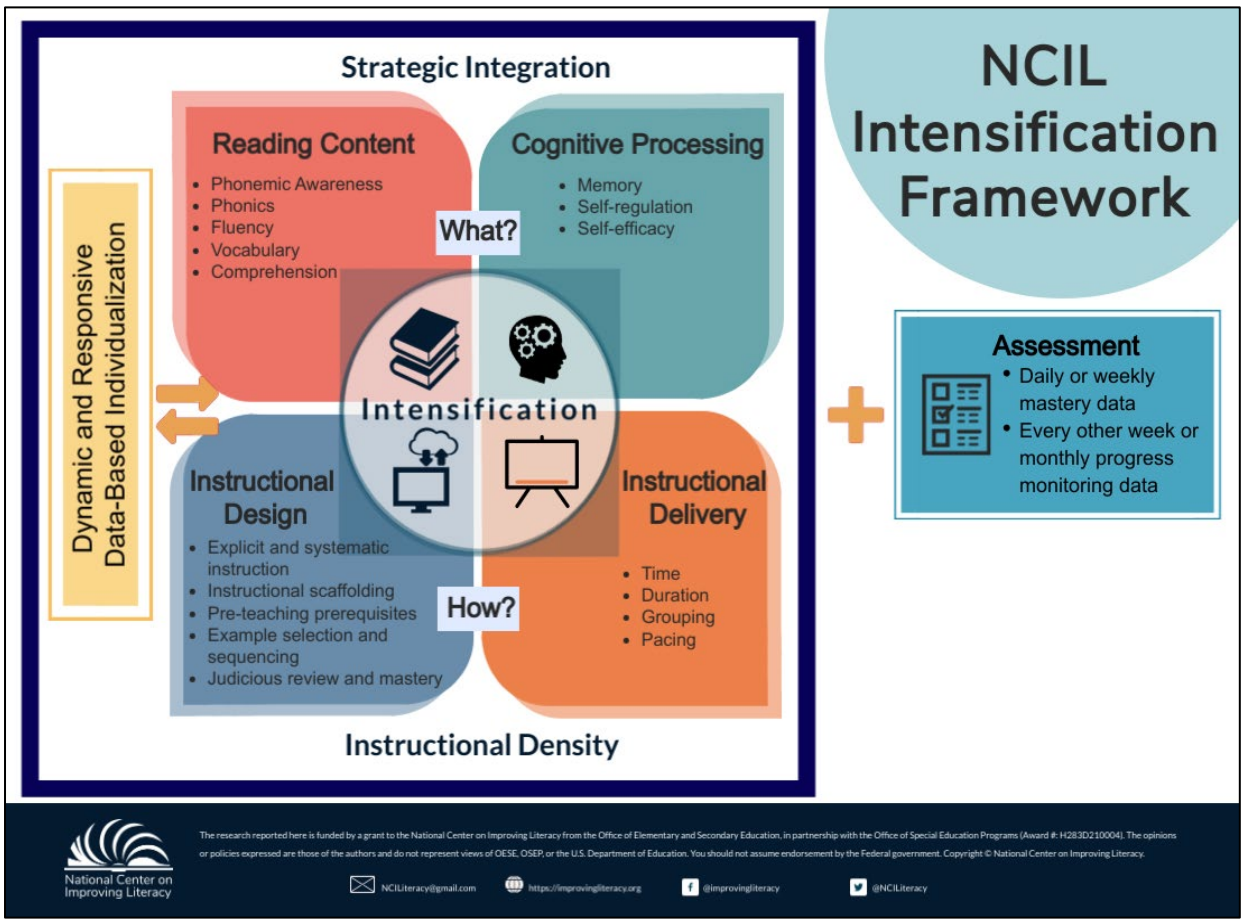
Image: Increasing Intensity Across Tiers of Instruction



The National Center on Improving Literacy (NCIL) has further conceptualized these Dimensions of Intensification in its Intensification Framework shown in the image titled "The NCIL Intensification Framework."

As you can see, NCIL recommends considering the Instructional Design (Strength, Attention to Transfer, and Comprehensiveness); Instructional Delivery (Dosage); Reading Content (Alignment); and Cognitive Processing (Behavioral/Academic Support). The NCIL Intensification Framework also explicitly acknowledges the importance of Assessment (Individualization) in instructional decision-making.

[Image: The NCIL Intensification Framework]



Discontinuing Intervention

School intervention teams often recommend that once students have reached an intervention goal, intervention should continue for the duration of at least three consecutive data points demonstrating a realistic or ambitious rate of improvement. These data points are used as evidence of mastery and sufficient skill to maintain progress with a reduction of intensity. Teams should consider slowly reducing intervention intensity for students receiving Tier 3 levels of support (e.g., moving from Tier 3 to Tier 2 rather than from Tier 3 to Tier 1). Following discontinuation (or reduction), progress should continue to be monitored regularly to ensure regression does not occur without the intervention in place. Application and generalization of the student's newly acquired skills should be evident across classroom settings.

	**Educators** The IRIS Center Peabody College Vanderbilt University RTI Module emphasizes the need to establish criteria students must meet at the end of an intervention before discontinuing the intervention. https://iris.peabody.vanderbilt.edu/module/rti04/cresource/q3/p08/

Key Takeaways

1. **What is the purpose of Response to Intervention (RtI) and Multi-Tiered Systems of Support (MTSS)?**
   a. To prevent the need for more intensive services and/or special education services through a process of early intervention, progress monitoring, and intensifying support.
2. **Should Universal Design for Learning (UDL) be implemented only for classrooms where there are students with dyslexia, dysgraphia, and dyscalculia?**
   a. No. UDL is a set of principles for curriculum development and instructional planning that gives all students equal opportunities to learn, and UDL should be implemented within the core instruction of all classrooms.
3. **When should interventions end?**
   a. School teams should consider reducing intervention intensity (e.g., moving from Tier 3 to Tier 2) once a student has reached an intervention goal and demonstrates sufficient skill to maintain progress with a reduction of intensity. It is generally recommended the intervention continue until a student has met their intervention goal and until the student has three consecutive progress monitoring data points at the same rate of improvement needed to reach their goal.

Dyslexia Unit

Chapter 3: Defining Dyslexia

"*Dyslexia is a different brain organization that needs different teaching methods. It is never the fault of the child, but rather the responsibility of us who teach to find methods that work for that child*."

– Maryanne Wolf, 2015

Knowledge Self-Check

1. Is dyslexia a general "catch all" term for all reading difficulties?
2. What are the differences between the types of dyslexia recognition (e.g., characteristics of dyslexia, identification of a specific learning disability, diagnosis)?

The Oklahoma State Department of Education defines "dyslexia" by the federal regulations within Specific Learning Disability and the International Dyslexia Association's definition of dyslexia.

Specific Learning Disability (SLD)

The Individuals with Disabilities Education Act (IDEA) defines a Specific Learning Disability, or (SLD), as a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

"SLD does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of intellectual disability, of emotional disturbance, or of environmental, cultural or economic disadvantage, or limited English Proficiency." (IDEA, 2004, 34 CFR 300.8).

Dyslexia Definition

Dyslexia is used to refer to a spectrum of reading skill deficits. It can result in relatively mild delays in learning to read, or it can result in a severe, persistent, pervasive pattern of reading skill deficits indicative of a specific learning disability. According to the International Dyslexia Association, dyslexia is a specific learning disability that is neurological in origin characterized by difficulties with accurate and/or fluent word recognition, poor spelling, and decoding abilities. These difficulties typically result from a deficit in the phonological component of language. This deficit is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede a growth of vocabulary and background knowledge. More information on primary and secondary characteristics is discussed in further chapters of this handbook.

Characteristics of Dyslexia

Characteristics of students with dyslexia directly parallel the definition of dyslexia. Students with dyslexia are likely to perform poorly on measures of phonological processing, decoding non-words, and developing an adequate pool of sight words.

According to research, the major cognitive correlations of dyslexia include weaknesses in one or more of the following abilities: phonological awareness, orthographic awareness, memory, rapid naming, and perceptual speed.

DYSLEXIA CHARACTERISTICS	CAUSES/CORRELATIONS

• Lack of response to interventions.
• Pre-reader difficulties.
  ○ Alphabet writing.
  ○ Phonics/letter knowledge.
  ○ Listening comprehension.
• Reader difficulties.
  ○ Word reading/decoding.
  ○ Reading fluency.
  ○ Spelling.
  ○ Written expression.
  ○ Reading comprehension.
	• Phonological processing.
	• Rapid automatic naming.
	• Auditory working memory.
	• Processing speed.
	• Long-term storage and retrieval.
	• Associative memory.
	• Orthographic processing.

RISK FACTORS	
• Family history. • Language impairment. • Poor receptive vocabulary.	

An accurate identification of dyslexia in preschool or kindergarten is more likely when these problems occur in students who have the following factors.

1. Strong abilities in other areas of language such as vocabulary.
2. Come from homes that provide a language and print-rich preschool environment.
3. A first or second-degree relative who experienced severe early reading difficulties.

However, phonological processing difficulties can also manifest for children who come to school with limited vocabularies and knowledge of print. Although the phonological weaknesses of these students most likely result from a lack of certain kinds of language experiences in the home, these weaknesses may also be the result of biologically-based, inherent phonological processing weaknesses.

Students with dyslexia may experience difficulty with any or all of the following subjects.

- Learning letter names and sounds.
- Phonological processing skills.
- Automaticity of reading.
- Decoding.
- Spelling and writing.
- Vocabulary.

Below are several common characteristics of a student with dyslexia that may be demonstrated in the different grades/grade spans. These common characteristics are not to be used as a checklist to determine if a student has dyslexia. However, those working with students either in the school or at home can use this table of characteristics to support their understanding of how dyslexia may manifest. Keep in mind these characteristics may not only be explained by dyslexia; it is possible a student who demonstrates some of these characteristics can be a student without dyslexia.

What Characteristics of Dyslexia Look Like By Age and Grade

PRESCHOOL

- History of ear infections.
- Speech-language delays.
  - Word retrieval.
  - Mispronunciations.
  - Vocabulary.
- Directionality.
  - Left/right.
  - Up/down.
  - Before/after.
- Pre-literacy skills.
  - Auditory memory for rhymes/chants.
  - Letters in name.
  - Rote information.
  - Remembering/following directions.
  - Recognizing/producing rhymes.

KINDERGARTEN - 1ST GRADE

- Difficulty.
  - Remembering names/shapes and/or sounds of letters.
  - Generating rhyming words.
  - Reading common, one-syllable, sight words.
  - With phonemic awareness tasks.
- Spelling errors reflecting difficulty with sound/symbol associations.
  - Reversals (*past→pats).*
  - Omissions (*trip→tip).*
  - Additions (*sip→slip).*
  - Substitutions (*rip→rib).*
  - Transpositions (*stop→pots).*
- Frustration in school and/or complains about reading.

2ND - 3RD GRADE

- Difficulty.
  - Acquiring new vocabulary or using age-appropriate grammar.
  - Putting ideas on paper.
  - Decoding single words in isolation.
  - Reading multisyllabic words and phonetically irregular words.
- Word retrieval difficulty in class discussions.
- Over-reliant on context to derive meaning from printed words.
- Confusing visually similar letters *(*e.g., *b/d, p/q, w/m, h/n,* and *f/t).*
- Confusing auditory similar letters *(*e.g., *d/t, b/p, f/v,* and *s/z).*
- Phonetically inconsistent spelling skills.
- Slower-paced/effortful reading; lacks inflection; tendencies to read through punctuation.

4TH - 12TH GRADE

- Significant difficulty reading and spelling multisyllabic words often omitting entire syllables as well as making single sound errors.
- Difficulties with reading comprehension and learning new information from the text due to underlying word recognition difficulties.
- Avoids reading aloud; poor fluency skills.
- Reports unusually long hours spent doing homework.

Recognizing Dyslexia

Educators and providers use several terms when referring to dyslexia. The chart below indicates how these terms are related to who can identify them, what services may be provided to the student, and the potential tools available for identification.

What	Who	Services	How
Risk for characteristics of dyslexia.	Certified educator.	General education and intervention supports.	OSDE-approved screening assessments.
Identification of a Specific Learning Disability (SLD) in reading (dyslexia).	Certified school psychometrist, certified school psychologist, or speech language pathologist (cannot administer an IQ assessment).	Special education services provided through an Individualized Education Program (IEP).	Comprehensive evaluation provided by a qualified examiner and aligned to the IDEA.
Diagnosis of dyslexia	Clinical/neurological psychologist or a speech language pathologist (cannot administer an IQ assessment).	Clinical and/or medical practice.	Comprehensive evaluation provided by a licensed examiner and aligned to the DSM-V.

For a more complete explanation, please see Chapter 13: Special Education Services.

In the chart above, ***risk*** and ***identification*** are terms used within the school setting. A student is not required to have an outside ***diagnosis*** for schools to use the term “dyslexia” (see #SayDyslexia in Schools), to provide intervention supports, or to evaluate for special education services. Additionally, schools do not have the capacity or obligation to “diagnose” dyslexia; rather, they will determine if the student meets key eligibility indicators to be identified as a student with a specific learning disability.

Outside the school setting, a parent may seek assessments from a Certified Academic Language Therapist (CALT), Certified Academic Language Practitioner (CALP), International Dyslexia Association- (IDA) certified dyslexia therapist (CERI), or Certified Dyslexia Therapist who has specialized training in dyslexia. These specialists may provide support for students with dyslexia, conduct informal diagnostic assessments, or provide targeted interventions. Parents should first seek assessments and services from within their child’s school. Assessments from outside providers, including the specialists mentioned in this paragraph, may not be sufficient for determining eligibility for an Individualized Education Program (IEP) or a Section 504 Plan.

Key Takeaways

1. **Is dyslexia a general "catch all" term for all reading difficulties?**
   a. Dyslexia is a specific term for a learning disability that is neurological in origin and is characterized by difficulties with accurate and/or fluent word recognition and poor spelling and decoding abilities.
2. **What are the differences between the types of dyslexia recognition (characteristics of dyslexia, diagnosis, and identification of a specific learning disability)?**
   a. Specific providers can assess for dyslexia in different contexts. Schools do not look to diagnose students, but schools can look for characteristics of dyslexia or key eligibility indicators for a specific learning disability (including dyslexia). A clinical provider can diagnose disabilities aligned to the DSM-V.

Chapter 4: Screening for Risk of Characteristics of Dyslexia

"*The longer screening is delayed, however, the more entrenched reading problems become and the more likely they are to have adverse effects on cognitive and language development.*"

– Natalie Rathvon, 2004

Knowledge Self-Check

1. Will students catch up with the rest of the class if they are given enough time to read?
2. Can students be identified with characteristics of dyslexia or be diagnosed with dyslexia before 3rd grade?
3. Is a single test available to determine if an individual has dyslexia?
4. Will students who are in 3rd grade, and who flag for characteristics of dyslexia, be retained?

"Implementing effective reading programs early, even in preschool and kindergarten, offers the potential to reduce and perhaps even close the achievement gap between dyslexic and typical readers and bring their trajectories closer over time."

– Ferrer, et al., Achievement Gap in Reading Is Present as Early as First Grade and Persists through Adolescence, 2015

Research supports the need for early identification and assessment (Birsh, 2018; Nevills & Wolfe, 2009). The rapid growth of the brain and its responsiveness to instruction in the primary years make the time from birth to age eight a critical period for literacy development (Nevills & Wolfe, 2009). Additionally, because characteristics associated with reading difficulties are connected to spoken language, young children can be screened in the areas of phonemic awareness and phonological skills (Sousa, 2005). Read on for more information regarding early screening for reading difficulties and for characteristics of dyslexia within Oklahoma.

Universal Screening

Early identification of students at risk for reading difficulties is critical in developing an appropriate instructional plan. "The best solution to the problem of reading failure is to allocate resources for early identification and prevention," (Torgesen, 2014). The early identification of students with dyslexia, along with the development of corresponding early intervention programs, will have significant implications for future academic success. The book *Straight Talk about Reading* states the following.

- Early identification is critical, because the earlier the intervention, the easier it is to remediate.
- Inexpensive screening measures identify at-risk children in mid-kindergarten with 85% accuracy.
- If intervention is not provided before the age of eight, the probability of reading difficulties continuing into high school is 75% (Hall & Moats, 1999; pg. 279–280).

Universal screeners are brief measures administered to all students that are evidence-based, valid, and reliable. Screening assessments are designed to identify students in need of additional reading instruction beyond that provided to typically-developing readers. Screening for reading informs the appropriate type of instruction by providing teachers with individualized information about a student's mastery of basic foundational skills in reading.

Reading Sufficiency Act (RSA)

In Oklahoma, it is legislated under the Reading Sufficiency Act (RSA) that all kindergarten through 3rd grade students must be screened for reading difficulties using a State Board of Education-approved screening instrument. Screening assessments on reading measure components of language including phonemic awareness, phonics, fluency, vocabulary, and reading comprehension to determine each student's risk for reading difficulty. These assessments are usually administered by the student's classroom teacher. The purpose of the RSA [noted in 70 O.S. § 1210.508B(B), p. 1038] is, "to ensure that each child attains the necessary reading skills by completion of the third grade which will enable that student to continue development of reading skills and to succeed throughout school and life." RSA follows a Multi-Tiered Systems of Support (MTSS) framework to address the needs of all learners. Within this framework, all students are universally screened for reading difficulties three times a year (beginning, middle, and end) to identify students who may need additional support and intervention.

Parents or guardians of students who demonstrate a risk of reading difficulty on a screening assessment are required to be notified in writing of that risk by the district. Then, students who demonstrate a risk for reading difficulties are provided an Individualized Program of Reading Instruction (IPRI) to define the additional support and intervention services the student will be provided and to define how the student's progress will be measured and monitored. For more detailed information about RSA, please visit www.sde.ok.gov/reading-sufficiency.

Retention is a discussion between parents and schools. Under the RSA, additional requirements must be considered for a student's promotion or retention decisions to 4th grade.

For more information on the four pathways of promotion to 4th grade, see the "RSA Quick Guide for Educators" document on the RSA website and the Decision Tree for Promotion and Retention Decisions.

In any grade, the teacher(s) may recommend retention for a student based on a variety of factors. *In any grade other than 3rd*, parents have the right to appeal this decision through the district's appeal process. The school board decision will be final, but parents/guardians can provide a written response of their disagreement to be placed in the student's permanent record (70 O.S § 24-114.1, p. 794). If a student is retained, the school should clearly outline any changes to the student's instruction and ensure that repeating the grade will be used to close gaps in the student's deficits.

Screening for Characteristics of Dyslexia

In addition to receiving interventions and supports under an Individualized Program of Reading Instruction (IPRI), any kindergarten through 3rd grade student who did not meet the beginning of year (or middle of year for kindergarten) grade-level target equivalent to the 40th percentile on the universal screening measure for reading must also receive additional screening for the characteristics of dyslexia. If the additional screening measure indicates the student is at risk for characteristics of dyslexia, the IPRI will be written or revised to ensure it addresses the student's specific reading deficits. All interventions should directly match each student's identified skill needs (e.g., phonemic awareness in sound substitutions).

For more information on screening for characteristics of dyslexia, please refer to the OSDE's Implementation Guidance on the RSA website.

Screening for Risk of Characteristics vs. Identification of SLD

As mentioned above, Oklahoma legislation requires all kindergarten through 3rd grade students be screened for reading difficulties at the beginning, middle, and end of the year. For students not meeting the beginning of year benchmarks, an additional screening for risk of dyslexia characteristics is administered. It is important to note that students who are flagged as "at-risk" for characteristics of dyslexia are not automatically believed to have dyslexia. Rather, the additional assessment data should be used to refine interventions matched to the student's needs, and the student's progress should be monitored.

Some students may need more than these additional targeted supports, however. The school or parent may determine a comprehensive evaluation to determine special education eligibility is necessary in order to meet the student's needs. Not all students who have a risk for characteristics of dyslexia will need a comprehensive evaluation. A comprehensive evaluation will follow the process of special education eligibility as described in Chapter 13: Special Education Services of this handbook.

Students who are identified as "at risk" or "eligible for special education" will receive support based on their specific deficits, either through an Individualized Program of Reading Instruction (IPRI) and/or an Individualized Education Program (IEP).

An IPRI documents a student's deficits and the specific target areas a student will work on to address their identified reading deficits. An IEP is a similar document that is under the IDEA requirements for providing specialized instruction necessary to ensure access to FAPE (Free Appropriate Public Education). This IEP is a required component when a student has met eligibility requirements for a disability. A student can have both an IEP and an IPRI; however, these documents must work in tandem with each other as a coordinated and aligned effort of support.

Screening in Multi-Tiered Systems of Support (MTSS)

As mentioned in Chapter 2: Introduction to Instructional Systems, screening serves as the foundation to Multi-Tiered Systems of Support (MTSS). Screening measures are the initial source of data indicating a student may be at risk for learning difficulties.

Once a screening measure has identified that a student may be at risk for reading difficulties, some additional assessments, known as "diagnostics," may be needed to identify specific skill deficits targeted for intervention. For instance, a screening measure may indicate a student is performing below grade level in the reading component area of phonics. Using additional assessments, or diagnostics, can indicate the highest phonics skill level a student has mastered and where their instruction should focus (e.g., vowel-consonant-'e' spelling patterns). Screening and follow-up assessment data provide the basis for instructional and intervention decision making, and this data serves as a baseline by which to measure student growth and progress.

Diagnostic assessments may be used to evaluate learning in the following areas.

- Alphabet (oral and written sequencing).
- Decoding skills.
- Phonological awareness.
  - Rhyming.
    - Recognizing rhyming words.
    - Recognizing words that do not rhyme.
    - Producing words that rhyme.
  - Segmentation.
    - Segmenting words into syllables and counting syllables.
    - Segmenting sounds.
  - Sound manipulation.
    - Isolating beginning and ending sounds.
    - Sound deletion.
    - Sound substitution.
  - Phonological memory.
    - Digit memory.
    - Word memory.
- Encoding skills (spelling).
- Rapid Naming.
- Oral reading fluency.

Educators
Informal diagnostics aid educators in identifying students' specific skill deficits to plan, modify, and/or differentiate instruction and intervention. Examples of FREE diagnostic tools include the following.

- Really Great Reading.
- The Phonological Awareness Screening Test (PAST).
- Core Literacy Library's Assessing Reading Plan.
- The Cubed.

Screening Students in 4th Grade and Beyond

While dyslexia can be identified in 4th grade and beyond, current screening tools measure deficits in word recognition skills that are apparent in earlier grades. Thus, vendors of screening tools do not have a large enough sample size of students in 4th grade and above to validate the effectiveness of their tools in identifying older students at risk. Students who are in 4th grade and beyond, who use a screening tool designed for a grade level or age range that does not match their current placement, will receive inaccurate and invalid results.

It is the current position of the Oklahoma State Department of Education that students who are demonstrating a reading difficulty in 4th grade or beyond should be assessed with a diagnostic assessment (e.g., phonics survey, spelling inventory, etc.) to determine their specific word recognition deficits and to provide appropriately matched interventions, and/or the school should consider a comprehensive evaluation for a specific learning disability.

Dyslexia Checklist for Teachers

Dyslexia Checklists for Teachers are available for elementary and middle school/high school educators and can be found in the Appendix of this handbook.

Dyslexia Checklists for Teachers are not required for use by the Oklahoma State Department of Education (OSDE), but they can provide additional informal data collection. When a teacher reviews this checklist with a student in mind, they may identify needs for students previously overlooked, because those students do not present behavioral challenges or they can verbally compensate for their deficit. Teacher observations provided through structured questioning within the checklist are critical for student identification along with the Family Checklist.

Key Takeaways

1. **Will students catch up with the rest of the class if they are given enough time to read?**
   a. Strong evidence exists to support the hypothesis that a reading disability is the result of a deficit, rather than a developmental lag (Francis, et.al, 1996). However, with early intervention, students who are indicated as having characteristics of dyslexia can show growth in their reading proficiency. Students with characteristics of dyslexia need explicit, targeted intervention to support this growth.
2. **Can students be identified with characteristics of dyslexia or diagnosed with dyslexia before 3rd grade?**
   a. Yes, students prior to 3rd grade can be identified with characteristics of dyslexia through the OSDE dyslexia screener available for K-3 students. Students can be diagnosed with dyslexia from a clinical or neurological provider using the DSM-V diagnostic considerations. For more information on the different methods of dyslexia recognition, see Chapter 3 of this handbook.
3. **Is a single test available to determine if an individual has dyslexia?**
   a. There is no single test for dyslexia. The dyslexia screener available to K-3 students combines a variety of assessments to determine if a student is at risk for characteristics of dyslexia. Additionally, when a student receives a comprehensive

evaluation to determine if they would qualify for special education, some components are required that consist of multiple assessments to identify if the student has key eligibility indicators. Chapter 4 discusses the screeners available for K-3 students, and Chapter 13 identifies the components for a special education evaluation.

4. **Will students who are in 3rd grade who flag for characteristics of dyslexia be retained?**
   a. Retention is a discussion between parents and schools with the exception of the 3rd grade Reading Sufficiency Act (RSA). RSA has a particular list of requirements for promoting students to the 4th grade. If a student does not meet one of these four pathways for retention, the student must be retained in the 3rd grade. For more detailed information about RSA, please visit www.sde.ok.gov/reading-sufficiency.

Chapter 5: Effective Core Reading Instruction

"*High-quality instruction is the key to ensuring that all children learn to read and write. Moreover, researchers have noted the important and positive impact that a knowledgeable teacher can make on a child's literacy acquisition, particularly for children who struggle to acquire basic literacy skills*."

– Joshi, Washburn & Kahn-Horwitz, 2016

Knowledge Self-Check

1. Will children naturally outgrow dyslexia?
2. Are the most prominent signs of dyslexia writing letters and words backwards or flipped?
3. Is dyslexia a visual problem that vision therapy and/or colored overlays will help to correct?
4. If a child is having books read to them at night, will they be a good reader?
5. Does lack of phonics instruction cause dyslexia?

Defining the Science of Reading

"*Teaching reading is rocket science*."

– Louisa Moats, 1999

The term "science of reading" has been used frequently and sometimes incorrectly. Below are some of things to be aware of about the science of reading.

- It is NOT instruction that focuses only on phonics. Research on the science of reading also addresses the need to gain knowledge, develop vocabulary, and read for meaning.
- It is NOT a specific instructional program or curriculum that is taught with fidelity. The science of reading is research informing teachers how to best use curricular resources to meet the needs of students.
- This is NOT a one-size-fits-all approach where each child does exactly the same thing. While research shows that all students acquire reading skills in the same manner, teachers often need to adjust their curriculum to allow for additional practice or instruction based on the needs of each student.
- The science of reading is NOT research only addressing the early grades in school. The research informing the science of reading extends from birth to adult literacy.

The science of reading refers to a comprehensive body of scientifically-based research built on the convergence of a number of studies from a variety of disciplines, including education, linguistics, neuroscience, psychology, reading/literacy, and more. This research, conducted over the past five decades and across many languages, informs evidence-based practices in reading, writing, and language instruction.

As a result of this research, educators have a deeper understanding of how students learn to read, what skills are involved, how the skills work together, and which parts of the brain are responsible for reading development. Evidence-based practices used as a result of this

research can improve student outcomes through the prevention of, and intervention for, reading difficulties.

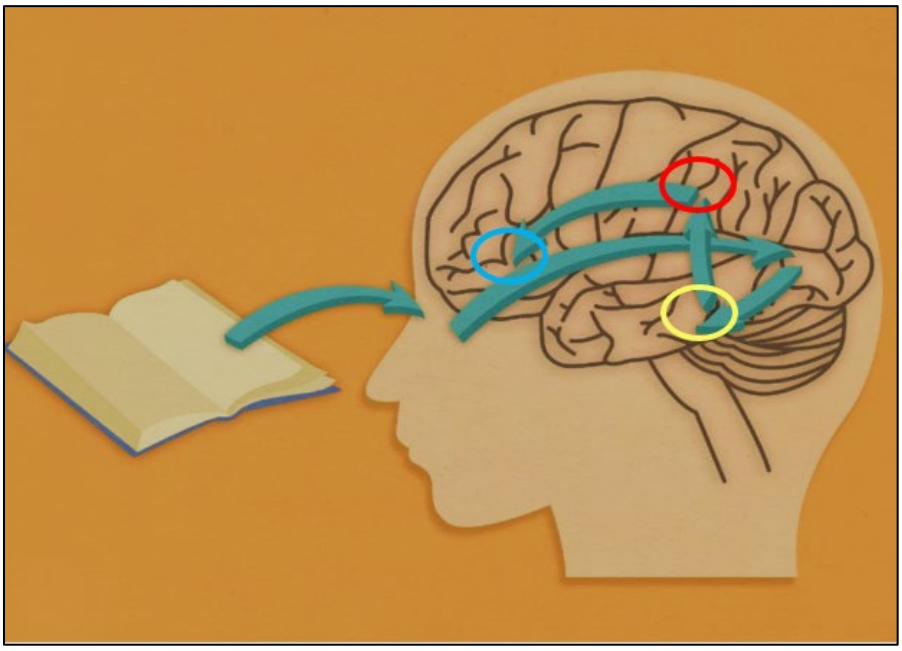
	**Educators** All instruction outlined in this chapter should occur within an accessible environment using Universal Design for Learning (UDL). For more information on the structure of UDL, see Chapter 2: Introduction to Instructional Systems.
	For practical implementation and instructional support on UDL in the English Language Arts (ELA) classroom, please see the OSDE Framework *Universal Design for Learning In English Language Arts*.

The Reading Brain

It is well established that while oral language comes naturally to people, reading and writing do not. The human brain is not naturally designed to read. Reading must be taught. In order to read, the brain re-purposed certain functions that were developed for other needs over thousands of years ago and adapted them for reading.

As a result of technology now available, researchers can identify how the brain processes speech and print in order to read. Through functional magnetic resonance imaging (fMRI), researchers have mapped the neural pathways involved in reading for typically-developing readers. Researchers also identified differences in these neural pathways for those who struggle with reading.

Image: Neural Pathways in Reading



Yellow = Left Fusiform Gyrus (visual word form area or VWFA) processes the shape of letters/words and is essential for reading. The VWFA does not work properly for people with dyslexia.

Red = Planum Temporale (Wernicke's Area) connects the letter shapes with their sounds among other things. Wernicke's Area also does not work properly for people with dyslexia.

Blue = Broca's Area. Processes language information and is involved with speech production. This area works well for people with dyslexia, but it does the processing that Wernicke's Area and the VWFA do not do. And Broca's Area is not developed to do that processing. The end result is the required processing Wernicke's Area and the VWFA does is not done, resulting in difficulties learning to read.

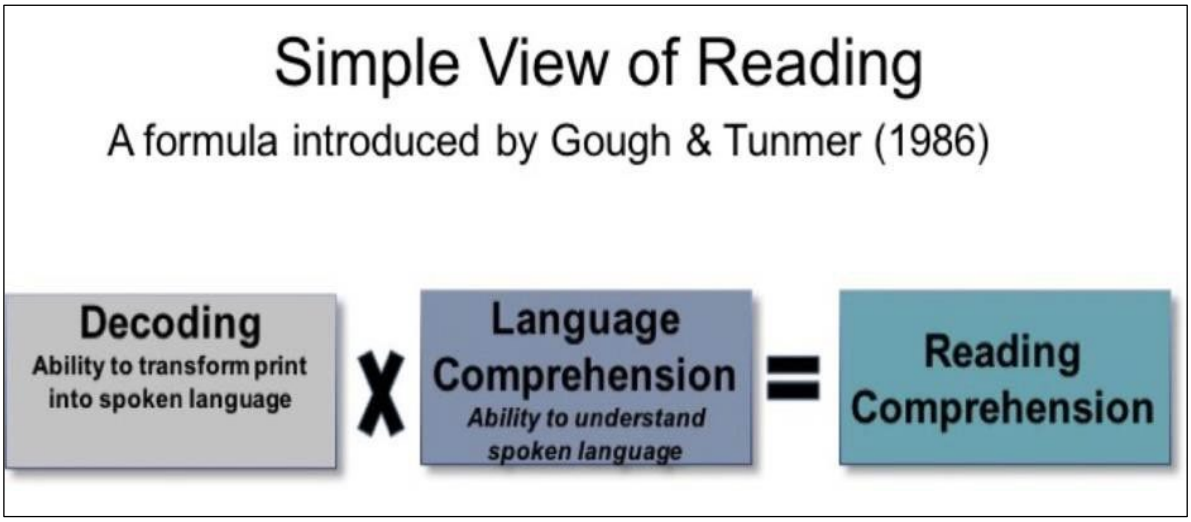
★	**Important** Check out a video that further describes how the brain learns to read! *How the Brain Learns to Read* - Professor Stanislas Dehaene

How Do We Learn to Read Using the Simple View of Reading?

"*We human beings were never born to read; we invented reading and then had to teach it to every new generation. Each new reader comes to reading with a 'fresh' brain - one that is programmed to speak, see, and think, but not to read.*"

– Wolf, 2007

Image: Formula for Simple View of Reading



Gough and Tunmer, (1986) and Hoover and Gough, (1990) described reading as the product of decoding and language comprehension. They add that these components work together in a delicate, interdependent balance, and when there is a disconnect between these components, reading failure can occur. The formula shown above is referred to as the **Simple View of Reading**.

Decoding is a student's ability to sound out words phonetically. As students become proficient decoders, they move to automatic word recognition. Comprehension skills begin with listening comprehension tasks. As students gain the ability to access text, they move toward the ultimate goal of reading, comprehension, or the ability to read and obtain meaning from text.

Both decoding and language comprehension are essential components and equally important for reading comprehension, as demonstrated through the formula in the diagram above. In the table below, grade-appropriate skill is shown with a value of 1, while difficulty with that skill is shown with a value of 0. When something is multiplied by zero, the product is also zero. In this same manner, if a student lacks either decoding or language comprehension, then the student will not have success with reading comprehension.

Skill and Difficulty Calculations

Word Recognition		Language Comprehension		Reading Comprehension
1	X	1	=	1
0	X	1	=	0
1	X	0	=	0

For additional information about the **Simple View of Reading**, visit this article on the Reading Rockets website.

Components of Effective Instruction Using the Reading Rope

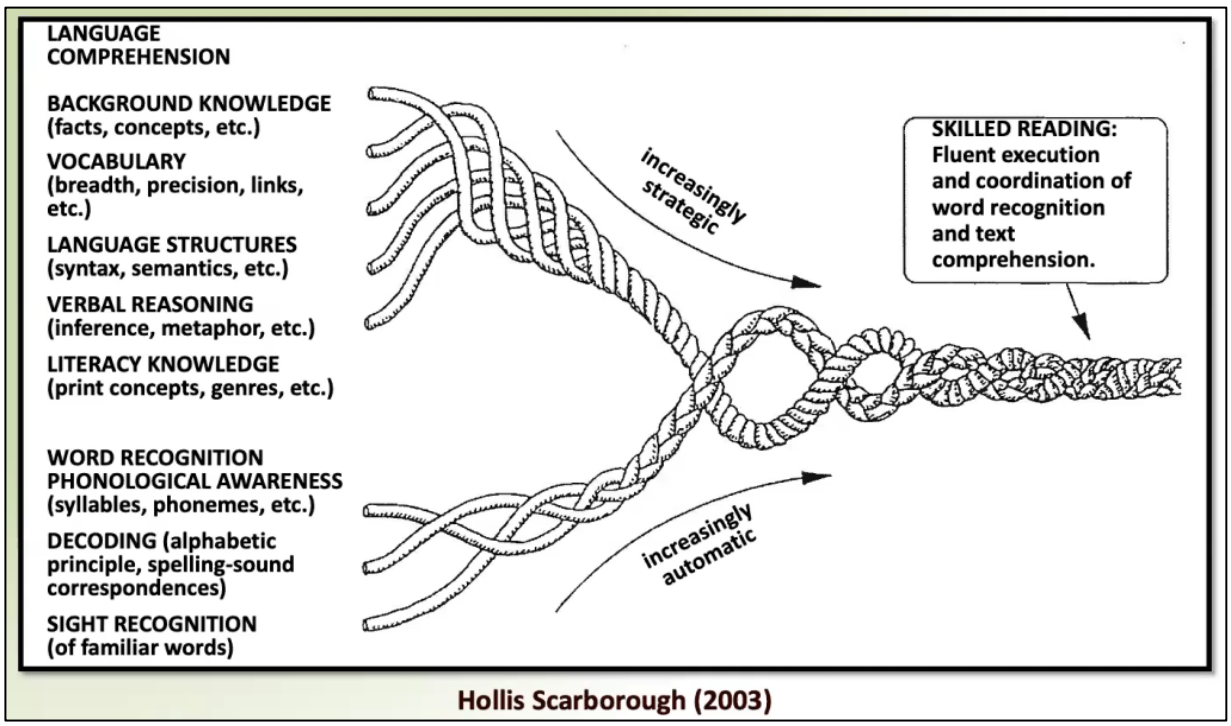
Dr. Hollis Scarborough, a leading researcher in literacy, expands the **Simple View of Reading** and shares that fact of reading being a multifaceted skill gradually acquired through years of instruction and practice. Dr. Scarborough (2001) compares skilled reading to the many strands of a rope. **Scarborough's Reading Rope** illustrates how the strands of many skills, required to comprehend texts, are intertwined and how those skills become more complex. Each strand represents a separate skill that, when combined with the others, creates a strong, proficient reader. When any one strand (skill) is not acquired with fluency, it weakens the strength of the rope. The rope model includes two major categories: language comprehension and word recognition.

Language comprehension skills become increasingly more strategic over time, while word recognition skills become increasingly more automatic. These skills enable a student to fluently read connected text and to coordinate word recognition and text comprehension.

Dyslexia impacts a student's learning in all strands of the Reading Rope. The Lower Strand and dyslexia are more interwoven due to the core deficit areas of dyslexia. The Upper Strands are often secondary impacts from dyslexia.

	Parents & Families and **Educators** The Simple View of Reading https://www.readingrockets.org/article/simple-view-reading

Image: Scarborough's Reading Rope with Oklahoma Academic Standards for English Language Arts



Word Recognition: The Lower Components of The Reading Rope

Dyslexia is a reading deficit that impacts a student's ability to engage with the Word Recognition strands of Scarborough's Reading Rope. While all children benefit from explicit, systematic instruction in phonological awareness, decoding, and sight recognition, children with dyslexia require more instruction, repetition, and strategic practice.

Lower Strand: Decoding

Decoding is the process of using sound-letter correspondences to sound out words. Interestingly, 84% of words in the English language can be decoded using phonics or word analysis (Hanna, Hanna, Hodges, and Rudorf, 1966). Phonics is a systematic process for teaching sound-symbol relationships and their use in reading and spelling words. Systematic, explicit, and cumulative decoding instruction is critical for students with dyslexia and helpful for beginning readers.

Effective reading instruction must include the evidenced-based practice of explicit phonics instruction. This means instruction should progress from simple to more difficult tasks while employing the "I do, we do, you do," model (explicit instruction through the gradual release of

responsibility) (Pearson & Gallagher, 1983; Webb et al., 2019). Daily phonics and word study lessons should include repetitive, consistent procedures and cumulative instruction with individualized feedback in all environments that teach decoding. Students need access to decodable texts in order to manipulate and apply the learned skill in context

Phonics instruction should include a scope and sequence that is systematic and cumulative, meaning that skills build from simple to more complex concepts in a logical manner with reviews built into lessons. The Oklahoma Academic Standards (OAS) for English Language Arts (ELA) includes a suggested sequence for decoding and encoding for kindergarten through 3rd grade in Standard 2: PWS and SE. Standard 2 is Phonics and Word Study (PWS) and Spelling/Encoding (SE) beginning with consonants and short vowels and moving through more advanced phonics such as syllables. See the vertical alignment here.

Phonics and word study instruction should include explicit teaching in understanding and recognizing the six syllable types found in the English language to ensure that students can decode advanced multisyllabic words frequently found in text, especially content areas.

Parents & Families
and
Educators
More information on teaching multisyllabic words:
https://www.texasgateway.org/resource/six-syllable-types-and-morphology
and
https://www.readingrockets.org/article/six-syllable-types

The 44 sounds (phonemes) of the English language:
http://elaokframework.pbworks.com/w/page/147965988/44%20Phonemes

Teaching phonics:
https://www.readingrockets.org/teaching/reading101-course/modules/phonics-introduction

Lower Strand: Phonological Awareness

"*Phonemic awareness is crucial to reading, and the other skills of phonological awareness are the foundation for phonemic awareness. Research supports instruction in phonological awareness for a minimum of 10-15 minutes per day. This instruction can be delivered in 5 minute segments in order to keep students engaged*."

– Phillips, Menchetti, & Lonigan, 2008

Phonological Awareness is the overarching term referring to the ability to attend to, discriminate, remember, and manipulate oral language units at the word, syllable, and phoneme (sound) level. Phonemic awareness is the ability to recognize and manipulate individual sounds.

Best practice within research recommends 10-15 minutes of instruction per day in phonemic awareness skills. This instruction will likely be provided as part of core instruction in

kindergarten through grade 2. Even pre-kindergartners can engage in phonemic awareness instruction through guided activities including concept of a spoken word, rhyming, and eventually phoneme blending and segmentation. However, this instruction will continue to benefit students in later grades who have specific skill deficits in phonemic awareness through intervention.

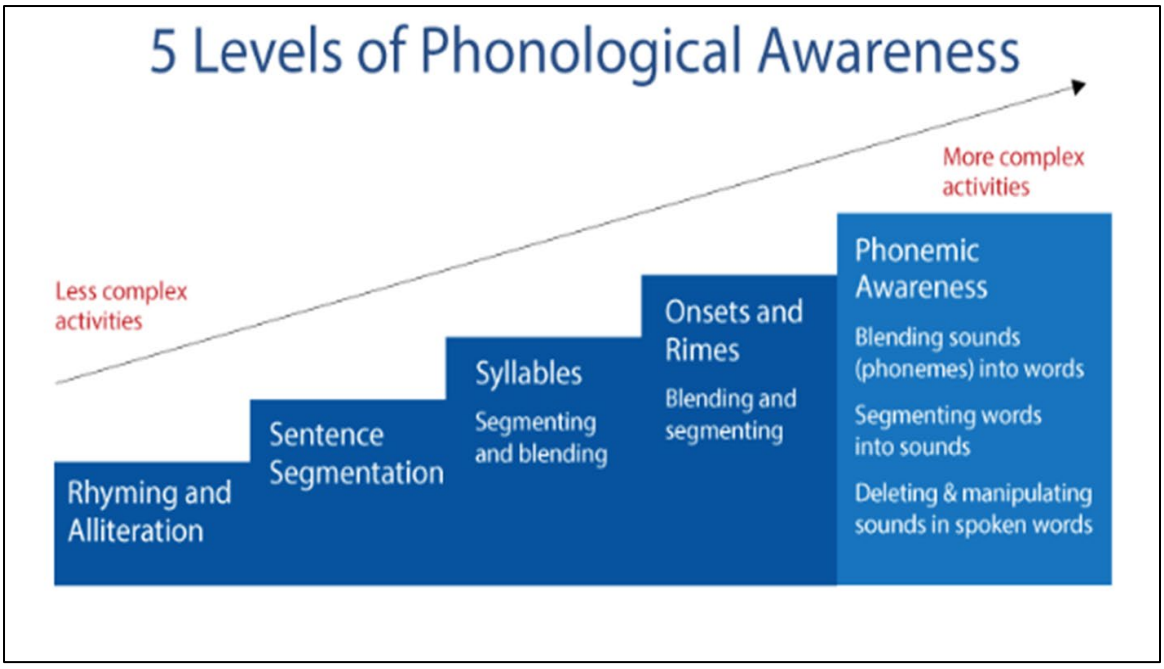
A progression of phonological awareness skills leads to phonemic awareness (PA), a critical skill for beginning readers and often an area of weakness for students with dyslexia, including older students. Familiarity with the progression of phonological awareness is necessary to plan instruction for students who are dyslexic or who need intervention due to underdeveloped skills. Older students, even adults, can have skill deficits in phonemic awareness that can be remediated through intervention.

"*There is no age where a student is 'too old' for phoneme awareness training—if the skills have not been mastered, the student should get training*."

– Kilpatrick, 2016

The diagram below demonstrates the 5 Levels of Phonological Awareness and related tasks.

Image: Five Levels of Phonological Awareness Diagram



	Parents & Families and **Educators** More extensive practice examples including phonemic awareness standards for Oklahoma students can be found in the ELA OK Frameworks Homepage for prek to 3rd grade in Standard 2: Foundations, Phonological Awareness:

	http://elaokframework.pbworks.com/w/page/114061501/Introduction%20to%20the%20ELAOK%20Framework More information on phonological awareness: https://www.readingrockets.org/teaching/reading101-course/modules/phonological-and-phonemic-awareness-introduction

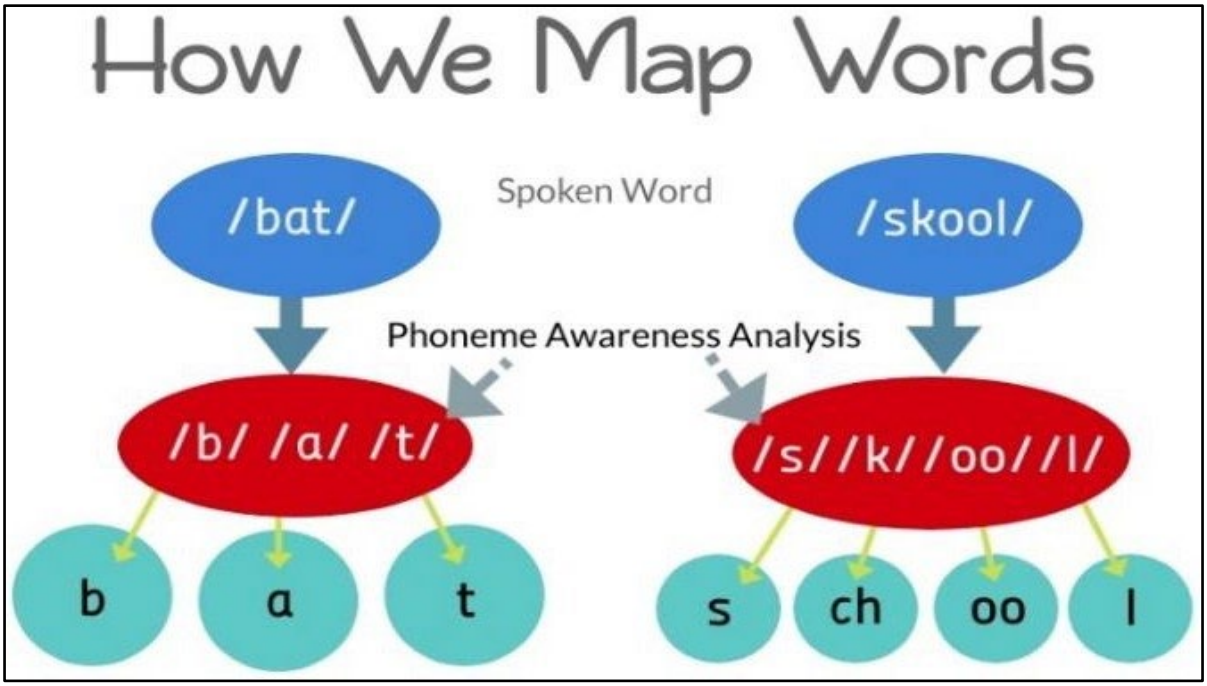
Lower Strand: Sight Recognition

"*Some people limit the term sight word to refer only to high-frequency words or to irregularly spelled words. However, this is not accurate.* ***Any word that is read sufficiently often becomes a sight word that is read from memory****. Another misconception is to consider sight word reading as a strategy for reading words. However, being strategic involves choosing procedures to optimize outcomes. Readers are strategic when they figure out unknown words by decoding, analogizing, or predicting*."

– Ehri, 2005

Orthographic mapping is the mental process of forming letter-sound connections to combine and recall the spelling, pronunciation, and meaning of words. It involves the critical process by which children are able to learn to read words at a glance, spell a word aloud from memory, and develop vocabulary knowledge. This cannot occur until a child has basic phonemic awareness and alphabet knowledge.

Image: How We Map Words Diagram



In this context, sight words are words you can recall automatically. This differs from high frequency words, which are found commonly in text, and irregular words which include one or more irregular sound/symbol correspondences.

A student must have strong phonological awareness/ analysis skills to efficiently build their sight recognition with orthographic mapping. For a student to be successful at orthographic mapping, they must have a solid foundation in the following skills: automatic letter-sound associations, highly proficient phoneme awareness, and word study. (Kilpatrick, 2016).

	**Parents & Families** and **Educators** More information about high frequency words and how you can support your student/child: https://www.readingrockets.org/article/new-model-teaching-high-frequency-words https://www.readingrockets.org/teaching/reading-basics/sight-words-and-orthographic-mapping

Language Comprehension: The Upper Components of The Reading Rope

Language comprehension is an overarching term to describe the ability to derive meaning from written and oral language. In order for students to be successful at this skill, they will need the ability to identify or decode words and understand the meaning of what they are reading. The components of language comprehension are represented on the upper strand of the reading rope.

Although students with dyslexia struggle primarily at the word recognition level, they are often successful with language comprehension. However, when language-learning activities require written responses, students with dyslexia may need to utilize classroom accommodations as they often struggle to get their thoughts on paper. It is also vital that students who are still mastering decoding skills be exposed to complex text to develop language comprehension. Simply put, students with dyslexia may have difficulty engaging in text that is at their independent level for comprehension because of their struggles with word recognition. The information provided below is important to note as students with dyslexia may have higher proficiency in these skills, or students may need direct support with one or more of these language components.

Upper Strand: Vocabulary

Vocabulary is the knowledge of word meanings including morphology and semantics.

Morphology is the study of words, how they are formed, and their relationship to other words in the same language. Comprehensive morphology work includes the study of base words, common roots, prefixes, and suffixes, along with the derivations of Latin and Greek roots.

Semantics is the aspect of linguistics and logic concerned with meaning. Semantics differs from vocabulary, because it extends beyond the individual meaning of words. Semantics

requires knowledge of vocabulary (a word's meaning, and perhaps its synonyms and antonyms) as well as syntax.

Effective reading instruction includes vocabulary instruction, which can include work with morphology and semantics. Because, "About 80% of all words have one or more affixes—prefixes or suffixes," (Cunningham, 1998), morphology work is essential to vocabulary instruction. Vocabulary, or knowledge of word meanings, plays a key role in reading comprehension. Research supports explicit, systematic teaching of word meanings through both direct and indirect methods of instruction. Repeated exposure to vocabulary is the most effective means of accomplishing learning. The National Reading Panel Report (2000) outlines a variety of vocabulary teaching practices or strategies.

"*Evidence that morphological instruction brings benefits to younger students and that this instruction brings special benefits to less able students could have important practical implications. With a foundation of morphological knowledge gained with the support of instruction from the start, it is possible many students who fail in response to typical instruction could achieve much stronger success*."

– Bowers, Kirby, & Deacon, 2010

Students acquire vocabulary knowledge best when a variety of engaging methods are used, including but not limited to being read to (including audio books), reading, direct instruction, and student-centered activities. The following list is vocabulary guidelines for instruction as defined by Birsh (2018).

- Provide rich and varied language experiences.
- Teach individual words.
- Teach word-learning strategies.
- Foster word consciousness.
- Use explicit instruction.
- Apply cognitive and metacognitive strategies.
- Incorporate questioning approaches.
- Use collaborative engagement involving verbal interactions.
- Provide many opportunities for practice with teacher feedback.

	**Parents & Families** and **Educators** The Oklahoma Academic Standards for ELA Standard 4: Vocabulary includes objectives related to acquiring new vocabulary and understanding word parts and relationships. Guidance on choosing appropriate words for instruction: http://elaokframework.pbworks.com/w/page/147965790/Vocabulary%20Tiers Information on vocabulary instruction:

	https://www.readingrockets.org/teaching/reading101-course/modules/vocabulary-introduction and https://www.readingrockets.org/teaching/reading101-course/modules/vocabulary/vocabulary-practice#:~:text=Using%20word%20parts%20(morphology)

Upper Strand: Background Knowledge

Providing students ample opportunity to activate or build background knowledge prior to listening or reading comprehension tasks will support all readers. It has been shown a student's knowledge about a topic has a direct effect on their ability to comprehend a text. The types of background knowledge are listed here.

- General world knowledge/cultural knowledge.
- Specific topical knowledge (directly related to the text).
- Background knowledge and prior life experiences.
- Knowledge of text structure.
- Vocabulary knowledge.

Upper Strand: Language Structures

Language structures consist of discourse and syntax. Discourse can be defined as spoken or written language with a unified purpose and meaning. It is the organizational conventions in longer segments of oral or written language. Syntax is the set of principles that dictate how words are ordered and combined to form phrases, clauses, or sentences. This includes grammar, sentence variation, and the mechanics of language.

Understanding the components of language structures is vital for both teachers and students, because proficient readers must process the meaning of sentences quickly in order to comprehend text successfully. This understanding of language structures is also important for effective writing, because a writer must manage a meaningful relationship between word order, sentences, and organizational conventions. (Moats, 2020, pg. 182).

Components of Syntax

- Parts of speech.
- Rules for correct word order (e.g., active/passive voice).
- Sentence types (e.g., declarative, interrogative, exclamatory, and imperative).
- Sentence constructions (e.g., simple, compound, complex, and compound/complex).
- Sentence length.

Upper Strand: Literacy Knowledge

Readers need to have knowledge of how printed text works, including familiarity with concepts about printed text, such as reading from left to right and top to bottom, etc. Literacy knowledge also includes an understanding of different genres, text structures and features, and the parts of books.

Examples of Text Features

- Graphics and captions.
- The table of contents, appendix, and glossary.
- Headings and subheadings.

Upper Strand: Verbal Reasoning

Readers need the ability to make inferences and construct meaning from the text. That is, they need the ability to *think* logically about what they read if they are to understand it and its implications. Other indicators of verbal reasoning skills are understanding figurative language such as metaphors, words with multiple meanings, and inferences. This also extends to the combination of all the pieces of language comprehension. Students need to use their background knowledge, literacy knowledge, and vocabulary to think critically about the purpose of the text. Students need access to quality literature, in order to practice these skills; this access can be accommodated through read-aloud or audiobook accommodations.

Where Does Fluency Fit?

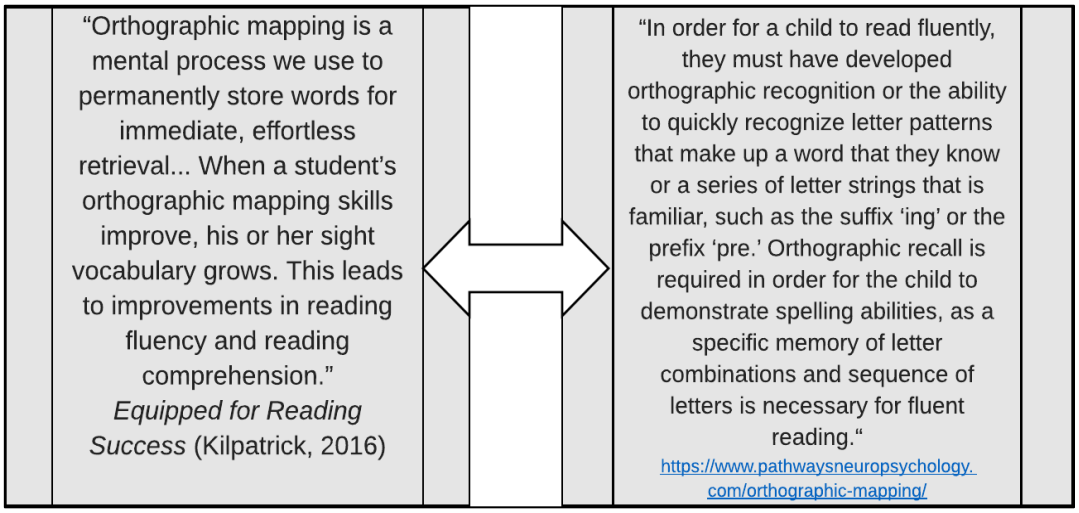
"*Fluency is not seen as a separate reading subskill, but rather as a byproduct of having instant access to most or all of the words on the page*."

– Kilpatrick, 2015

Fluent reading is, first and foremost, accurate reading. Accurate reading is a necessary precursor to becoming an efficient reader. Automatic word recognition frees a student's attention to comprehend the text. When students struggle with accuracy, phonics screening tools should be used to determine which skills require targeted intervention.

Efficient orthographic mapping skills lead to reading fluency. It is described in greater detail in the graphic below, Strand 3 - Sight Recognition.

Image: Strand 3 - Sight Recognition



When students read accurately, fluency instruction should focus on reading with expression, proper intonation, and phrasing (prosody).

Fluency Assumptions NOT Backed by Educational Research (Kilpatrick, 2015)

"...with sufficient exposure or repeated readings, children eventually generate some sort of 'visual memory' of those oft-repeated words based on paired-associate learning."	"Many or most of the words a student is expected to read are already stored in the student's sight vocabulary but require additional practice to become more quickly accessed."

Educator

Repeated reading is often provided as an intervention for students to practice fluency. However, inappropriate uses of this intervention do not show significant improvement. In *Essentials of Assessing, Preventing and Overcoming Reading Difficulties* (Kilpatrick, 2015), Kilpatrick reports, "the most exciting indirect evidence for orthographic mapping comes from subsets of intervention studies with weak readers. These studies produced improvements ranging from 12 to 25 points." (pg. 112).

Reading to practice fluency, with explicit instruction between reads, can be beneficial if the explicit instruction focuses on orthographic mapping, word decoding, and fluency skills. Additionally, repeated reading has a place during language comprehension instruction as students can practice revisiting text and engaging with background knowledge.

Inappropriate use of repeated reading includes attempts which eliminate explicit instruction and often request students to read the same text multiple times, timing each attempt, and labeling each attempt as a "cold" or "hot" read. These instances, Kilpatrick reports, "are only modest improvements of about 3 to 5 standard score points." (pg. 214)

It is imperative for classroom teachers, and others in the educational field, to understand these false assumptions about fluency. It is also imperative to understand and apply evidence-based practices to improve student reading fluency. The evidence-based practices that show the most improvement in a student's fluency combine the following five skills.

- Advanced phoneme manipulation tasks.
- Phonics decoding training in areas of weakness.
- Orthographic mapping.
- The use of connected text.

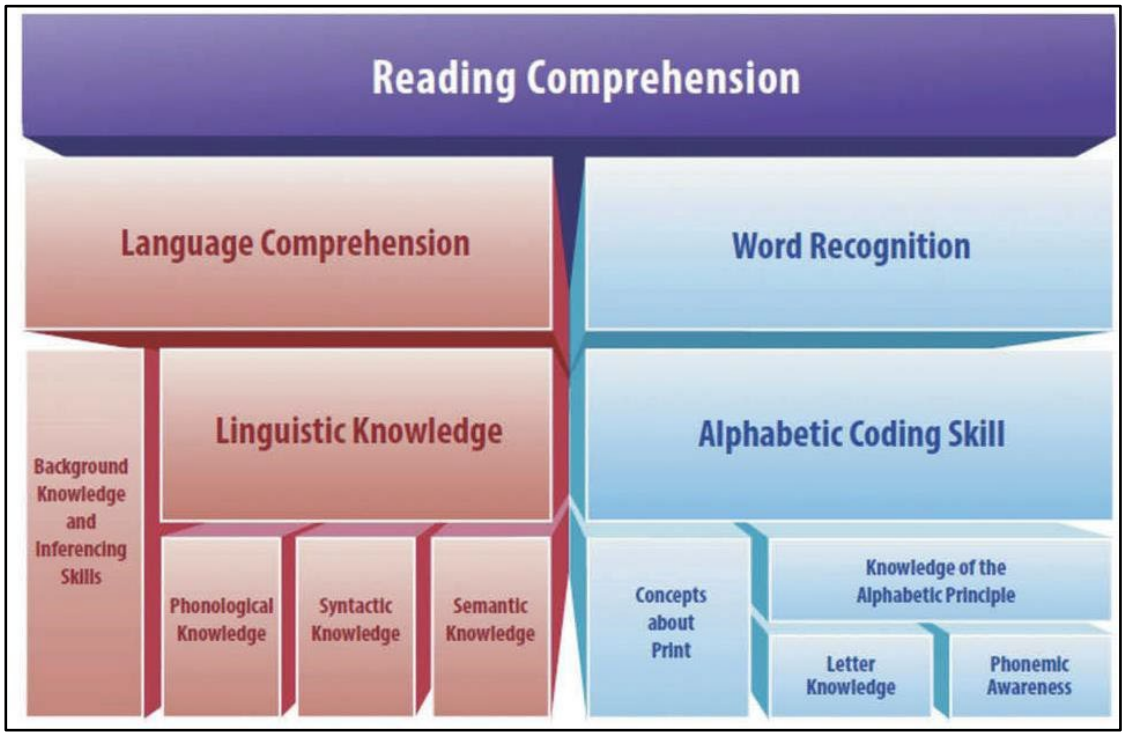
Reading Comprehension: The Product of Good Word Recognition and Language Comprehension

These "strands" all work together to create a skilled reader who comprehends text. The components under "Language Comprehension" become more strategic over time as a child learns and practices using different aspects of background knowledge, vocabulary, language structures, verbal reasoning, and literacy knowledge. The components under "Word Recognition" become more automatic with repetition and practice. All strands combine to create a knowledge and strategy base skilled readers use to read fluently and with good text

comprehension. The overarching goal of instruction using the strands of the Reading Rope and the Simple View of Reading is to develop independent readers who can apply what they learn to independent reading.

Tunmer and Hoover (2019) further explain the product of reading comprehension as The Cognitive Foundations Framework in the chart below.

Image: The Cognitive Foundations Framework Chart



The Cognitive Foundations Framework. Reprinted from Tunmer, W. E., & Hoover, W. A. (2019). The cognitive foundations of learning to read: a framework for preventing and remediating reading difficulties. Australian Journal of Learning Difficulties, 1-19. Reprinted with permission.

★	**Important** For additional information about all strands in the Scarborough's Rope reading model, see this video from AIM Institute.

Knowledge and Practice Standards for Teachers of Reading

	Educator The ***IDA Knowledge and Practice Standards for Teachers of Reading*** define what all teachers of reading need to know and be able to do to teach all students to read proficiently. The International Dyslexia Association (IDA) standards were written for two main audiences: classroom educators and dyslexia specialists. IDA has written separate narratives for each audience. The IDA has published a guide on structured literacy.

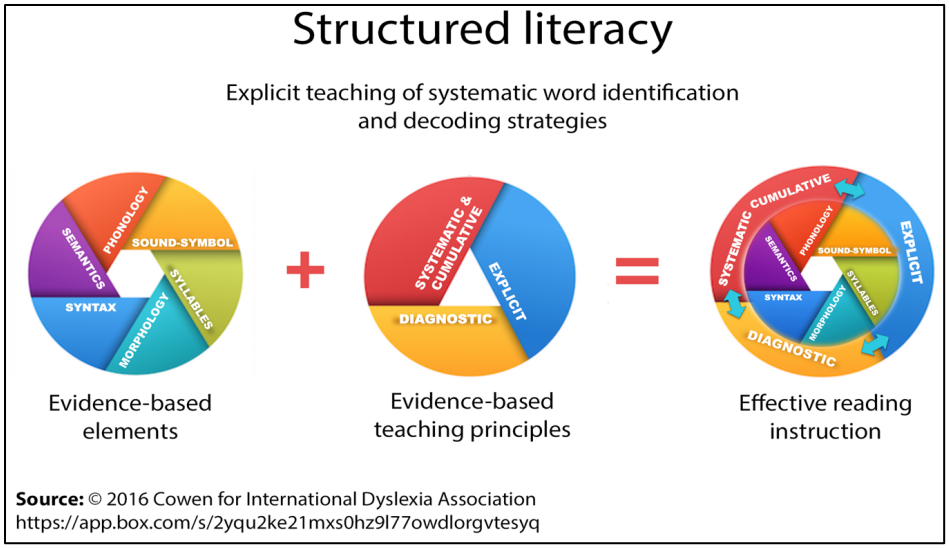
Included in the Appendix of this handbook is a ***Knowledge and Practice Standards Self-Study Checklist***. This checklist is meant to be a tool for professionals to use during self-study through professional learning communities and other peer collaboration groups. Areas of strength can be identified to determine which staff can serve as coaches, model classrooms, and mentors. Areas of need in content knowledge can also be identified to create professional development opportunities for staff members at differentiated levels.

Structured Literacy™

The term Structured Literacy was chosen and adopted by the International Dyslexia Association (IDA) Board of Directors as a means of unifying the methods of reading instruction that conform to IDA's Knowledge and Practice Standards. Structured Literacy is an explicit, direct, systematic, cumulative, and diagnostic approach to teaching reading that includes principles of phonology, sound-symbol association, syllable instruction, morphology, syntax, and semantics.

★	**Important** Structured Literacy is NOT the following. • The whole-word approach; also known as look-say approach, sight-word approach, and basal reading approach. • The three-cueing system; also known as whole-language, literacy-based, and balanced instruction approaches which include Reading Recovery and Leveled Literacy Intervention (LLI).

Image: Teaching Structured Literacy



Source: © 2016 Cowen for International Dyslexia Association
https://app.box.com/s/2yqu2ke21mxs0hz9l77owdlorgvtesyq

The elements of Structured Literacy emphasize the structure of the English language and the strands of Scarborough's Reading Rope. Each essential literacy element is included in the graphic shown here. Teachers who know, understand, and incorporate the elements, as well as the guiding principles of Structured Literacy, enable students to become active learners while acquiring the skills necessary to become successful readers. Structured Literacy should not be solely considered for elementary school students. All students, including those in middle school and high school, can benefit from high-quality reading instruction with focuses on the structured literacy tenants.

In *Essentials of Assessing, Preventing, and Overcoming Reading Difficulties*, (Kilpatrick, 2015) Kilpatrick outlines the flaws of the Structured Literacy methods. Below is a brief summary of his findings.

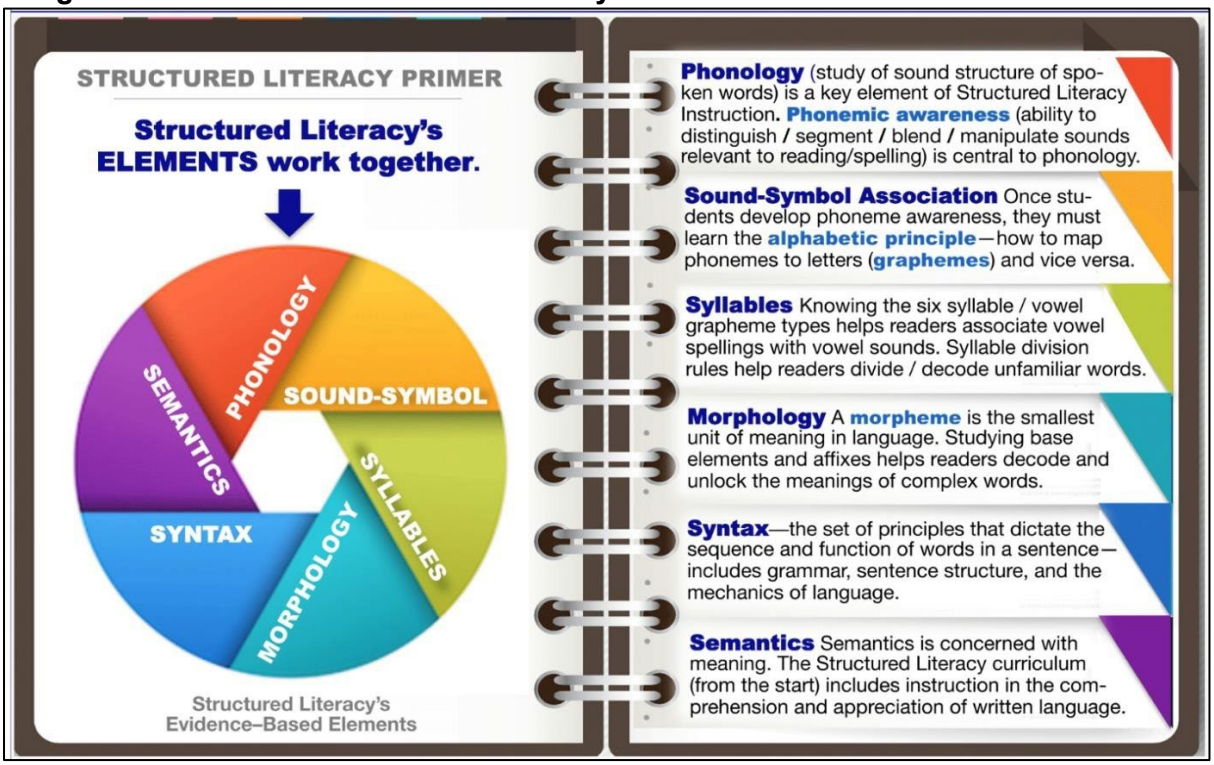
"It is fair to assume that all reading methods were developed based on one factor: the desire to do what works best for children. But to address the needs of weak readers, good intentions are not sufficient...This research has shown that nearly all of the major assumptions underlying the three classical approaches to reading instruction do not accurately represent how reading works. Only the phonics approach to encountering unfamiliar words has research support."

– Kilpatrick, 2015, page 42

That is to say, if students do not have decoding skills, they will be ill-equipped to read and comprehend novel text. Phonics instruction must be combined with phonology, syllabication, morphology, and syntax and semantic knowledge in order to be effective. Additionally, quality reading instruction should engage students in learning and be differentiated to their needs.

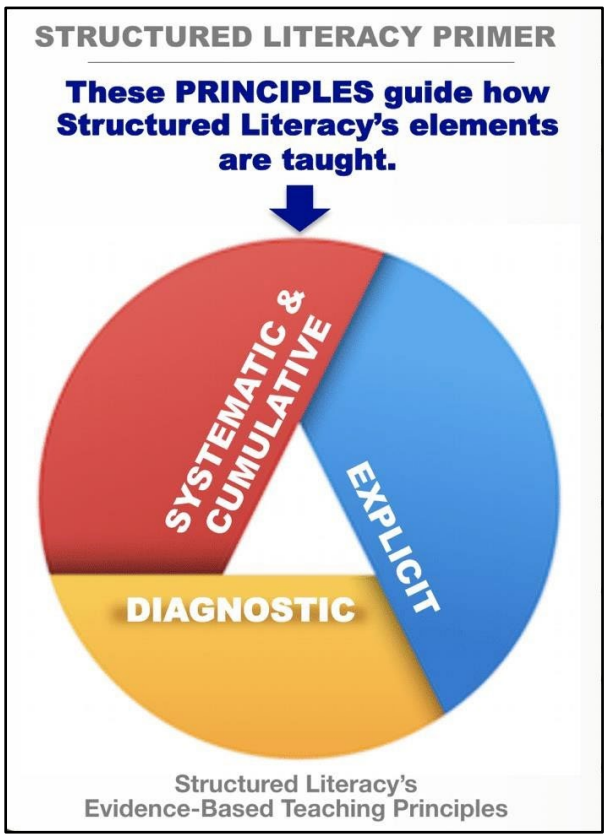
The elements of Structured Literacy emphasize the structure of the English language. Each essential element is outlined in the graphic below. Note that these components are supported by the science of reading and graphically represented in Scarborough's Reading Rope.

Image: The Elements of Structured Literacy



From "What is Structured Literacy? A Primer on Effective Reading Instruction" by C. Cowen, 2016, Baltimore, MD: International Dyslexia Association.

Main Principles of Structured Literacy



From "What is Structured Literacy? A Primer on Effective Reading Instruction" by C. Cowen, 2016, Baltimore, MD: International Dyslexia Association.

Principles in Teaching Structured Literacy
While it is necessary that students are provided instruction in the above content, it is also critical that the way in which the content is delivered be consistent with evidence-based practices.

Explicit instruction is, *"An approach that involves direct instruction: The teacher demonstrates the task and provides guided practice with immediate corrective feedback before the student attempts the task independently."* (Mather & Wendling, 2012).

Explicit instruction means clearly explaining and demonstrating concepts rather than leaving them to a child's own learning through incidental encounters with information.

Systematic and Cumulative: Systematic and cumulative instruction requires that the sequence of instruction begin with the easiest concepts (that the student does not know) and progress to more difficult concepts. An example of a sequence for instruction is shown in the ***Sample Scope and Sequence Chart*** provided in the Appendix of this handbook.

Diagnostic Teaching to Automaticity: Diagnostic teaching requires continuous monitoring. Expert clinicians agree when a Structured Literacy lesson is calibrated to the student's true level of mastery, 80% of student responses for spelling and 90% of student responses for reading, or higher, will be accurate. A hallmark of properly planned and implemented Structured Literacy lessons is students' consistent success.

Multisensory instruction supports Structured Literacy principles by incorporating two or more learning pathways to the brain (visual, auditory, tactile, and kinesthetic).

"Kinesthetic awareness involves sensitivity to muscle movement... Students' awareness of the position of the mouth, tongue, teeth, or lips and the activity of the vocal cords during the production of a sound assists the definitive learning of speech sounds… Students' awareness of how a letter feels when written in the air (e.g., sky writing) or on paper connects kinesthetic and visual information so that the letter shapes can be thoroughly learned."

- Birsh, 2011

Multisensory strategies frequently used in Structured Literacy lessons include:

- Finger spelling (segmenting a word for spelling by putting one sound on each finger).
- Tracing letters to facilitate retrieving a sound from memory.
- Tracing or writing letters while simultaneously saying the sound to reinforce learning the sound/symbol association.
- Using hand signals to represent concepts learned.

Multisensory experiences allow a child to connect to their learning in new ways and build new pathways in the brain.

Key Takeaways

1. **Will children naturally outgrow dyslexia?**
   a. Dyslexia is neurological in origin and can impact students for their life. Evidence indicates that without early effective intervention and reading instruction, children with dyslexia continue to experience reading problems into adolescence and adulthood (Shaywitz, 2003). However, with early intervention, students who are indicated as having characteristics of dyslexia can show growth in their reading proficiency. Students with characteristics of dyslexia need explicit targeted intervention to support these changes.
2. **Are the most prominent signs of dyslexia writing letters and words backwards or flipped?**
   a. Writing letters and words backwards may occur in any child prior to 2nd grade or prior to the age of eight or nine. Dyslexia does not cause children to see letters, numbers, and words backwards or inverted. However, some children with dyslexia may confuse letters, misread words, or have difficulty forming letters as a result of the lack of phonological skills (Moats, 1999).
3. **Is dyslexia a visual problem that vision therapy and/or colored overlays will help to correct?**
   a. Dyslexia is not a problem with the eyes. Many children reverse their letters when learning to write regardless of whether they have dyslexia. For more information, visit the joint statement from the American Academy of Pediatrics, the American Academy of Ophthalmology, the American Association for Pediatric Ophthalmology and Strabismus, and the American Association of Certified Orthoptists.
4. **If a child is read aloud to at night, will they be a good reader?**
   a. Simply being read to will not help a child sound out unknown words. Reading with a child is not enough to ensure a child becomes a successful reader. However, being read to between the ages of birth to five helps prepare the brain for becoming a reader. Reading to a child at any age promotes growth in vocabulary and background knowledge which can improve their comprehension.
5. **Does lack of phonics instruction cause dyslexia?**
   a. Dyslexia, as previously mentioned, is a neurological disorder and is not caused by a lack of phonics instruction. In fact, increased phonics instruction alone will not help a child with dyslexia. Children with dyslexia are able to learn phonics once they have the underlying phonemic awareness abilities, although they may continue having

trouble applying the phonics. This is why difficulty with phonics and word pronunciation is often a warning sign of dyslexia.

Chapter 6: Intervention for Students with Dyslexia

"*Although dyslexia affects individuals over the life span and cannot be cured, reading skills can be increased with the right early intervention and prevention programs...It is clear from the consensus of scientifically based reading research that the nature of the educational intervention for individuals with reading disabilities and dyslexia is critical*."

- Birsh, 2018

Knowledge Self-Check

1. Will a student with dyslexia only be instructed by specialists trained in dyslexia instruction?

When the 10 year old student reviewer of this handbook (2023) was asked what helped her become a better reader, she stated:

> "It's the way my Take Flight teacher teaches me. We go step-by-step and she doesn't move on until I have it. Before, my teacher would just have to keep going and then would try to come back later in a few days to show me again, but I was confused and never had enough time to understand. Now I know the rules and how it all works. It's like a puzzle and I was missing pieces before."

Early intervention and support for students with dyslexia ensures that all pieces of the puzzle are taught and mastered before increasing expectations. This chapter provides more information regarding effective intervention practices for students with dyslexia.

Why Is Reading Difficult for Students with Dyslexia?

A dyslexic brain processes print differently than that of a "typical" reader. This type of brain is characterized as having less efficient patterns of processing when reading. In the book *Essentials of Dyslexia Assessment and Intervention,* (Mather and Wendli, 2012) the authors identify the neurobiological characteristics of individuals with dyslexia. The list below outlines these findings.

Summary of Neurobiological Characteristics of Individuals with Dyslexia (Mather et.al. 2012)

- Less activation of posterior reading systems in the left hemisphere.
- Less temporoparietal activation.
- Less occipitoparietal activation.
- More activation in the left frontal, right frontal, and right occipitoparietal systems.
- Age-related differences between non-impaired readers and those with dyslexia.
- Tendencies for readers with dyslexia to rely on the memorization of words.
- Differences persist into adulthood, affecting development of reading fluency and spelling.

Like many other researchers interested in how a dyslexic reader's brain works, Dr. Papanicolaou's research conducted with the Texas Reading Institute showed the brain activity of dyslexic readers clusters disproportionately on the right side of the brain, rather than on the left side like that of effective and efficient readers. "It is like trying to paint with

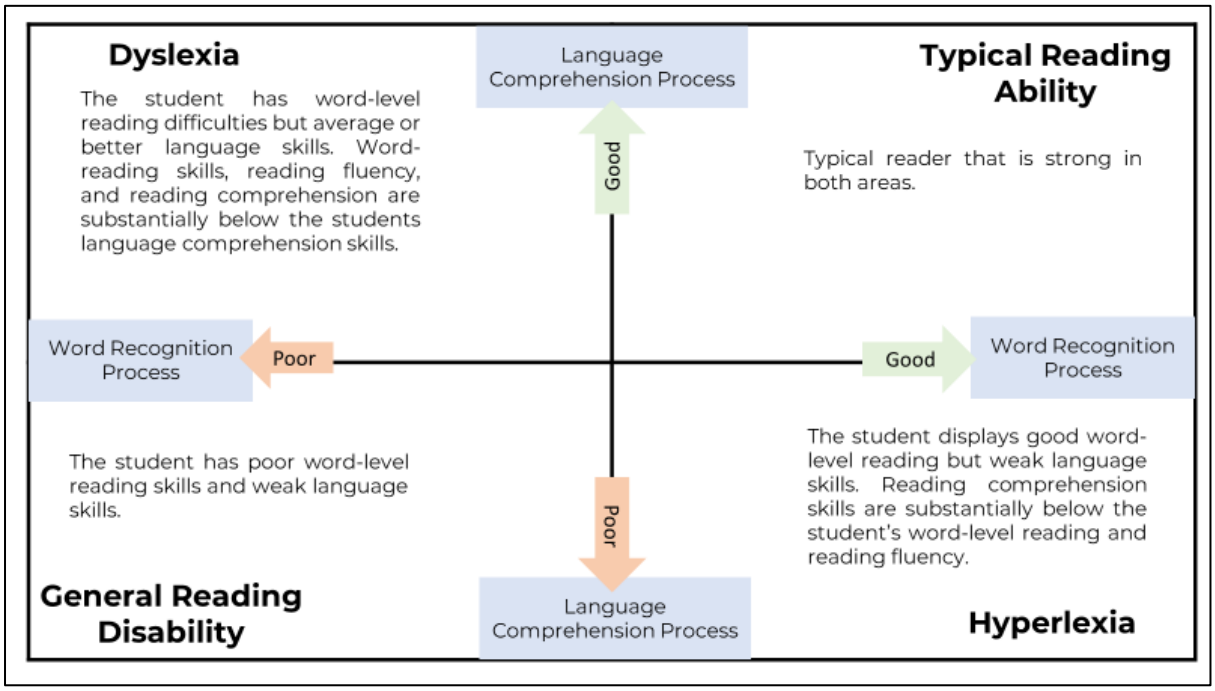
your toes," explains Dr. Papanicolaou in the film, *Reading and the Brain*, made available from WETA on Reading Rockets. "You are doing something using perfectly normal equipment, but not suitable for the purpose."

In *Proust and the Squid: The Story and the Science of the Reading Brain*, Maryanne Wolf (2007) states, "When phonological skills play a more significant role in reading acquisition, as they do in less regular languages like English and French, phoneme awareness and decoding accuracy are often very deficient—and are good predictors of dyslexia."

Maryanne Wolf (2007) also cautions:
"Children with any form of dyslexia are not 'dumb' or 'stubborn'; nor are they 'not working to potential'--three most frequent descriptions they endure. However, they will be mistakenly described in these ways many times by many people, including themselves. It is vital for parents and teachers to work to ensure that all children with any form of reading problems receive immediate, intensive intervention and that no child or adult equates reading problems with low intelligence. A comprehensive support system should be in place from the first indication of difficulty until the child becomes an independent, fluent reader, or the frustrations of reading failure can lead to a cycle of learning failure, dropping out, and delinquency. Most important, the considerable potential of these children will be lost to themselves and to society" (Wolf, 2007, page 194-196).

Keeping Wolf's caution in mind, it is very important that parents and teachers understand the various patterns of reading challenges among struggling readers. Kilpatrick (2015) outlined the following four patterns of reading difficulties based on the Simple View of Reading.

Image: Four Main Patterns of Reading Difficulties



Dyslexia exists on a continuum of severity, similar to autism or other disabilities, and a student's instructional needs will also be on a continuum. Intervention groupings must align

with the level of intensity and areas of deficit needed to accelerate reading and writing growth.

Students with mild characteristics of dyslexia may find success with Tier 2 targeted interventions, while students with more significant deficits will need more individualized interventions through Tier 3. This continuum from mild to severe explains why intervention improves quickly for some students and slower for others. These different responses to intervention highlight the importance of data in individually supporting students.

Students with mild to moderate characteristics of dyslexia can often compensate for their weaknesses, thus keeping dyslexia “hidden or stealth” due to high oral language abilities. So some students may be older when intervention begins, as characteristics of dyslexia hide within the student's strengths. Because these students may not qualify for special education, interventions will be provided in Tier 2 in tandem with the general classroom.

More information on tiered systems of instruction can be found in Chapter 2: Introduction to Instructional Systems.

Students with moderate to severe characteristics of dyslexia have deficits in multiple areas associated with dyslexia. These students can be described as having double deficits, which refers to deficits in both phonological process and Rapid Automatized Naming (RAN). The rapid naming of letters and numbers is considered to be a measure of executive function. RAN is the processing speed of how students take in, store, and retrieve what they learn. “RAN speaks to the difficulty that some students will encounter in developing automaticity and their need for larger doses of instruction and practice as compared to other children with reading disabilities” (*Bringing Research Into Practice: The Brain Basis of Fluency Development: Implications for Assessment and Instruction*, Ashby and Farrall).

The impacts of severe characteristics of dyslexia may limit a student’s ability to engage with print in general education without significant support. Interventions in multiple areas increase the time and intensity needed for a student to master the skills for proficient reading.

Delivering Tiered Dyslexia Intervention

Educators should use their students’ assessment data to plan effective, differentiated, small-group instruction and intervention. Chapter 4 describes the components of diagnostic assessments to identify specific skill deficits to target for intervention. When a student is identified as needing academic supports to target their deficits, the educator should consider methods to provide the student access to differentiated small-group interventions based on the students’ data and determined areas of need. Intervention should be provided to all students with needs in reading, including those who were “flagged” for characteristics of dyslexia, those who struggled without any identification of dyslexia, and those with an existing dyslexia diagnosis.

“Appropriate intervention provides startling results. Activation patterns were comparable to those obtained from children who had always been good readers. We had observed brain repair. And the children improved their reading.”

- Shaywitz, 2003

This statement was made after discussing patients' fMRIs after intervention.

Learning to read is a tremendous struggle for up to 20% of the population. The National Center for Learning Disabilities indicates as many as **one in five** people are dyslexic. Data-driven early intervention services utilizing evidence-based instructional strategies are necessary for students with dyslexia to become efficient readers. Students with dyslexia benefit from structured language-based instruction. Using the MTSS structure, instruction can be provided to students with literacy deficits in a targeted approach based on student level data.

"Dyslexic readers need to learn how to apply the same strategies used by accomplished readers, but each strategy must be taught one at a time. After the introduction of a strategy, students must practice applying each strategy with authentic texts...The difference in teaching students with dyslexia and readers without dyslexia is not what is taught but how it is taught. Students with dyslexia require very explicit instruction and need more practice than do readers without dyslexia."

- Smith, 2001

As discussed in Chapter 4, the Oklahoma State Department of Education supports an intervention process for students who are not meeting the expectations set forth from the RSA in grades K-3rd. The Individualized Program of Reading Instruction (IPRI) is a document outlining the intervention or support a student will receive due to performance on the universal screening assessment. With the addition of the screener for characteristics of dyslexia, IPRI documents may use an addendum form to attach any additional interventions matched to additionally identified needs from characteristics of dyslexia found from the screener. The interventions for the IPRI under RSA follow an MTSS framework to address the needs of all learners. Within this framework, student intervention should be matched to students' needs and skill deficits. The intervention is recorded, as required by RSA, and the IPRI must meet all statutory requirements.

More information about the general MTSS framework can be found in Chapter 2: Introduction to Instructional Systems.

Tiered Instructional Considerations: The What not the Who Focus

Lesson planning to address the needs of the student should be the focus for educators. Students with dyslexia need systematic, explicit instruction across all components of the reading rope as discussed in Chapter 5. The International Dyslexia Association identifies the following critical and evidence-based components of dyslexia instruction:

- Phonological awareness.
- Sound symbol association.
- Syllable instruction.
- Morphology.
- Syntax.
- Semantics.

The intervention should be matched to students' needs and skill deficits, and the intervention should ideally be provided as a dyslexia intervention to ensure all components of the instruction are given with fidelity by a trained educator. The Oklahoma Department of Education does *not* designate specific dyslexia programs for school districts.

Tier 2 – Targeted Instruction

Dyslexia exists on a continuum where not one instructional delivery works for all students. It is important that intervention grouping aligns with the level of intensity and the areas of deficit needed to accelerate each student's individual reading and writing growth.

Targeted, small group reading intervention should be explicit, direct, and systematic. A helpful tool for educators is the ***Components of a Structured Literacy Intervention Checklist***, which can be found in the Appendix of this handbook. The instruction should be cumulative to foster proficiency in decoding and encoding words with automaticity. The targeted instruction can be provided as a pull-out by a reading specialist or other provider or as an in-class small group led by the teacher. Decisions on setting and provider should be made based on student needs. Records of interventions with notes of student performance, mastery, or needs documenting next steps must be kept for purposes of IPRIs and potential special education evaluations. Records provide valuable information when changes need to be made, especially at times when educators or students transition from buildings, instructors, and/or grade levels.

The Middle Tennessee State University Center for the Study and Treatment of Dyslexia developed instructional materials for teachers to use to support their efforts delivering effective literacy instruction to their students. These Tier 2 frameworks can assist educators in lesson planning. https://www.mtsu.edu/dyslexia/instructional_materials.php

Tier 3 – Intensive Intervention

Some students with dyslexia may require an intervention that would provide more intensity at an appropriate pacing to master the skills required for proficient reading. Intensive interventions should still utilize explicit instruction, appropriate sequencing of skills, and an educator with expertise in teaching the content. Tier 3 interventions are specifically designed lessons taught in 1:1 or very small groups (2-3) which provide intensive instruction. Tier 3 is prescriptive to students' needs and focused on needs for reading instruction.

Tier 3 may include students with Individualized Education Programs (IEPs) with instruction provided outside of special education. See the **Considerations for Interventions** section on page 66 for more information.

Increasing Intensity of Interventions

Chapter 2 provides foundational needs for the intensification of instruction across disciplines. For students with dyslexia, implementation fidelity of explicit, systematic, and cumulative instruction is critical. The main goal for the intensification of a dyslexia intervention is to accelerate learning so that the student can make adequate progress to ensure that they are on the right pathway to learn to read.

Before adapting or intensifying an intervention, always consider whether the current intervention program has been implemented with fidelity and for a sufficient amount of time. The National Center on Intensive Intervention has several tools including *the Intensification Strategy Checklist* and the *Intensifying Literacy Instruction: Essential Practices* document to assist intervention teams in identifying ideas that will increase the strength of an intervention to benefit the student who needs additional support.

	**Educators** Increasing Instructional Intensity Across Tiers of Support The National Center of Improving Literacy's (NCIL) learning implementation toolkit is called Intensifying Instruction for Students with Dyslexia. This toolkit provides information on how to intensify instruction for students with dyslexia.

Effective Programs for Intervention

In addition to Core Tier 1 programs selected from the OSDE's approved curriculum list, schools may consider additional intervention programs. Supplemental programs provide instruction in key areas of the components of the Reading Rope. This supplemental instruction adds to the Core Tier 1 program by adding content where the core curriculum is not providing enough instruction or practice to meet the needs of students. Adding supplemental programs in Core Tier 1 or Tier 2 can strengthen instruction. These supplemental programs can vary in instructional time from 5 minutes to 30 minutes and are typically delivered in small groups.

Intervention programs are high-quality instruction that are evidence-based, systematic, and delivered in a small group setting of 1-3 students. Progress monitoring aligns the intensity of programming with the students' instructional needs. Intervention programs are provided in addition to the Core Tier 1 instruction. Programs for intensive intervention address the critical and evidence-based components of dyslexia instruction discussed above. Using a program with a clear, systematic scope and sequence that is aligned vertically across tiers of instruction provides opportunities for consistency of language and instructional routines. This consistency supports student access to the content by maintaining previously taught routines and practices.

It is important to note the cognitive demands needed for switching between programs and curriculum, particularly from one grade level to the next. Intervention may need to align with the core instruction's scope, sequence, and associated instructional routines. As an example, core instruction that utilizes the keyword "edge" for the short /e/ sound should also be used within an intervention, even if the intervention program uses an alternate keyword. Wherever possible, educators should ensure consistency and alignment in the language and routines between multiple programs to reduce the cognitive load for students participating in multiple instructional programs.

Selecting a supplemental or intervention program should be paired with professional development and coaching to support instructional quality and fidelity. OSDE does not have an approved list of supplemental or intervention programs for dyslexia at this time. Decoding

Dyslexia Oklahoma provides a list of programs reviewed and approved by other state departments of education. The ***Components of Structured Literacy Intervention Checklist***, included in the Appendix of this handbook, can be used to guide decisions about appropriate intervention programs. The International Dyslexia Association (IDA) fact sheets on Effective Reading Instruction for Students with Dyslexia and Dyslexia Assessment can provide guidance on services for students.

	**Educator** If you need free supplemental resources for evidence-based instruction, in addition to your school's/district's high-quality program, please see these resources listed below. https://www.marooneyfoundation.org/ https://fcrr.org/resource-database https://ufli.education.ufl.edu/foundations/toolbox/

Considerations for Intervention

Dyslexia intervention should be provided by a professional specifically trained to provide explicit instruction to meet the student's needs, and the intervention should be tied to identified skill deficits that affect the student's ability to decode and encode text with proficiency. The educator providing intervention to a student with dyslexia should have a strong knowledge of dyslexia and its common co-occurring conditions, possess an ability to teach language patterns and word structure, and understand the integral skills required for reading proficiency. A student with an Individualized Education Program (IEP) can receive specially designed instruction from any educator or provider who has the necessary training and expertise to support a student's needs and defined IEP goals. The provider of direct instruction in reading does not have to be a certified special educator, but this direct instruction can include general educators, related service providers, or dyslexia therapists. Students not receiving services under an IEP should still receive intervention services that are most appropriate to meet their identified needs and to remediate skill deficits. If the school identifies a dyslexia program for students, the dyslexia interventionist should be trained in the dyslexia program.

In addition, a dyslexia interventionist should understand and be fluent in the components and processes of Multi-Tiered Systems of Support (MTSS) and/or the processes for Response to Intervention (RTI). In addition, it is important for the dyslexia interventionist to have expertise in screening, analyzing, and interpreting data to assist the MTSS or RTI teams in determining appropriate interventions to address specific student needs.

Effective Dyslexia Intervention Considerations

- An evidence-based intervention that is effective for students who have dyslexia.
- Implemented by a trained or certified instructor.
- Taught with fidelity.
- Extended time in small group instruction (45-60 minutes daily).
- Professional development and coaching for staff to implement the intervention effectively.

- Includes frequent assessment and progress monitoring.
- Intense focus on phonological and phonemic awareness skills.
- Explicit instruction of sound and symbol correspondences.
- Decoding and encoding instruction and practice.
- Focus on automatic word recognition through phonics and orthographic patterns.
- Reading strategies for comprehension and fluency.
- Multisensory approach for teaching and learning.

Discontinuing Interventions

★	**Important** Although providing students with effective reading instruction for a sufficient time can allow a student to become a proficient reader, a common error in teaching a student with dyslexia is removing the student prematurely from the effective instruction that is working, as evidenced by student progress monitoring data. Students with dyslexia should complete the full intervention program based on Structured Literacy.

While students may meet benchmark levels or meet progress monitoring requirements prior to completion of the intervention, discontinuation of intervention services is not recommended, because students who are removed early may not be provided the level of repetition needed to fully remediate dyslexia.

For example, a child who is reading accurately, but not fluently, at grade level still requires effective reading instruction and appropriate intervention. Completing the program of effective reading instruction will help the student continue on the path of reading success.

The IRIS Center Peabody College Vanderbilt University RTI Module emphasizes the need to establish criteria for students to meet at the end of an intervention before discontinuing the intervention.

Computer Programs for Instruction

Popularity in computer-based instruction for teaching reading is increasing. Computer programs can provide the teacher information on areas of instructional need and can possibly assign activities for targeted instruction. Such programs can offer students with dyslexia the additional repetition they need to become efficient readers. Using computer-based programs as supplemental instruction may assist a student in retaining information learned and in accelerating overall growth.

	**Educators** Using computer-based instruction as the only form of intervention is recommended only when other intervention is not available. Consider the benefits of a computer-based program according to the specific program considered. The instructional expertise is important to consider when determining the effectiveness of a program. A computer-based program should not be deemed 'effective' without consideration to the staff's capacity and expertise.

Considerations for Older Students

Middle and high school students must be able to access and comprehend the content in all classes, which is only achieved when they decode text accurately and fluently. Understanding what they are reading, the vocabulary, and the background knowledge, as well as a working understanding of the text's complexities, requires a tremendous effort for a student with dyslexia. When students are unable to access information due to a reading disability, they will struggle with content in multiple classes beyond English Language Arts. Students who are not reading at their grade level will need support from teachers in most subjects and an increased accessibility to grade-level content. Structured Literacy, with regard to MTSS and RtI support, should not be solely considered for elementary school-aged students. Students of all ages can benefit from high-quality reading instruction with focuses on the Structured Literacy tenants.

Older students who continue to struggle reading should not be considered lost causes. These students deserve instruction from a knowledgeable teacher who can fill in their literacy gaps and, like younger students, older students need high-quality intervention. Closing the gap for older students will require an interventionist with considerable knowledge in the components of reading, writing, and spelling. Students in middle school or high school may not receive services on the most foundational aspects of decoding text or word and sentence structure in the typical classroom. Instruction and intervention in the foundational skills of literacy are taught in elementary school, and it is assumed all students already have those skills mastered by the time they attend upper grades. Delivery of intervention for these older students needs to be based on their specific area(s) of deficits.

While state assessments provide an overall reading score, universal screening can identify the specific or targeted area of need. Based on the results, secondary schools can provide a multi-tiered intervention class to meet the instructional needs of the students.

A teacher can support students by communicating a plan of intervention, setting goals, and providing supports in subject area classes. "Students protect their self-esteem by resisting instruction. It has failed them in the past; why should this be different?" (Birsh, 2018). Connecting with these students will take time, and educators need to develop the student's confidence and motivation, in addition to providing interventions to help them become effective readers. Teachers can provide effective evidence-based instruction to will help grow the older student into a reader!

	**Teacher** Students need a safe environment to be open to learning. Dyslexia identification can open new supports for students, but they may have experienced years of struggle and shame before identification. Students' first support is a teacher with empathy and willingness to rebuild their self-esteem through a safe classroom environment. For more information on developing a supportive classroom, see Chapter 1. Students' skill deficits should drive the intervention, no matter the identification or the placement of the student. Interventions may include support in the environment, with daily classwork, and targeted intervention lessons. Students need to understand the process and procedures for support to be active learners in their intervention.

Addressing Instructional Needs of Older Students

Diagnostic assessments in areas of word recognition or language comprehension will indicate areas of reading that should be addressed. If a student has not yet established sufficient word-level skills or word recognition skills, then direct, explicit, and systematic instruction is necessary. Screeners and diagnostics that can be used with older students are outlined in Chapter 4: Screening for Risk of Characteristics of Dyslexia. They will need pull-out intervention focused on the word recognition and decoding skills as identified through the assessment.

"Under the right conditions, intensive and skillful instruction in basic word reading skills can have a significant impact on the comprehension ability of students in fifth grade and beyond," (IDA). The Center on Instruction Report of Research Findings indicates the following steps are key recommendations for teaching word study to older students.

- Identify and break words into syllable types.
- When and how to read multisyllabic words by blending the parts together.
- Recognize irregular words that do not follow predictable patterns.
- The meanings of common prefixes, suffixes, inflectional endings, and roots.
- Instruction including ways in which words relate to each other (e.g., "trans-": "transfer," "translate," "transform," "transition").
- How to break words into word parts and how to combine word parts to create words based on their roots, bases, or other features.
- How and when to use structural analysis to decode unknown words.

A ***lesson outline example for grades 3-5*** can be found in the Appendix of this handbook. This outline contains many of the steps mentioned above and could be used as a guide for older students as well. For additional information, see:
https://www.texasgateway.org/resource/six-syllable- types-and-morphology

David Kilpatrick, in *Equipped for Reading Success,* states:
"*High school students and adults who are weak in phonemic awareness (and therefore weak readers) should get training. In our public middle schools, high schools, and colleges, students who are weak readers are provided with strategies to 'work around' their weak reading skills. It is assumed that if they have not developed proficient reading by that point, they won't ever develop it. However, as mentioned, these students almost always have phoneme awareness difficulties that were never detected or trained. This is a perfectly correctable cause of their difficulties and we are unknowingly letting them continue to struggle when they really do not need to*."

– David Kilpatrick, 2016, page 18

In the quote above, David Kilpatrick shares the importance of phoneme awareness. Students who have not worked through all levels of phoneme awareness, a subset of phonological awareness, need to spend three to five minutes during intervention time working through this skill. See Chapter 5 under Lower Strand 1 in this handbook for more information about the hierarchy gradient of phonological tasks. The most benefit to the reader will come when they are successful at the advanced phoneme manipulation tasks; however, a student may need to work through the lower levels before they are ready to tackle the advanced phoneme manipulation tasks.

Educators of older students need to consider a variety of texts covering multiple subject areas and rich text material for intervention, classroom experiences, and free reading. Older students may present with limited vocabulary and background knowledge due to less exposure to written text (Matthew Effect), and they may need additional exposure to a variety of materials that are above their current reading level. Educators will need to ensure materials for decoding practice are matched to a student's decoding level and interest.

In addition to ongoing, effective intervention, older students who have continued difficulty with reading and spelling can learn to use assistive technology to increase their ability to access printed material, vocabulary, and background knowledge. Accommodations and Assistive Technology are further discussed in Chapter 15: Accessibility. Allowing a student choices in the types of assessments used to gauge their understanding of content areas is especially beneficial to a dyslexic learner. **The flexibility of a teacher can change a student's world**. Some alternative forms for assessment include creating a PowerPoint, performing a skit/commercial, building a model, writing a song, using Kahoot, etc. Although, if such options are only provided to the struggling student(s), feelings of incompetence and/or isolation may occur. When alternative assessments are available for the entire class, individual strengths are more likely to be revealed as opposed to individual differences. This kind of support and encouragement improves a student's self-concept and confidence as well as the likelihood of them feeling more comfortable with taking risks in learning within the classroom setting.

For more information on accessible student response options for all, see the section on Universal Design for Learning (UDL) in Chapter 2: Introduction to Instructional Systems.

Dyslexia After Intervention

After a student has completed a program of effective reading instruction, the student may continue to need assistance, especially with accommodations for ongoing accessibility and success. If it is determined that a student being served on an IEP has been remediated to the point there is no longer an adverse effect on educational performance, and the student is no longer in need of specially designed instruction, it may be necessary to consider the student for an evaluation under Section 504.

Good intervention provides skills a student needs, but it is not a cure to the lifelong condition of dyslexia. Dyslexia can present with co-occurring conditions as discussed in Chapter 14: Special Population Considerations. Dyslexia can be affected by outside stimuli, and reading issues may continue even after an intervention. Strategies learned during an intervention may require ongoing support and reteaching. Some students with dyslexia never enjoy reading, or they may always try to avoid reading for pleasure.

	**Student** Sometimes after an intervention has been provided to support a deficit, it can be challenging to not have the same amount of help as before. Remember, teachers are there to help you! Self-advocating means asking for help and support when you need it. Being able to ask for help doesn't mean you can't do the work the teacher has asked you to do. It means you know what works for you, and you might need some extra support to do your very best.

Dyslexia Effects Beyond Reading

Dyslexia is a reading difficulty that can impact additional areas of a student's life beyond reading in the educational setting and workforce. These additional areas of impact may benefit from direct instruction in areas of dysgraphia (Chapter 9), dyscalculia (Chapter 12), or accommodations (Chapter 15), The following two sections are an overview of some potential additional areas of impact.

Writing - Dysgraphia

Dysgraphia can co-occur with dyslexia in 30-40% of students. Dysgraphia's effects and interventions in spelling, handwriting, and written expression will be discussed further in Chapters 7, 8, and 9.

Spelling is a complex process for students with dyslexia and other reading difficulties. Most interventions for dyslexia include instruction in spelling to support reading acquisition. But struggling readers do not benefit from memorizing lists of words for weekly spelling tests, as this process largely relies on rote memorization and visual recall. Instead, all students, but especially those with reading difficulties, should be taught using rules that govern spelling.

Handwriting and written expression for a child with dyslexia can be a source of frustration and can be very messy. A child may use random capital letters, non-uniform spacing, as well as improper letter formation. Cursive writing instruction can benefit students with dyslexia. Expressing thoughts in writing is often stressful and overly complicated for a student with dyslexia. It can be both taxing and time consuming. Some students may resort to the use of simplified vocabulary in lieu of more complex vocabulary that is used orally. Handwriting and written expression should be included in interventions for dyslexia.

Math - Dyscalculia

Dyscalculia can co-occur with dyslexia in as many as 50% of students. Dyscalculia's effects and interventions will be discussed further in Chapters 10, 11, and 12.

In addition to dyscalculia, a student may struggle with math only due to their dyslexia. These students will struggle with reading word/story problems and vocabulary in math, but they are able to complete mathematical concepts or even excel in math.

"The specific skills that an educational evaluation measures to determine where language glitches, both written and verbal, occur can also be helpful in predicting where math breakdowns might occur. Using this knowledge, we can also develop strategies to address an individual student's struggles in math."

– The Yale Center for Dyslexia and Creativity

Students' learning preferences must be acknowledged through the development of strategies that compensate for their individual difficulties. Like reading, math involves many cognitive processes or systems. Ideally, educators should identify and support math deficits with the same specificity and strategies they apply to language-based instruction.

Key Takeaways

1. **Will a student with dyslexia only be instructed by specialists trained in dyslexia instruction?**
   a. Dyslexia is one of the leading causes of reading difficulties among students. In a classroom of 25, one to five students could struggle with dyslexia ranging from mild to severe. Since students with characteristics of dyslexia can exhibit a variety of deficits related to their reading ability, their provider of supports and instruction may be a general education teacher. It is important for the education team to consider the needs of the student and provide information to the parent on who will be providing the needed supports to the student. See Chapter 4 for information on MTSS and how these supports are determined and provided to students.

Dysgraphia Unit

Chapter 7: Defining Dysgraphia

Knowledge Self-Check

1. Can dysgraphia only be identified in a student with dyslexia?
2. Does dysgraphia only include handwriting?

Dysgraphia Definition

The International Dyslexia Association (IDA) defines dysgraphia as:
"A specific learning disability that affects how easily children acquire written language and how well they use written language to express their thoughts. The suffix ia refers to having a condition. Thus, dysgraphia is the condition of impaired letter writing by hand, that is, disabled handwriting and sometimes spelling. Impaired handwriting can interfere with learning to spell words in writing."

The Cleveland Clinic defines dysgraphia as:
"Dysgraphia is a neurological condition and learning difference in which someone has difficulty with writing for their age level. This can range from issues with the physical act of writing to issues with translating thoughts into written words. Dysgraphia is manageable with interventions that can help you learn new writing strategies."

Given these definitions, Oklahoma defines dysgraphia as:
"A specific learning disability that is neurological in origin. It is characterized by difficulties with accurate and/or fluent handwriting and letter formation. These difficulties typically result from a deficit in the orthographic component of language and motor difficulties that are unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in written expression."

Research to date has shown orthographic coding in working memory is related to handwriting and is often impaired in dysgraphia. Orthographic coding refers to the ability to store written words in working memory while the letters in the word are analyzed, or it is the ability to create permanent memory of written words linked to their pronunciation and meaning. Children with dysgraphia do not have primary developmental motor disorder, another cause of poor handwriting, but they may have difficulty planning sequential finger movements such as the touching of the thumb to successive fingers on the same hand without visual feedback. Children with dysgraphia may have difficulty with both orthographic coding and planning sequential finger movements.

Although federal law specifies written expression as one area of a specific learning disability, it does not clearly identify the handwriting (transcription) problems that are the causal factors in dysgraphia–impaired handwriting and/or spelling–for impaired written expression of ideas. Some of the tests used to assess written expression are not scored for handwriting or spelling problems, so they mask the nature of the disability in dysgraphia. Content or ideas may not be impaired.

Children with dysgraphia may have handwriting that is unexpected compared to peers of the same age, intelligence, and education level. However, it is important to note that poor handwriting is not the only indicator of dysgraphia. Dysgraphia, ultimately, is a processing disorder, and challenges may change over time (Reading Rockets). Children with dysgraphia may appear unmotivated or "lazy" and a "reluctant writer." There is the potential for an overall avoidance of writing, because the child has trouble expressing thoughts and ideas in writing. Dysgraphia impacts three primary areas of functioning: visual/spatial, fine motor, and language processing. Characteristics of dysgraphia can be organized into each of these three areas as demonstrated in the accompanying chart.

Fine Motor	Visual/Spatial	Language Processing
• Awkward, tight, and inconsistent pencil grip. • Heavy pressure and hand fatigue (tires quickly). • Slow writing and copying with legible or illegible handwriting (Andrews & Lombardino, 2014). • Variably shaped and poorly formed letters, numbers, or words.	• Poor spacing between letters and words. • Difficulty aligning columns of numbers in math problems. • Excessive erasures and cross-outs. • Letter and number reversals beyond early stages of writing.	• Low volume of written output as well as problems with other aspects of written expression. • Organizing thoughts and ideas into written expression. • Difficulty with unedited written spelling and spelling words correctly.

(UNESCO, Mahatma Gandhi Institute of Education for Peace and Sustainable Development)
(All About Learning Press, 2016)

Key Takeaways

1. **Can dysgraphia only be identified in a student with dyslexia?**
   a. Students with dysgraphia can have dyslexia, but dysgraphia can be found independently of dyslexia. Students with dysgraphia may have deficits in many areas of writing.
2. **Does dysgraphia only include handwriting?**
   a. The Oklahoma definition of dysgraphia includes difficulties with accurate and/or fluent handwriting, letter formation, and secondary consequences in written expression.

Chapter 8: Characteristics of Dysgraphia

Knowledge Self-Check

1. Is dysgraphia characterized by messy handwriting?
2. Can dysgraphia not be characterized by spelling or written expression?

A common myth of dysgraphia is the primary sign being letter reversals or other letter production errors. While some children do make reversals (reversing the direction of letter faces along a vertical axis), inversions (flipping letters along a horizontal axis so the letters are upside down), or transpositions (sequencing letters in a word out of order), these alone are not markers of dysgraphia. These errors are symptoms rather than causes of handwriting problems.

Dysgraphia makes handwriting, writing fluency (rate and accuracy), spelling, and written expression difficult in the classroom. Students with dysgraphia may have difficulty learning to do the following.

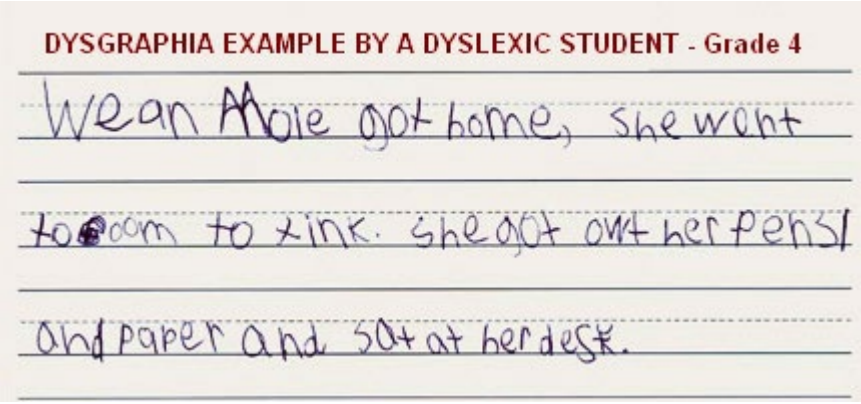
- Form letters and write words correctly.
- Write letters and words other people can read.
- Put correct spacing between letters and words.
- Place letters and words correctly on the lined paper.
- Write fast enough to keep up in class.
- Copy from the teacher's board accurately and fast enough to keep up in class.
- Organize thoughts and ideas to put thoughts on paper.
- Spell fluently.

Students with dysgraphia may be so focused on *how* they are writing that they can't focus on *what* they are writing. Dysgraphia can lead to poor spelling and difficulty writing age-appropriate sentences, paragraphs, stories, and reports. Dysgraphia is estimated to affect approximately 5% of the population, and it commonly co-occurs with related specific language disorders (for example, dyslexia or a specific learning disorder of written expression). But dysgraphia is not caused by these other disorders.

Signs and Symptoms of Dysgraphia

The University of Waterloo provides this visual example below of a 4th grade student with dysgraphia and dyslexia. Consider the characteristics above such as the spelling of "when," "think," or "pencil." Also, note the *p* on the word "paper" and the student's letters *t, d, l,* and *k.* This student is not bringing these letters to the top line, or dropping letters like *p* in "paper" or "pencil" below the line.

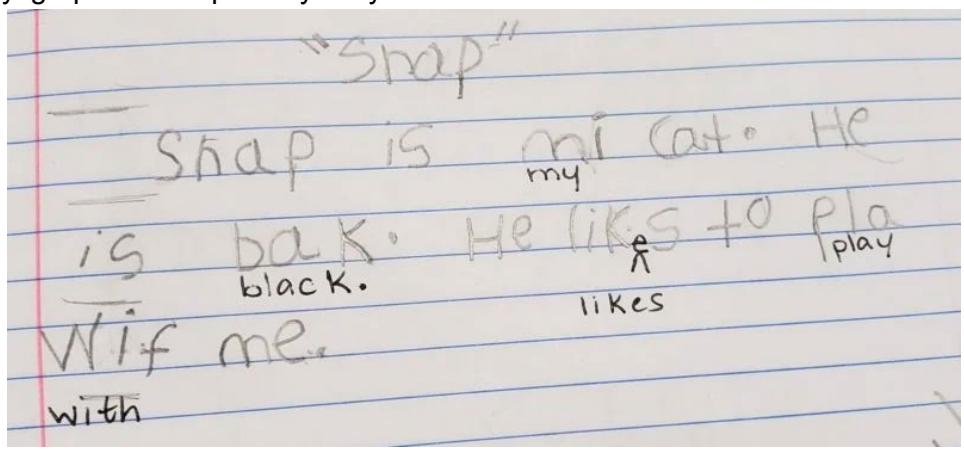
Image: Dysgraphia Example 1 by a Dyslexic Student



(https://contensis.uwaterloo.ca/sites/courses-archive/1191/PSYCH-312/lecture-content/module-11/module-11a.aspx)

Another visual example is shown below. Once again, take notice of the height of letters and specifically no difference between capital or lowercase letters. Interestingly, notice the letter *p* in this writing. The student is aware the *p* should go below the line, and they seem to correct the letter post-hoc. This example also demonstrates poor spacing between words. Generally, "poor spacing" brings to mind words being too close together, but this example shows there can be an improper abundance of space between words as well. Finally, take note of the punctuation. Most of the student's periods align with the middle of the letters rather than the base.

Image: Dysgraphia Example 2 by a Dyslexic Student



(https://www.edubloxtutor.com/defeating-dyslexia-dysgraphia/)

Refer to Differential Identification Questions for Dysgraphia in Chapter 13 for additional information on identifying dysgraphia as a specific learning disability.

Key Takeaways

1. Is dysgraphia characterized by messy handwriting?
   a. Messy handwriting may be a visual sign of dysgraphia, because students with dysgraphia can have neat handwriting but struggle in the areas of spelling or written expression. A student can achieve accurate and fluent handwriting.

2. Is dysgraphia not characterized by spelling or written expression?
   a. Dysgraphia makes handwriting, writing fluency (rate and accuracy), spelling, and written expression difficult in the classroom. Dysgraphia includes difficulty with the physical act of writing (including pencil grasp), difficulty writing letters, varied letter spacing and placement, difficulty spelling, and difficulty getting ideas written on paper. Dysgraphia can include difficulty with writing, difficulty with written expression, or both.

Chapter 9: Effective Instructional Practices for Students with Dysgraphia Across the Continuum

Knowledge Self-Check

1. What areas need direct instruction for intervention for dysgraphia?
2. Will good handwriting come with time for students with dysgraphia?

Why is Writing Difficult?

Dysgraphia exists on a continuum of severity, similar to dyslexia, autism, or other disabilities. So a student's instructional needs will also be on a continuum. Educators providing intervention in writing need to recognize students are utilizing both language skills and executive functions. "Writing is the quintessential 'mental juggling act' and thus it takes the longest time to learn" (Moats LETRS Vol 2). Students who are struggling with dysgraphia or foundational writing skills may experience cognitive overload leading to more errors in writing. All skills within writing will need to be taught to automaticity before proficient writing can be expected.

Intervention groupings must align with the level of intensity and areas of deficit needed to accelerate a student's reading and writing growth. Students who struggle with legibility, automaticity, or fluency may need additional direct instruction.

Delivering Tiered Dysgraphia Intervention

An Occupational Therapist (OT) may be part of the team providing consultation on Tier 2 or Tier 3 interventions in the MTSS model as discussed in Chapter 2. Interventions will be aligned to the student's skills and needs. The need for intervention must not be diminished due to the availability of assistive technology (AT); AT is not a substitute for skill acquisition. Because these students may not qualify for special education, interventions will be provided in Tier 2 or Tier 3 in tandem with the general classroom.

More information on tiered systems of instruction can be found in Chapter 2: Introduction to Instructional Systems.

As mentioned in Chapter 6, characteristics of dysgraphia can be found in a student with characteristics of dyslexia. We have provided information in this chapter on handwriting, spelling, and written expression. Intervention considerations for Tier 2 or Tier 3 will be called out in each area below.

Handwriting Instruction

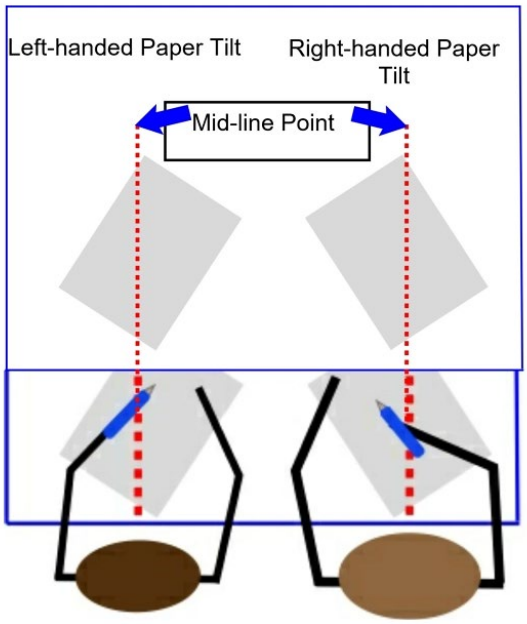
Handwriting is a complex neuromotor skill in which the writer must integrate many cognitive and motor processes simultaneously (Limpo & Graham, 2020). Having control of motor skills includes correct pencil grip, efficient paper position, and efficient posture.

Fine Motor Skills

- Awkward, tight, and inconsistent pencil grip.
- Heavy pressure and hand fatigue (tires quickly).
- Slow writing and copying with legible or illegible handwriting (Andrews & Lombardino, 2014).
- Variably shaped and poorly formed letters, numbers, or words.

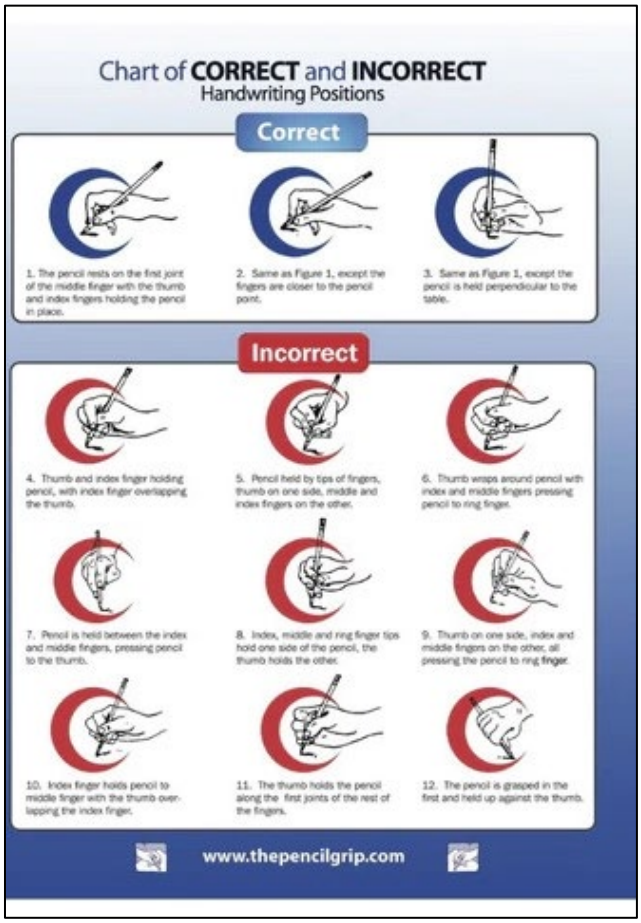
Even in our digital age, writing with pencil and paper is the predominant mode of writing in early schooling and, in some settings, throughout a school career (Santangelo & Graham, 2016). Pencil grip, or the way writers hold a pencil, contributes to the ease of the writing process, handwriting fluency, and stamina. Students should be encouraged and reminded to use a comfortable grip, such as the “tripod’ method, that can be sustained for longer and longer periods of time. In the tripod method, the writer holds the pencil between the thumb and index finger, forming a triangle by resting the pencil against the top third of the middle finger, about an inch from the pencil point (Graham, 2009-2010). Additionally, a variety of pens and pencils should be offered to find one that is most comfortable (e.g., triangle shaped pencils support a comfortable tripod grip, mechanical pencils support a lighter touch, etc.).

Image: Paper Position and Pencil Tilt



https://teachhandwriting.blog/category/paper-position/

Image: Correct and Incorrect Handwriting Positions



Paper position also affects handwriting fluency and legibility. Right-handed writers should align the left side of their paper to the center of their body squarely in front of them for manuscript writing. As they learn cursive, they will rotate their paper 45 degrees counterclockwise. Left-handed writers should rotate their paper slightly clockwise and adjust their pencil grip slightly about one and a half inches from the pencil tip. If left handers position their paper like right handers, they may develop pencil grips that decrease their handwriting fluency, speed, and legibility (Graham, 2009). Correct paper position enables students to write comfortably and see what they are writing. It also allows the non-writing hand to move the paper up so the writing hand elbow can stay in the same position. During writing, the paper should move up, rather than the writing hand moving down. Teachers should encourage proper grip and paper positioning for writing early, as it is difficult for students to unlearn inefficient motor patterns later.

Intervention

Students with fine motor deficits will benefit more when intervention of fine motor skills are part of direct handwriting instruction. Students may benefit from activities that build on the overall fine motor skills and improve hand strength.

Activities for fine motor skills include the following.

- Molding or rolling clay with hands.

- Using pegs or toothpicks to make designs in clay.
- Scrunching newspaper in one had to form a ball.
- Picking up small objects with tweezers.
- Strengthening muscles with clamps or rubber bands.

Signs of Visual-Spatial Issues

- Poor spacing between letters and words.
- Difficulty aligning columns of numbers in math problems.
- Excessive erasures and cross-outs.
- Letter and number reversals beyond the early stages of writing.

Visual-spatial skills include not only the correct formation of letters, but also the alignment and spacing of letters and words, and the placement of letters on the page. The correct formation of letters not only enhances the efficiency of forming letters, but it can also help to improve handwriting speed and the readability of writing.

Letter Formation

Because manuscript text (print) most closely mirrors the print of the written page, careful teaching supports literacy development, particularly in learning letter symbols (James & Engelhart, 2012; Longcamp et al., 2005) and orthographic coding (Berninger et al, 1991).

Writing expert Steven Graham (2009) recommends four considerations for grouping letters for instruction, and these considerations can be used for both print and cursive. First, common formation and motor approaches such as

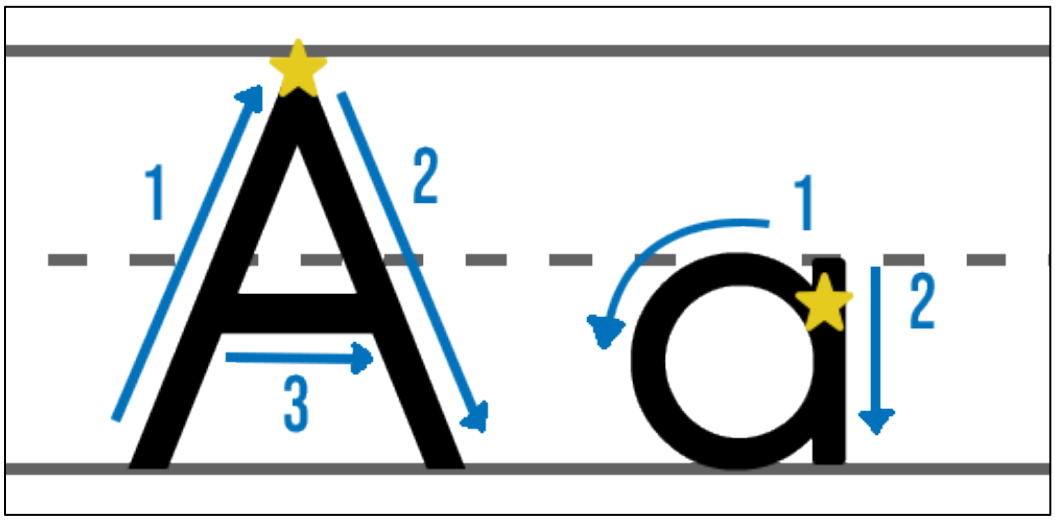
1. Straight lines (l, i, t).
2. Curved lines (c, a, d, g, o, q, f).
3. Straight and curved lines (b, h, j, m, n, p, u, e).
4. Slant lines (v, w, x, y, z, k).

Second, letters that appear most frequently in print should be taught prior to those that are less frequent (like letters q and z). Third, introduce easier to produce letters prior to more difficult ones (examples). And fourth, do not group letters easily confused with each other in the same unit (separate b and d, and separate n and u). Additionally, teaching manuscript writing with a “one-stroke” (or continuous stroke) approach provides some of the same benefits of cursive, particularly reducing pencil lifting, which causes decisions about where to place the pencil for the letters in “ball” or “stick” (as in the letters b, d, p, q). These grouping considerations are similar for cursive. Lower-case cursive letters can be grouped by the “approach stroke” (the connecting line that leads up from the base line to the letter form) Such as “swing-up, stop” for cursive letters i, t, p, u, w, j, r, s.
“Push up and over” letters m, n, v, x, y, z.
“Curve up, over, and stop” letters c, a, d, g, o, q.
and
“Swing way up, loop left” letters l, h, k, b, f, e (Birsh, 2018).

Graham also recommends integrating teaching handwriting with letter names, which is a multisensory approach. Handwriting warm ups should include naming and identifying the focus letters. Teachers model the letter formations and refer to charts or cards with which number arrows show the order and direction of the strokes. Other multisensory approaches include verbal directions of the process. For example, when teaching the letter “m,” the teacher would demonstrate while saying, “m, /m/, pull straight down, push up over, push up over, /m/, m.” Students would echo while tracing a model, several times reinforcing the letter form, sound, and name. As children progress, they drop the formation narrative, because it may take up more working memory, but they continue naming the letters while writing them and circling their best efforts. Because of the additional cognitive load of the narration of letter formations, there is a debate on their effectiveness with some researchers advocating the narration (Gillingham & Stillman, 1997; Slingerland, 1971) and others finding no research-supported benefit (Graham, 2009; Santangelo & Graham, 2016).

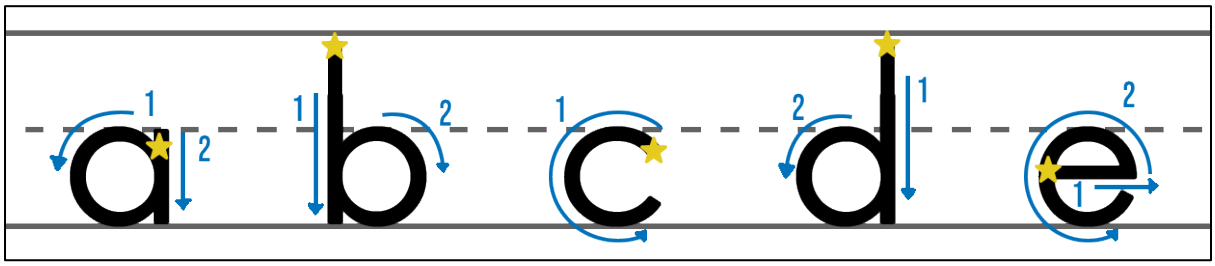
As children work with lined paper and with the teacher’s guidance, they note and discuss the similarities and differences on how the focus letters are formed. Teachers can provide instructive feedback with highlighters to point out spots that may need more attention, such as an uncrossed ‘t’ or an ‘a’ or ‘o’ that is not closed. The teacher highlights these spots and the writer corrects them by tracing the highlighted marks.

Image: Line Directions in Writing Letters



Highlighting the midline to the baseline on lined paper also supports letter positioning. Spacing between words is taught with finger spacings or popsicle stick types of manipulatives. Handwriting practice progresses from single letter practice to words, phrases, and sentences working on fluency to see how many words students can write correctly during a timing of three minutes. Ultimately, the best practice to develop writing fluency is frequent writing, self-evaluation of best efforts, and teacher feedback.

Image: Handwriting Lowercase Letters with Midline and Baseline



Transcription: Getting Words on the Page (or the Screen)

Simply put, transcription is getting ideas onto the page or screen through handwriting, or typing, and spelling (Berninger et al., 1996; Cella, 2022). For developing writers, orchestrating handwriting and spelling is initially demanding as young writers contend with holding on to their ideas while simultaneously considering both spelling and letter formation. This orchestration leaves little cognitive space for writing processes such as planning and revising (McCutchen,1996). When children have difficulty with transcription skills, they may avoid writing and develop a negative mindset about themselves as writers (Berninger et al., 1996). Because dysgraphia is often identified as extreme difficulties with handwriting, it is critical that time for handwriting instruction is built into the school day, working toward fluent transcription so there is more cognitive space for composition.

Although there is no agreement in the research on the benefit of cursive or manuscript (print) (Schwellnum et al., 2012) text, there are identified advantages for each. Forms of manuscript letters most closely resemble the print readers see in books and other texts, so many people advocate its use as the first form of handwriting. Because cursive letter forms are more unique from each other, there are fewer reversals of letters such as ‘b’ and ‘d’ or ‘u’ and ‘n’. Cursive also has fewer pencil lifts in its formation, so again, there are fewer instances of letter reversals. Whenever manuscript or cursive writing is introduced, direct instruction is needed until accuracy and fluency is achieved.

The Oklahoma Academic Standards (Standard 2) begins with handwriting instruction in print (manuscript) in grades PreK through Grade 2 and cursive beginning at Grade 3. Districts can choose to introduce cursive in PreK through 2. Handwriting needs to be taught to automaticity so writers can focus on extending ideas, planning, and revising. This teaching can be achieved with 10-20 minutes per day 3-5 times per week of excellent modeled and explicit handwriting instruction in the general classroom (Graham, 2009). Therefore, all students need to receive effective, explicit instruction in handwriting processes to develop control of motor skills while integrating visual-spatial and language processing skills, “to become skilled in accurate, legible, and automatic handwriting to complete writing tasks at school and outside school” (Birsh, 2018, pg. 435).

Interventions

Students who struggle with legibility, automaticity, or fluency may need additional direct instruction. An Occupational Therapist (OT) may be part of the team providing consultation on Tier 2 or Tier 3 interventions. Intervention should be aligned to the instruction in the classroom with consistent terminology, verbal directions, and close supervision.

For students who are not successful after Tier 1 instruction, consider additional interventions like the ones listed below.

Letter Formation

- Practice writing letters, numbers, and shapes in the air with arm, hand, or finger movements and use other multi-sensory techniques and manipulatives to help with letter formation. Referred to as air writing or sky writing.
- Practice moving arm back and forth across a page without a pencil.
- Play with clay and other modeling materials to practice forming letters.

Alignment of Letters and Use of Lines

- Trace letters using models that include numbered steps and directional arrows.
- Write letters independently after tracing.
- Use verbal directions to guide the directionality of the letter formation.
- Using lines allows for proper letter sizing and formation. This also includes an awareness of margins.

Spacing Between Letters and Words

- Use proper spacing between words and letters to produce easy-to-read and organized written material.
- Use paper with marks indicating correct spacing.
- Use small popsicle stick spacers.
- Have meaningful independent writing.

Transcription

- Copy sentences containing targeted letters.
- Focus on fluency not just letter formation.

The Decoste Writing Protocol has an example of a 15 minute Handwriting Intervention lesson plan.

Note-Taking

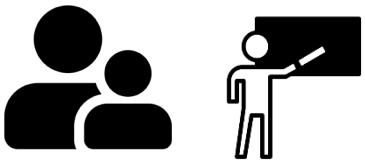
Note-taking requires handwriting speed plus the ability to comprehend language simultaneously. “Handwriting automaticity is correlated with the quality of note-taking when listening to a lecture, and further that the quality of note-taking is a predictor of test performance” (Decoste). Students with dysgraphia will need direct instruction not only in handwriting but in efficiently taking notes. Students may benefit from guided notes or an outline with keywords. Graphic organizers, or note-taking templates, can assist students with organizing information. The skill of note-taking helps a student consume knowledge and organize their information for studying or writing tasks.

Keyboarding

In the digital age, technology and computer use is becoming an increasingly in-demand skill. In Standard 8 of the Oklahoma Academic Standards Independent Writing Objectives for grades 2-12, students are given the option to type their writing. Students in grades 3-8 are expected to type some of their responses on the Oklahoma School Testing Program ELA

assessment. Therefore, a suggested progression of keyboarding skills is included in the OAS ELA Appendix.

Keyboarding requires direct instructions and is considered most appropriate in 3rd-5th grades. At these grades, students maintain fine motor and literacy skills and have sufficient attention for lessons. Students should participate for 30-40 minutes for 36 weeks (Decoste, D. 2014). However, keyboarding should not be seen as a replacement for high-quality handwriting instruction. While typing can make it easier to write by alleviating the frustration of forming letters, handwriting is a vital part of a person's ability to function in the world. When designing instruction, educators should determine the appropriate method of response (handwriting or keyboarding) based on the skill to be measured and practiced. For instance, when we are seeking to evaluate students' compositional skills, keyboarding may be an appropriate response method. However, when we are seeking to measure student handwriting skills and spelling, paper-and-pencil writing may be the more appropriate response option.

	**Teacher and Parent** For students needing keyboarding as an accommodation, instruction may need to happen at an earlier age. If handwriting is laborious, structured keyboard instruction may benefit the student. But access to keyboards without structured instruction will not provide a meaningful accommodation.

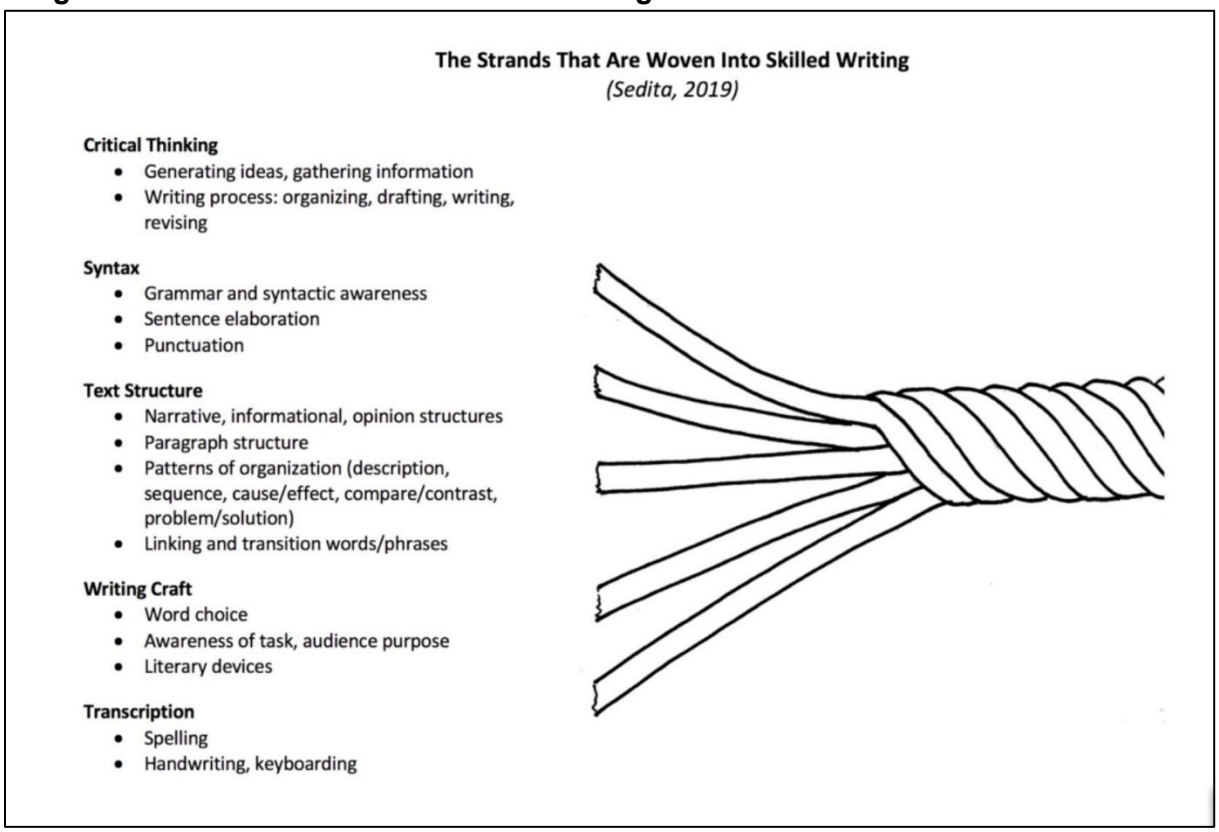
Language Processing

- Difficulty with unedited written spelling and spelling words correctly.
- A low volume of written output as well as problems with other aspects of written expression.
- Difficulty organizing thoughts and ideas into written expression.

Effective writing instruction also addresses language processing skills, such as spelling and sentence structure. Proofreading and note-taking are also valuable skills students need in this category, so educators must consider correction strategies and executive function skills.

With a nod to Hollis Scarborough's famous Reading Rope, Joan Sedita has created the Writing Rope. The Writing Rope depicts the many strands that contribute to fluent, skilled writing acquired through instruction and practice. Each strand contains multiple skills that lead to confident writers. As with the Reading Rope, when any one strand (skill) is not acquired with fluency, it weakens the strength of the entire rope. The rope model includes five strands that can be used to group areas of instruction or intervention.

Image: The Strands Woven Into Skilled Writing



The work of Berninger, Vaughan, Abbott, Begay, Coleman, Curtain, Hawkins, and Graham (2002) on the nature of written expression deficits led to their model of the "Simple View of Writing," which is represented by a group of nested triangles. Transcription skills (handwriting, keyboarding, and spelling) and executive functions (attention, planning, reviewing, revising, and self-regulation) represent the base of the triangle and serve as the foundation for writing. Transcription skills and executive functions, together, provide the necessary skills that allow students to translate language and ideas into written symbols for purposes of written expression. Text generation (words, sentences, discourse) forms the top of the triangle. All of these skills occur within short-term working and long-term memory environments. Students with disabilities struggle with some or all of these.

Educators
The Writing Rope: A Framework for Evidence-Based Writing Instruction

Educators wanting to learn more about the Writing Rope can learn from the author in this free webinar.
https://home.edweb.net/webinar/literacy20221107/

Spelling/Orthography Instruction

"Good spellers need only one or few exposures to a word to remember it. Unfortunately, students with dyslexia often lack this 'fast mapping' of sounds to symbols. Reading involves creating maps between written words based on visual inputs and spoken words, based on auditory inputs."

– Berringer and Wolf, 2009

Spelling is a complex process for students with dyslexia, dysgraphia, and other literacy difficulties. Struggling learners do not benefit from memorizing lists of words for weekly spelling tests, as this process largely relies on rote memorization and visual recall. Instead, all students, but especially those with dyslexia and dysgraphia, should be taught using factors governing spelling. “Approximately 50% of all English words can be spelled accurately by sound-symbol correspondence patterns alone, and another 36% can be spelled accurately except for one speech sound (usually a vowel)” (Moats, 2009, page 6 in LETRS Module 3).

The action of writing words is related to sound sequences, letter patterns, and morphemes (base words and affixes). Spelling involves knowledge about the sounds of the language, the most frequent and reliable letter patterns, and rules of English orthography, morphology, and word origins.

A Structured Literacy approach to spelling should teach students the common orthographic patterns of English (phonograms) as well as the use of affixes and spelling rules including etymology, morphology, and orthography. Structured Literacy approaches can be appropriately taught to very young students. “For young children, research clearly indicates that spelling supports learning to read, and for older children, it’s likely that learning about the meaningful relationships between words will contribute to vocabulary growth and reading comprehension” (Moats, 2005, page 42).

Principles of English Spelling – How Reading Supports Spelling (Moats, 2005, pg. 14)
A word’s language of origin and history of use can explain their spelling.
A word’s meaning and part of speech can determine their spelling.
Speech sounds are spelled with single letters and/or combinations of up to four letters.
The spelling of a given sound can vary according to its position within a word.
The spellings of some sounds are governed by established conventions of letter sequences and patterns.

Putnam concludes in her article, *Using Research to Make Informed Decisions About Spelling Curriculum* (2017), “The research and support for using word study as part of an integrated spelling curriculum is significant and compelling, yet many classrooms are still using traditional spelling methods, emphasizing rote memorization and rule-driven instruction.” (Fresch, 2003, 2007; Schlagal, 2002).

Traditional Spelling Instruction	Recommended Spelling Instruction
• Familiar to teachers and parents. • Assigned weekly lists of words. • Encourages memorization. • Weekly tests. • Does not generalize to their writing.	• Focuses on word study. • Students learn spelling patterns that can be generalized to other words. • Word knowledge can be generalized to students’ writing.

- Structured Literacy includes instruction in the following subjects.
  - Phonology.
  - Sound-symbol association.
  - Syllable instruction.
  - Morphology.
  - Syntax.
  - Semantics.

Interventions

Students who continue to struggle with spelling need intervention under the MTSS model. Spelling is closely related to reading instructions. If a student has poor spelling and reading, the spelling may be related to dyslexia identification. Students with dyslexia also benefit from direct spelling instruction integrated into their reading intervention. Spelling intervention enhances reading skills, but spelling is more difficult to learn than reading. Skills that have been solidified in reading may not be as concrete in spelling.

Analyzing the errors of spelling can help an educator identify the skills that need direct instruction. “Students' spelling errors provide teachers with insights as to the progress of students' understanding of the patterns of the language” (Birsh, 2018). After the student completes a spelling task, teachers review the errors, not just for correct answers, but through error analysis. To support this analysis, educators should consider the following.

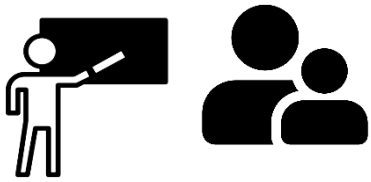
- Are all the sounds represented in the word?
  - e.g., if the word is “flip” and the student writes “fip,” not all sounds are represented. However, if the word is “flip” and the student writes “flib,” all sounds are represented, but one sound is incorrect.
- Are there phonological confusions?
  - e.g., the word is “train,” and the student writes “chrain.” There is phonological confusion in the /tr/ blend versus /ch/ phoneme.
- Are basic letter/sound connections made?
  - e.g., if the word is “cake,” but the student spells it “cak,” then all basic letter/sound connections are made, but conventions of the long /a/ are missed.
- Are spelling conventions in place?
  - Silent /e/ vowel teams and spelling rules (e.g. _ck and doubling rule, etc.).
  - e.g., if the word is “live,” and the student writes “liv,” the spelling convention of short /i/ is correct, but the spelling rule that no words end in ‘v’ is missed.
  - e.g., if the word is “badge,” but the student writes “baj,” errors in spelling convention are in place.
- Are meaningful parts represented?
  - e.g., if the word is “jogging,” and the student writes “joging,” then all meaningful parts are represented and the suffix is understood.

After analyzing errors, students can be grouped, based on the area of difficulty identified above, to provide instruction based on spelling proficiency. “Small Group instruction targets a need, whether that need is in developing phonological skills, learning a spelling pattern or rule, or applying orthographic or morphemic knowledge to spelling.” (Birsh, 2018). Spelling is

meaning driven and needs systematic, explicit instruction based on the following guiding principles.

- Phoneme-grapheme correspondence.
- Letter order and sequence patterns or orthographic conventions.
  - Syllable types.
  - Orthographic rules.
  - Irregular words.
- Position of a phoneme or grapheme in a word.
- Meaning (morphology) and part of speech.
- Language of origin (Moats, 2005).

Students will need explicit instruction and multiple opportunities to practice until the student masters the skill or pattern. Students need word practice and meaningful word applications in writing. Spelling inventories are available through many sources including LETRS, Dibels, Spellography, and Words Their Way.

	**Educator and Parent** Students cannot rely on spell checkers until they have achieved basic spelling skills. This achievement happens around 5th grade for typical students. Students who rely on spell checks will need additional proofreading help and instruction on implementing spell checkers.

Written Expression

Expressing thoughts in writing is often stressful and overly complicated for a student with dysgraphia or dyslexia. It can be both taxing and time-consuming. Omissions, including leaving out words such as conjunctions, plurals, and word endings, are common errors. Some students may resort to the use of simplified vocabulary in lieu of more complex vocabulary that is used orally.

Researchers have provided evidence that, “fluency in handwriting is strongly related to the ability to produce complex written text.” (Handwriting Research: A Guide to Curriculum Planning, pg. 52). Students struggling with written expression may need instruction in components of early writing skills in addition to support with written expression.

Feedback Strategies

Direct and immediate feedback on student work can support improvements in student learning. Some ideas for instructional strategies for feedback are provided below.

- **Compliments & a Wish** - Provide at least two compliments in relation to a student’s writing and one wish for how they can improve. Alternate the focus of writing assignments (e.g., neatness, spelling, grammar, organization, etc.).
- **Red Words + Current Focus (Ex: Transition Words)** - Red Words include spelling/sight words the student has already mastered. When providing feedback to students on spelling, focus on words the student has already mastered and is being held

accountable for. Use misspelled words in a student's writing to drive differentiated instruction.

- **Checklists and Visuals** - Visual rubrics, checklists for proofreading, or similar tools can be used by students to provide immediate feedback, monitor their own learning, and self-correct.

Interventions

Students with dysgraphia, or with a writing intervention, will need direct instruction in the writing process (planning, drafting, revising, and editing) and writing modes (narrative, informative, and opinion). Writing instruction in the classroom and intervention settings can be taught using text from science and social studies allowing students to engage with grade-level materials. The focus of intervention should be on quality, not the quantity, of the writing. Scaffolding and support can assist students in the cognitive load needed to "juggle" writing demands. One genre should be taught, modeled, or practiced at a time, needing coordination across the subjects.

After observation, writing samples for composition intervention will begin in one of three areas: sentence, paragraph, or longer compositions. The Oklahoma Academic Standards provides grade level expectations in the writing process (Standard 2) and writing modes (Standard 3). Older students with dysgraphia or writing deficits can make progress in written expression.

Instruction beginning at the sentence level is the foundation of the composition. "If a student is not proficient in crafting sentences, the student's ability to construct coherent, unified paragraphs and compositions will be significantly compromised" (Birsh, 2018).

Sentence Activities

- Manipulate words and phrases on cards to build sentences.
- Complete sentence and sentence fragments.
- Expanding sentences.
- Edit run-on sentences.

As a student develops the proper sentence usage, their intervention transitions to skills for paragraphs.

Paragraph Activities

- Identify parts of paragraphs in mentor texts.
- Provide prompts that are specific and focused.
- Paragraph frames.
- Movable sentences.
- Graphic organizers.
- Color-coding sentences.
- Deconstructing paragraphs.

Students with proficiency at the paragraph level then transition to longer writing assignments. The activities for paragraphs overlap with **longer compositions**.

- Identify parts in mentor texts.
- Provide prompts that are specific and focused.

- Composition frames.
- Graphic organizers.
- Color-coding sentences.
- Deconstructing texts.

Computer Programs for Instruction

Popularity in computer-based instruction is increasing. Computer programs can provide the teacher with information on areas of instructional need and possibly assign activities for targeted instruction. For dysgraphia, computer programs can provide support in composing writing with the assistance of predictive text, identifying parts of speech, or assisting in editing. Students need instruction in computer tools before they will be confident using them independently.

Word Processors
Using word processing software or applications can greatly assist students with dysgraphia. These software tools offer features like auto-correction, grammar checking, and spell-checking, which can help in overcoming spelling and grammar difficulties. They also provide the ability to easily edit and revise written work.

- Built-in spell check and grammar check tools.
  - Google Docs.
  - Microsoft Word.
- Tools to explore.
  - Co:Writer.
  - Grammarly.
  - Corgi.

Additional accessible educational materials and assistive technology options are reviewed in Chapter 15.

Considerations for Special Situations

Multilingual Learners

Many language skills from a student's first language transfer when a student learns a new language, but not all multilingual learners' (MLs) first languages are alphabetic languages. For instance, while English is alphabetic (letters represent sounds), Japanese Kana is syllabic (symbols represent syllables), and Chinese is logographic (symbols or pictures represent words). There is little research on bilinguals with dysgraphia who have two different writing systems, but writing systems are different from orthographies, and different writing systems reflect fundamental variations in writing-language relationships (Wilson, Kahlaoui, & Weekes, 2012). Therefore, educators will need to begin with foundational writing skills (as found in OAS Standard 2) when working with students from non-alphabetic languages. For more on English Learners, please see Chapter 14: Special Population Considerations.

Twice Exceptional Learners

As a reminder, twice exceptional (2E) students are students identified as gifted and talented as well as identified having a disability. One consideration for this population is to ensure students receive both gifted services and services for the dysgraphia. Koifman (2022) described the potential for 2E students to be, “distinguished by motor disinhibition, inability to concentrate long, communication difficulties, and conflicts with their parents, teachers, and peers” (pg. 232). Gifted students may think quickly, and if they also have characteristics of dysgraphia, will struggle with transferring thoughts on paper effectively. This can be very frustrating for students and may exacerbate the aforementioned behaviors.

Additionally, both gifted students and students with dysgraphia have a comorbidity with Attention Deficit Hyperactivity Disorder (ADHD), but characteristics of giftedness and dysgraphia overlap with ADHD as well (Adi-Japha et al. 2007 and Mullet & Rinn, 2015). Therefore, parents and practitioners need to keep in mind strategies and practices that can be effective for these characteristics that may overlap.

Strategies for these students may include strength-based approaches, including when developing a Section 504 Plan or Individualized Education Program (IEP). Gifted students, “may feel stigmatized by deficit-focused accommodations" (pg. 202) such as, “coping with the disability,” rather than focusing on students’ talents and allowing the student to demonstrate mastery of the content in a variety of ways not including handwriting (Willard-Holt et al. 2013 in Millet & Rinn, 2015). If the standard addressed is handwriting specific, provide scaffolding for the student to first demonstrate their understanding of the topic being written, leading up to addressing the writing standard.

For more information on twice-exceptional students, see Chapter 14: Special Population Considerations.

Key Takeaways

1. What areas need direct instruction for on intervention for dysgraphia?
    a. Students will need intervention in fine motor, visual/spatial, and language processing areas based on the identification of needs. Some students will need support in all three areas while others will need isolated work.
2. Will improved handwriting for students with dysgraphia come with time?
    a. Direct handwriting instruction is needed for all students, but students with dysgraphia will require additional, systematic, cumulative instruction and practice to achieve accuracy and fluency.

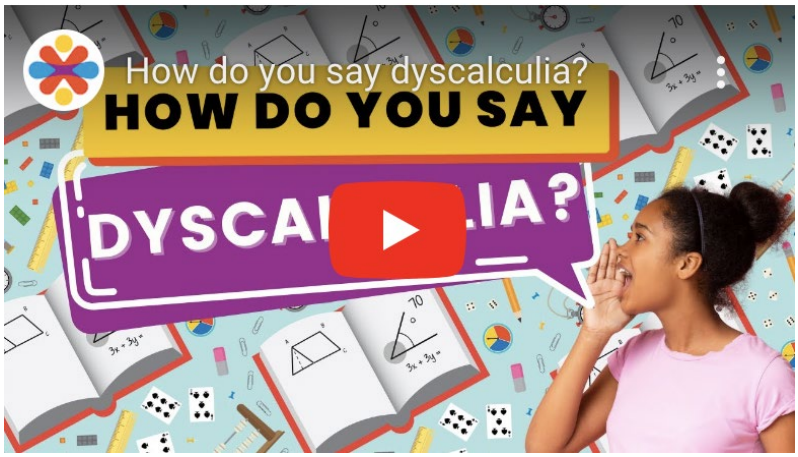
Dyscalculia Unit

Chapter 10: Defining Dyscalculia

Knowledge Self-Check

1. Do children who reverse or confuse numbers have dyscalculia?
2. Does everyone with dyscalculia have the same issues?
3. Is dyscalculia very rare?

What is Dyscalculia and How do You Say It?
https://madeformath.com/what-is-dyscalculia/
https://www.youtube.com/watch?v=9jogqnLLDK8



"Dyscalculia is considered a neurocognitive developmental disorder, which implicates underlying cognitive processes—some math specific and others of a more general nature, which include linguistic and visuospatial functioning and/or visuomotor coordination, visual and verbal working memory, attention, and language functions. Not yet fully understood, these complex processes reflect ways that neuroscience currently accounts for varying profiles of math learning disabilities."

– Butterworth et al., 2011

The only agreed characteristic is long term incapacity to learn number facts. Identifying dyscalculia is complex and problematic: for a detailed discussion of issues, see Gifford (2006) at percentages, statistics, brain imaging, oh my!

In today's increasingly technologically reliant society, more and more jobs and careers require some level of proficiency in mathematics. Students who lack sufficient mathematical knowledge and skills are more likely to experience negative outcomes and fewer opportunities for career choice due to an inability to be proficient in basic foundational mathematics (IRIS Center, 2023). Therefore, it is imperative educators understand dyscalculia and how to support students with math difficulties.

Every learner is unique. Students with dyscalculia display any number of characteristics that affect their mathematics performance including the following.

- Difficulty processing information.

- Difficulty identifying relevant information in mathematics problems especially in word/story problems.
- Difficulty translating information into a mathematical expression or equation.
- Problem maintaining attention.
- Difficulty selecting an effective problem-solving strategy.
- Poor reasoning and problem-solving skills.
- Working through a problem without making sure all the steps are completed or that the answer makes sense.
- Deficits in the areas of mathematics facts and computational skills.
- Memory and vocabulary difficulties.
- Difficulty solving multi-step problems.
- Weak visual/spatial representational skills.
- Difficulty reading about mathematics.
- Difficulty understanding the language, or vocabulary, of mathematics.
- Difficulty understanding mathematics concepts and how concepts relate to procedures.
- Mathematics anxiety.
- Learned helplessness—that is, having low motivation, being a passive learner, and attributing both successes and failures to external, uncontrollable factors (e.g., luck).

The identification of dyscalculia and the understanding of what it means can be very important to the learner's wellbeing and their family. The information gathered during the identification process forms part of the ongoing monitoring of the child and their progress and level of required support.

For more information on the processes of mathematics and characteristics of dyscalculia, see Chapter 11: Characteristics of Dyscalculia.

Related Conditions with Dyscalculia

Dyscalculia often happens alongside other conditions. While these aren't causes, they can be a clue to help providers recognize and diagnose dyscalculia. Math anxiety is real and can be serious, with signs such as increased heart rate, sweating, and panic. Children with math anxiety have shown neural responses in brain regions that correspond to negativity and fear which manifest as distress or even shutdown (Birsh & Carreker, 2022). Conditions that often occur alongside dyscalculia include the following.

- Attention-deficit hyperactivity disorder (ADHD).
- Dyslexia, dysgraphia, or non-verbal learning disorders.
- Sensory processing disorders
- Autism spectrum disorder.
  (The Cleveland Clinic's overview of dyscalculia)

Key Takeaways

1. Do children who reverse or confuse numbers have dyscalculia?

   a. No. Students with dyscalculia primarily have issues in math calculation, including foundational skills of subitising and estimations. Reversals or confusion of numbers is not a hallmark of dyscalculia.
2. Does everyone with dyscalculia have the same issues?
   a. Dyscalculia results primarily in difficulties with math and number-related problems. But the way these problems manifest and show up in real life, and in the classroom, can be different for every individual.
3. Is dyscalculia very rare?
   a. Recent studies have shown dyscalculia is almost as prevalent as dyslexia. Although it is not as well researched and understood as dyslexia.

Chapter 11: Characteristics of Dyscalculia

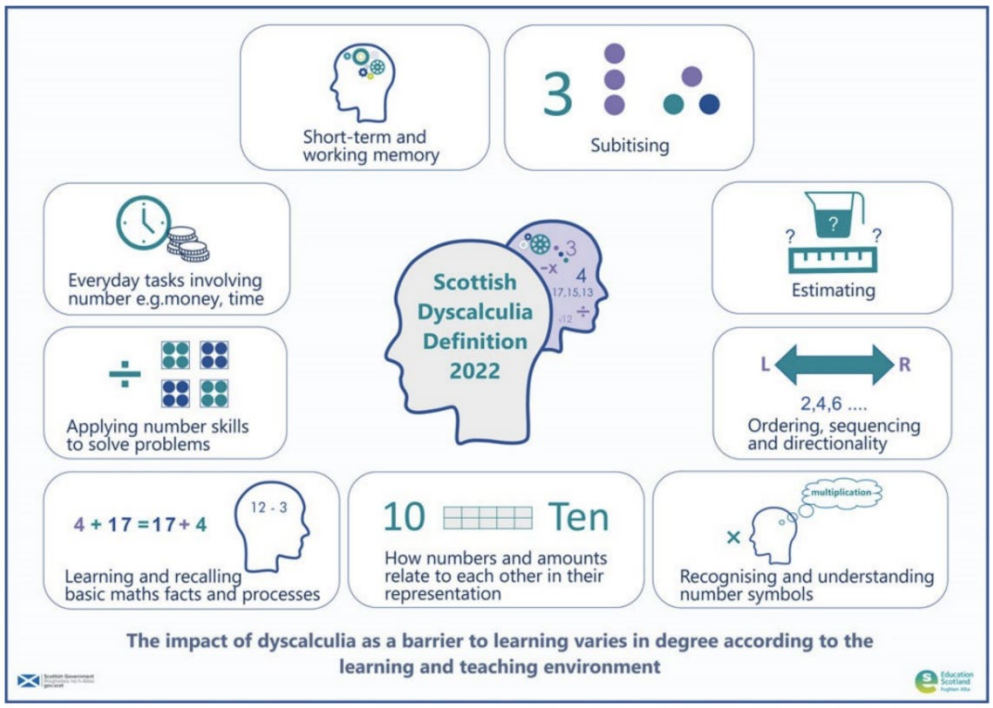
Recognition of the symptoms of dyscalculia usually appear in childhood when children are at the beginning stages of learning basic math. Although underrecognized over the long haul, dyscalculia is not rare, affecting 3.5%-6.5% of the school-age population (Birsh & Carreker, 2022). The reality is schools seldom qualify a student under Specific Learning Disability on the basis of math, even with evidence of severe difficulties and consistent low math scores.

A number of reasons exist why the diagnosis of dyscalculia is masked. The existence of another, previously diagnosed, specific learning disability is one of them; for example, 40%-50% of individuals with dyslexia have dyscalculia (Shalev, 2007). Given such a common co-occurrence, it is important to stay alert to students' math needs.

Signs and Symptoms of Dyscalculia

Math disabilities implicate one or all of three broad math learning foundations such as 1) spatial and numeric concepts, 2) facility with the count system, and 3) language processing. For students to be proficient in these skills and concepts, each one of these realms must be well-developed, and students must be able to intersect across each of the realms (Birsh & Carreker, 2022). Students must also be able to link their mental representations, count-system skills, oral language, and written math symbols to be proficient in mathematics.

Image: Daily Barriers with Dyscalculia



Below are the areas students may experience difficulties and challenges in mastering.

- Recognizing numbers and symbols.
- Fluidity and flexibility of numbers (number sense) and ease of how they move within numbers.

- Visualizing (mental number line).
- Counting (procedures and principles).
- Estimates (mental math).
- Measurements (length, weight, area, time, and temperature).
- Working with numbers (not understanding how numbers work).
- Number patterns (e.g., 3, 6, 9).
- Spatial relations (maps, routes, and sorting strategies).
- Rules (lining up numbers to work problems).
- Multisensory techniques to understand what numbers mean (ring bell 7 times).
- Graphs and charts.
- Remembering phone numbers and addresses.
- Math facts (remembering math facts).
- Quantitative reasoning (understanding word/story problems).

Dyscalculia Characteristics by Broad Grade Span

Lower Elementary (Pre-K and Kindergarten)

For very young children, the most common symptoms include trouble with the following skills.

- Counting upward.
- Connecting a number to that many of an object (for example, connecting the number 4 to that many marbles in front of them).
- Recognizing numbers and math symbols.
- Organizing numbers such as largest to smallest or first to last.
- Recognizing and using number lines.
- Learning money use (such as coins or bills).

Upper Elementary (1st through 5th grade)

The symptoms of dyscalculia often draw attention when children start school around age 6. For these children, the symptoms include trouble with the following skills.

- Counting on fingers with small numbers (especially at an age where that seems unnecessary).
- Identifying small quantities of items just by looking (this looks like needing to count each item one by one).
- Doing simple calculations from memory.
- Memorizing multiplication tables.
- Recognizing the same math problem when the order of the numbers or symbols changes (struggling to understand that 1 + 7 = 8 is the same as 8 = 7 + 1).
- Understanding word problems or more advanced symbols (such as > meaning “greater than” or < meaning “less than”).
- Organizing numbers by scale (10s, 100s, and 1,000s) or decimal place (0.1, 0.01, and 0.001).

Middle School/High School

The symptoms in teenagers and adults often look like trouble with the following:

- Counting backward.
- Solving word problems.
- Breaking down problems into multiple steps to solve them.
- Measuring items.
- Measuring quantities (such as for cooking/baking recipes).
- Using money (coins and bills) to pay for items, exchanging bills for coins (and vice versa) and making change.
- Understanding and converting fractions.

If you think a student has dyslexia, consider using this checklist to identify potential risk factors.

Mathematics and Language

Students' skill deficits in mathematics may be an inability to grasp math concepts as described in the bulleted lists above, but their difficulties may be from a deficit in language dysfunction. If there are concerns the student has a language deficit, this should be addressed in addition to their math issues.

Additionally, proper use of mathematics vocabulary is essential to build each student's skills in mathematical understanding and communication.

Resources for math language.

- The Importance of Math Vocabulary from PaTTAN Educational Consultant; https://www.youtube.com/watch?v=ppKWYMB6U1U
- Virginia Department of Education Vocabulary Word Wall Cards: https://www.doe.virginia.gov/teaching-learning-assessment/k-12-standards-instruction/mathematics/instructional-resources/mathematics-vocabulary-word-wall-cards

Chapter 12: Effective Instructional Practices for Students with Dyscalculia Across the Continuum

Knowledge Self-Check

Dyscalculia is treatable in children because their brains have not yet finished developing, making it possible for them to learn skills and develop abilities they need to adapt to. Many students with serious math difficulties will need specialized foundation work to make progress. Some students will move on to middle school needing little support if they received targeted intervention and support in the earlier grades, while others will only require special instruction at advanced levels (Birsh & Carreker, 2022).

The supports that should occur are symptom-specific and should focus on what a child struggles with most. Instruction and intervention should also start as soon as possible. The sooner intervention occurs, the better the chances are for students to adapt to dyscalculia and limit the impacts of dyscalculia.

Core Mathematics Instruction

While dyscalculia is neurobiological in origin, difficulties from this disability can be prevented through high-quality mathematics instruction. As with all subjects, core math instruction should provide opportunities for differentiated instruction, and lessons should intentionally use the Universal Design for Learning (UDL) to meet the needs of all students.

Additionally, math instruction should be conducted in a multisensory approach, particularly when new concepts are introduced. Methods for multisensory instruction in math include the use of manipulatives and concrete examples of the abstract concepts. These concrete examples might include money, blocks, and puzzles. As each student progresses in learning, instruction can move from concrete examples to representational examples of learning (e.g., moving from base-ten blocks to drawings of the tens and ones) then finally to abstract examples (e.g., from drawings of the addition concept to using numbers).

For more information on the instructional sequence of concrete-representational-abstract, see PATTAN's Instructional Sequence fact sheet.

Other instructional strategies to support student learning include "chunking" lesson content, using graphic organizers to structure student learning, and explicitly calling attention to new, important, and/or foundational concepts. Students should be provided with multiple opportunities to respond to the instruction through frequent practice, review, and feedback.

Math Intervention

Although intervention programs provide important road maps, students with dyscalculia will always need adjusting, because dyscalculia affects students who have differing strengths and diverse difficulties (Birsh & Carreker, 2022). As with all subjects, intervention should be

directly matched to the student's skill deficits and should allow for more opportunities for practice and support.

For more information on matching interventions to a student's math needs, see this presentation from Dr. Amanda Van Der Heyden and PaTTAN.

Providing Instructional Support

The following is a list of instructional support options for assignments that can be implemented, in addition to quality instruction and intervention.

- Create separate worksheets for word/story problems and number problems.
- Highlight or circle key words and numbers on word/story problems.
- Provide charts of math facts or multiplication tables.
- Let the student use a calculator when computation isn't what's being assessed.
- Give a rubric describing the elements of an assignment so students have clear expectations.
- Use an extra piece of paper to cover up most of what's on a math sheet or a test to make it easier to focus on one problem at a time.
- Give more space to write problems and solutions.
- Provide sentence stems and starters for student discussion and written responses.
- Color-code related concepts.
- Use mathematical language as much as possible and encourage the child to do the same.
- Do math problems on graph paper to keep the numbers in line.

In addition to the supports you provide families and students, consider the following for struggling math learners.

- **Seek out resources**.
  Education professionals and healthcare providers can maybe provide guidance and direction on more resources that can help. Take advantage of their expertise to help your student/child.
- **Find what works and use it**.
  There are many strategies and approaches to pick from that might help a child with dyscalculia. Some children benefit from using games, music, or other approaches. Once you find something that works, use it. That will help your child learn in a way that works for them.
- **Be patient**.
  Children with dyscalculia have a recognized condition that disrupts their ability to do math like children without this condition do math. This condition isn't something they can help, but they can learn to overcome it. They're more likely to succeed at learning to overcome the dyscalculia if they feel they have someone backing them along the way.
- **Be supportive and encouraging.**
  It's important to offer support and encouragement to children who have this issue. Without that support, children are prone to having low self-esteem issues, and many struggle with anxiety or depression related to this condition. However, children who have

encouragement and support are more likely to succeed and learn how to work through their condition, keeping it from limiting them in the future.

Key Takeaways

Chapter 13: Special Education Services

"*Identifying a child's dyslexia doesn't limit their potential. It empowers them to understand the nature of their difficulties and strengths and their path for success.*"
– Josh Clark, The Schenck School

"*If you don't know the cause, you get instructional paradigms built on faulty assumptions.*"
– Reid Lyon, Dickman, 2005

Knowledge Self-Check

1. Does my school test for dyslexia, dysgraphia, and dyscalculia?
2. Do students with an outside diagnosis of dyslexia, dysgraphia, and dyscalculia need special education services?
3. If my student doesn't qualify for special education, what are the next steps?

Students enrolled in enrolled in a public school, reside in, or attend a private school within a public school district boundaries are entitled to receive a comprehensive evaluation for special education services, at no cost to the family, if the student demonstrates a need for the evaluation. Anyone who is part of the student's educational team can request an evaluation for the student (e.g., parent, teacher, administrator, etc.). Schools should also use student-level data to determine if an evaluation is warranted. The following information discusses the process of a referral for, and completion of, a comprehensive evaluation to determine special education eligibility.

For more information, the Oklahoma Special Education Policies and Procedures Manual dives deeper into the topics of evaluation, eligibility, and subsequent special education.

Evaluation and Eligibility for Special Education Services

The Oklahoma Special Education Policies and Procedures Manual explains the process of evaluation and eligibility for special education under the Individuals with Disabilities Education Act (IDEA). The information in this section is from the Oklahoma Special Education Policies and Procedures Manual, Chapter 4: Evaluation & Eligibility.

Screening is one way of identifying students who are not meeting, or may not be meeting, Oklahoma Academic Standards or Oklahoma Early Learning Standards. Screening is a structured and organized process. (See Chapter 4: Screening for Risk of Characteristics of Dyslexia for more information about screening.) The screening of a student by Local Educational Agency (LEA-school district) staff to determine appropriate instructional strategies for curriculum implementation must not be considered an evaluation for eligibility for special education and related services (34 C.F.R. §300.302). Although screening is an important part of the Child Find system, screening cannot be used to delay processing a referral to consider a special education evaluation where immediate action is warranted.

When a written request has been made to the school site principal or appropriate LEA representative for an initial evaluation, a multidisciplinary team of qualified professionals

(e.g., certified school psychologists/school psychometrists, speech-language pathologists, occupational therapists, regular and special education teachers) and the parent must conduct a Review of Existing Data (RED). At the conclusion of this RED, the multidisciplinary team determines whether the data indicates the student may be a child with a disability that warrants special education services and if additional assessment data is necessary for a comprehensive evaluation. For purposes of special education eligibility under the IDEA, Oklahoma's Special Education Policies and Procedures explicitly outline the required components of a comprehensive evaluation for a Specific Learning Disability (SLD).

To be eligible for special education and related services, a student must meet the following components.

1. Have a disability under the IDEA (which includes dyslexia, dysgraphia, and dyscalculia under the broad category of Specific Learning Disability) as determined by sufficient key eligibility indicators from a special education evaluation.
2. The disability must have an adverse impact on their education.
   and
3. The student's unique, disability-related needs must require specially designed instruction in order to access the general education curriculum.

	**Families** It is important to note the definition of a Specific Learning Disability (SLD) is slightly different under the IDEA compared to the medical diagnosis of a "Specific Learning Disorder" within the Diagnostic and Statistical Manual, 5th edition (DSM-5). Outside evaluations may not include all the evaluation components required by the state of Oklahoma to determine eligibility for special education services, and the student's team may request parental consent to authorize the school to complete additional assessments, as necessary, to comprise a comprehensive evaluation. Similarly, a diagnosis of dyslexia, dysgraphia, or dyscalculia does not automatically determine eligibility under the IDEA as additional assessments may be necessary by the local educational agency (LEA).

If the student is not found eligible for special education services under the IDEA, the results of the evaluations conducted should still be used to provide feedback on the educational needs of the student, and the results should be incorporated within instructional and intervention planning. When a student is not eligible for special education services under the IDEA, but does have a disability, a referral for an evaluation under Section 504 of the Rehabilitation Act should be considered. A Section 504 plan can provide accommodations for the student.

For more information on Section 504 plans, please see the later sections of Chapter 15: Accessibility. Additionally, the evaluation team should consider how any identified educational needs may be addressed through evidence-based interventions with available school resources.

	**Families** A parent and/or adult student has the right to obtain an Independent Educational Evaluation (IEE) at public expense if they disagree with an evaluation obtained or conducted by the LEA. Parents can request the IEE only *after* the LEA conducts its own evaluation and shares the results. The LEA will provide the parents a list of qualified examiners, and parents may choose from the list or select their own qualified examiner to conduct the IEE based on the LEA's IEE criteria. For more information on the process of an IEE, please see the OSDE Special Education Policies and Procedures Manual.

The school-based decision-making team is responsible for providing an in-depth assessment as warranted by screening and/or response to intervention (RtI) or Multi-Tiered Systems of Support (MTSS). In addition to the information obtained through the review of cumulative folders/permanent records, a teacher checklist, and the family interview, other areas of assessment should be considered.

For more information on MTSS, please see Chapter 2: Introduction to Instructional Systems.

For students evaluated under the suspected disability category of Specific Learning Disability, the school district must provide documentation that evidence-based interventions were implemented to support the student's instructional needs in reading, math, and written expression, as needed. This documentation should include data on student progress or response to the intervention(s), the frequency and duration of intervention provision, and the integrity/fidelity data of the intervention(s) (e.g., using a fidelity checklist indicating the intervention was implemented as prescribed to ensure accuracy).

School-based data used for initial special education eligibility determinations must be no more than one calendar year old to be considered relevant and current data. This timeframe for data applies to current classroom assessments, curriculum-based measurements, local or state assessments, classroom observations, and other standardized assessments provided by the LEA. Background information on educational history, cultural information, and other historical information may be older than one calendar year for an initial evaluation.

Comprehensive Evaluation

The Oklahoma Special Education Policies and Procedures Manual establishes components of a comprehensive evaluation for Specific Learning Disability under the IDEA. More in-depth descriptions on these components can be found in the Oklahoma Special Education Policies and Procedures Manual.

	**Parents and Families** Under federal law (IDEA), if you suspect your child has a disability, including dyslexia, dysgraphia, or dyscalculia, your child's school must consider this concern, review data, and complete an educational

	evaluation at no cost to the family (if warranted). Before seeking a private evaluation, work with your child's school and learn the limitations to the supports that can be provided following a private evaluation. For the differences in various assessments and evaluations, and the supports they provide, please see the table in the Chapter 3: Defining Dyslexia, section entitled Recognizing Dyslexia. For support on understanding the evaluation process from a parent's perspective, please visit Decoding Dyslexia Oklahoma.

Components of a Comprehensive Evaluation for Specific Learning Disability	
REQUIRED	**AS NEEDED**
• Academic Achievement • Intellectual/Cognitive • Adaptive Behavior • Developmental • Background (Cultural and Educational) • Observation in Classroom/ Other Environment • Other Intervention Documentation • Vision Screening • Hearing Screening	• Health/Medical • Vision Evaluation • Hearing Evaluation • Motor • Communication/Language • Perceptual Processing • Psychological • Social/Emotional • Behavior • Assistive Technology • Other Intervention Documentation • Vocational

Qualified Professionals

A variety of individuals comprise the group of qualified professionals, and the parent, who determine whether a child is one with a disability under the IDEA (34 C.F.R. §300.306). Eligibility for special education services cannot be determined solely by one, individual, qualified professional. Indeed, it is the responsibility of a multidisciplinary group of qualified professionals who evaluate/assess or bring information to the team for consideration as the basis for determining eligibility, depending on the suspected disability (or disabilities) or concerns addressed in the RED. Within the context of comprehensive evaluations/ assessments for special education services, different professional evaluators may contribute to the evaluation process by assessing the identified areas of concern within their professional competency. Please note that an individual professional may have additional certifications and/or training in an area not listed. Specific information on the additional certification and/or training of a qualified professional may be requested by the parent or evaluation group.

Who is Best to Identify the Characteristics of Dyslexia?
"A diagnosis of dyslexia begins with the gathering of information gained from interviews, observations, and testing. This information is collected by various members of a team that includes the classroom teacher(s), speech/language pathologist, educational assessment specialist(s), and medical personnel (if co-occurring difficulties related to development, health or attention are suspected). The task of relating and interpreting the information collected should be the responsibility of a ***professional who is thoroughly familiar with the important characteristics of dyslexia at different stages in the development of literacy skills. This professional should also have knowledge of the influence of language development and behavior on literacy learning.***"

– Sawyer & Jones, IDA Testing & Evaluation Fact Sheet, 2009

Assessments

Components of an Effective Evaluation for Dyslexia

BACKGROUND INFORMATION
Family history of learning difficulty
Medical History
- Speech-language delays
- Developmental delays
- Ear infections

Previous Evaluation Information
- Educational
- Speech-Language, Occupational, Physical Therapy
- Attention/Focus
- Mental Health

Documentation of Previous Intervention
- RTI, IEP, Private services
- Type, length, outcome

CHARACTERISTICS OF READING DIFFICULTY
Word Recognition Decoding
Oral Reading Fluency (Rate/Accuracy) Spelling (Words, Dictation, Connected Text)

UNDERLYING CAUSE
Phonological Processing
- Phonological Awareness (taking sounds apart, blending sounds, manipulating sounds)

Phonological Memory
- Rapid Naming

COGNITIVE/ACADEMIC ABILITY
Cognitive/Intelligence
Verbal or non-verbal problem-solving
- Concept formation
- Critical thinking
- General Knowledge

Mathematics
- Math Reasoning
- Calculation/Computation
- Math Facts Fluency

Other Abilities
Oral Language
- Oral/listening comprehension
- Receptive/expressive vocabulary

Creative Arts
- Dance
- Music
- Drama/Speech
- Theatre

Athletics

OUTCOMES
Reading comprehension
Written expression

CO-EXISTING CONDITIONS/ASSETS/COMPLICATIONS
Oral language, Vocabulary, Mathematics, Attention, Handwriting, Behavior/Emotions

Differential Identification Questions for Dyslexia

1. **Does the student demonstrate one or more of the primary reading characteristics of dyslexia in addition to a spelling deficit?** This includes below average/low average: phonological awareness (the sounds), letter knowledge, decoding, word recognition, oral reading fluency, and spelling.
2. **Is there a deficit in phonological processing/phonemic awareness (the underlying causes of dyslexia)?** This includes below average/low average: phonological

awareness (pulling apart, blending, and manipulating sounds), rapid naming, and letter knowledge.

   a. If a cluster score is used, look at the individual subtests to determine the consistency of scores.
   and
   b. Consider if the student has received interventions that may have normalized the score. If interventions have been documented, there should be evidence of a prior weakness in phonological awareness. (Previous effective instruction in phonological/phonemic awareness may remediate phonological awareness skills in isolation, but average phonological awareness scores alone do not rule out dyslexia.) (The Dyslexia Handbook--Revised 2007, updated 2010.) (Procedures Concerning Dyslexia and Related Disorders pg. 17. TEA, Austin, TX. February 2007, updated 2010.)

3. **Are the reading, spelling, and phonological deficits unexpected? Does the student demonstrate the cognitive ability to support age-level academic learning?** If the student demonstrates average to above-average cognitive skills, (verbal/nonverbal intelligence, oral language, and other academic or cognitive abilities) and the student's ability to learn to read and spell is difficult in comparison to learning other subjects.
4. **Are there secondary characteristics of dyslexia evident in reading comprehension and written expression?** Is there a below-average/low-average understanding of what is read and/or an ability to put thoughts on paper?
5. **What are the student's strengths that could be assets?** What strengths and/or weaknesses are demonstrated in other subjects or areas?
6. **Are there indicators of coexisting disorders (e.g., ADHD, dysgraphia, dyspraxia, anxiety, etc.) that may complicate the response to intervention and may deserve further assessment for identification?**

The information gleaned from these questions reflects components of the definition of dyslexia as expressed by the International Dyslexia Association (IDA). The school-based decision-making team may use these six key questions to determine whether the student is demonstrating characteristics and educational needs consistent with dyslexia. If so, the student's instruction or intervention should be matched to an evidence-based, multisensory, systematic, and explicit reading curriculum aligned with the student's specific skill needs.

Differential Identification Questions for Dysgraphia

The graphomotor and orthographic processing problems that underlie dysgraphia can be identified by a variety of education, child development, and healthcare professionals familiar with factors associated with typical and impaired handwriting. Dysgraphia is a learning disorder related to, but different from, other learning disorders such as dyslexia and Specific Learning Disability (SLD) in Written Expression. The following table demonstrates common behaviors related to these disabilities and their overlap. A comprehensive evaluation can help identify a student's difficulties in the following areas.

Observed Difficulties	Dysgraphia	Dyslexia	SLD Written Expression	Oral Written Language Disorder
Forming letters on paper: errors in size, spacing, proportion, formation, and rhythm	✔			
Copying letters and words from models	✔			
Slow, effortful writing	✔	✔	✔	✔
Inappropriate spacing between letters and words in written expression	✔			
Reading and spelling irregular words	✔	✔	✔	✔
Sounding out words when reading and spelling		✔		✔
Orthographic processing	✔	✔		
Phonological processing		✔		
Written expression	✔	✔	✔	✔
Reading comprehension		✔		
Vocabulary, grammar, and sense of audience		✔	✔	✔
Organization and development of thoughts in writing			✔	✔
Correct application of punctuation and capitalization	✔		✔	

Differential Identification of Dyscalculia

Like other specific learning disabilities, dyscalculia can be identified by evaluators using standardized assessments to determine what mathematical areas the student is struggling in. Evaluations may assess computation skills, math fluency, mental computation, and

qualitative reasoning skills. It may also give information on visual/spatial skills, semantic and working memory, and functional math skills. We already know specific learning disabilities have a high co-occurring rate with other neuro-diverse differences, as discussed in the Chapter 14 section Co-Occurring Disabilities. Dyscalculia is often confused with dyslexia, or called a "number dyslexia," which is misleading. Dyscalculia and dyslexia are similar in that they are both under the umbrella term of a specific learning disability, but diagnostic criteria between them will differ. When evaluating, be aware of other co-occurring disabilities that may affect executive function, memory, attention, reasoning, or comprehension skills.

	**Important** It is important to note, school psychometrists and certified school psychologists cannot diagnose dyslexia, dysgraphia, or dyscalculia. Instead, they can identify if any sufficient key eligibility indicators exist under the category of Specific Learning Disability (SLD) to determine eligibility under IDEA. The term, "characteristics of dyslexia, dysgraphia, or dyscalculia," may be used by the multidisciplinary team to help document these key eligibility indicators.

Using Evaluation to Design an Individualized Education Program (IEP)

Once a student has been determined to be eligible for special education services under the IDEA, the team will need to draft an Individualized Education Program (IEP) for the student based on the student's areas of educational need indicated from the evaluation and eligibility determination. The IEP team should use the student's strengths to assist in creating a specialized educational plan for the student to address their deficits.

Individualized Education Programs (IEPs) include information that assists the IEP team in the provision of specially designed instruction. The components of an IEP include the following.

- Demographic information about the student.
- An objective statement supporting the need for specialized education based on the student's disability category and references to the student's strengths and weaknesses.
- Current assessments (within the past year).
- Current descriptive information about the strengths and educational needs of the student, including parental concerns.
- Consideration of special factors for IEP development, which are questions to ensure the IEP meets the student's unique needs.
- Annual goals (and objectives as necessary) linked to the area(s) of educational need and to the services that would support the attainment of the goal(s).
- How the student's progress will be measured and communicated to parents for each goal.
- Supplemental aids and services to support the attainment of the goals.
- Accommodations for the classroom and state/district assessments.
- Documentation of least restrictive environment (LRE).

- Information on the determination of extended school year (ESY).
- IEP team signatures.
  and
- Informed parent consent, with questions to ensure the parent has been informed of their rights and of any relevant supports for the student or parent.

These components work together to ensure the IEP team is providing individualized support for the student that is reasonably calculated for the student to make progress in their identified areas of educational need.

For more information on the components and other important aspects of the IEP, see the Oklahoma Special Education Policies and Procedures Manual Chapter 5.

Section 504 Evaluation

Section 504 of the Rehabilitation Act of 1973 is a federal civil rights law that prohibits discrimination on the basis of disability in programs and activities that receive federal financial assistance from the U.S. Department of Education. Section 504 establishes a student's right to full access and participation in education and all school-related activities, and Section 504 requires schools to provide appropriate services to meet the individual needs of qualified students. Some students with dyslexia, dysgraphia, or dyscalculia may qualify for a Section 504 Plan. The Office for Civil Rights (OCR) oversees compliance with Section 504.

For more information, visit the Office for Civil Rights and the OSDE Section 504 webpage.

The Americans with Disabilities Act (ADA) is also a federal civil rights law. It prohibits discrimination against people with disabilities in several areas, including employment, transportation, public accommodations, communications, and access to state and local government programs and services. Concerning students attending K-12 public schools, the provisions of Title II of the ADA are interpreted in the same way the K-12 provisions of Section 504 are interpreted. The OCR also oversees public school compliance with Title II of the ADA.

A student is considered a qualified individual with a disability under Section 504 if the student is between the ages of three and 22 years and has a disability, which is defined as a physical or mental impairment that substantially limits one or more major life activities. Major life activities include, but are not limited to, caring for one’s self, walking, seeing, hearing, speaking, breathing, working, performing manual tasks, and learning. Some examples of impairments that may substantially limit major life activities, even with the help of medication, aids, or devices, are attention deficit hyperactivity disorder (ADHD), asthma, allergies, blindness or visual impairment, deafness or hearing impairment, diabetes, dyslexia, dysgraphia, dyscalculia, epilepsy, heart disease, and mental illness.

With the passage of the ADA Amendments Act in 2008, Congress expanded the scope of "major life activities” and clarified a disability determination under Section 504 and the ADA should not demand extensive analysis, which is why the ameliorating effects of mitigating

measures (other than ordinary eyeglasses or contact lenses) are no longer considered when making a determination.

An evaluation is necessary to determine whether a child has a physical or mental impairment that substantially limits one or more major life activities. The group who meets to review this evaluation and make a decision about services must consist of knowledgeable people. Examples of knowledgeable people are school nurses, teachers, counselors, certified school psychologists, school administrators, social workers, and other health care professionals who, in interpreting evaluation data and determining the needed services, carefully review and analyze information collected from a variety of sources. Examples of such sources are a pediatrician's report, aptitude and psychological test results, the student's grade reports, teacher observations, the student's social and cultural background, and the student's family.

Developing a Section 504 Plan

A group of knowledgeable people develop each student's Section 504 Plan. The Section 504 Plan describes the education and related aids and services a student needs and the appropriate setting in which the student will receive those services and supports. In addition to providing required education and related aids and services, including program modifications a student may need under Section 504 and the ADA, school districts are also required to have written procedures on their administration of services under Section 504. These procedural safeguards include notice of the law and its applicability, an opportunity for students and their parents or guardians to examine relevant records, an impartial hearing with the student's parents or guardians and representation by counsel, and a review procedure. The procedural safeguards used to comply with IDEA are one means of meeting this requirement.

Section 504 Plan or IEP

Both documents, a Section 504 Plan and an IEP, can respond to a student's needs when a disability is present. A student does not need not start with a Section 504 Plan to procure an IEP or vice versa. These documents do not supersede each other, but they determine eligibility/qualification differently. As described above, a student's need for an IEP is determined through IDEA's eligibility determination process, whereas a student's need for a Section 504 Plan depends on an eligibility determination under Section 504 and the ADA.

Major differences between these documents start with the legislative ownership of the IDEA or OCR. An IEP's intention is to provide a student, with a disability that has an adverse educational impact as determined by the eligibility determination, special education services, and related supports. A Section 504 Plan's intention is to provide support for a student with a disability to ensure they can access the proper educational environment. A Section 504 Plan will not provide access to specialized education. If a student has a disability, a Section 504 Plan may be a supportive tool to ensure they have access to tools and supports in the classroom.

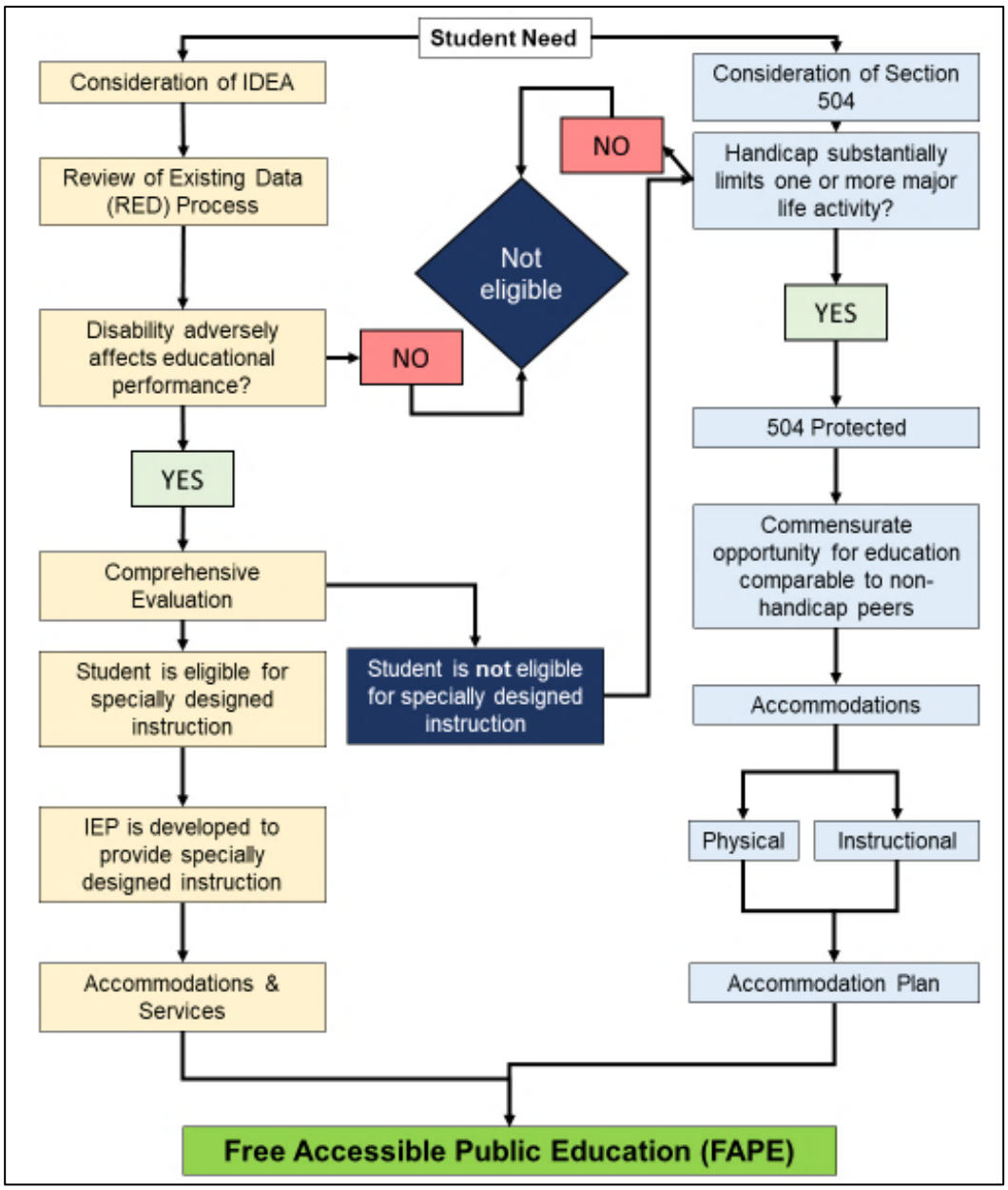
Because an IEP is determined through the IDEA, which covers services for students ages three through 22, the student's right to services ends at the end of the school year in which

the student turns 22 or in which the student earns a high school diploma, whichever occurs first. By contrast, a student's right to protection from discrimination, based on disability under Section 504 and the ADA, may continue into postsecondary education. However, at the postsecondary level, it is important to note the student will need to self-disclose their disability and advocate for supports and tools since they do not automatically apply to all postsecondary educational options. Services and supports available to students with Section 504 Plans at the K-12 level are not necessarily available at the post-secondary level.

If a K-12 student already has a Section 504 Plan, and their parents (or the student if they are 18 or older) determine an IEP may be necessary, the parents/student would need to request a comprehensive evaluation for special education eligibility. The evaluation process would begin as described above in this chapter.

If a student already has an IEP, and their parents (or the student if they are 18 or older) have determined a Section 504 Plan may be necessary, the IEP team would need to determine that the student no longer qualifies for an IEP under the IDEA. This qualification would be done through a comprehensive reevaluation, or the parent/student would need to revoke their consent for services under the IDEA.

Image: Evaluation Processes for an IEP or Section 504 Plan



Parents & Families
[The Parent and Educator Resource Guide to Section 504 in Public Elementary and Secondary Schools from the U.S. Department of Education Office for Civil Rights]

Accommodations

The IEP team or Section 504 team will determine the accommodations necessary to enable the student to participate successfully in the school setting and in assessments. See Chapter 15: Accessibility for more information.

Key Takeaways

1. **Does my school test for dyslexia, dysgraphia, and dyscalculia?**
   a. Oklahoma schools are required to screen students in K-3 for dyslexia. For all students, special education Child Find obligations are still expected to be met by all schools in Oklahoma. Parents and families seeking a test for dyslexia, dysgraphia, and dyscalculia will follow the guidance to request a comprehensive evaluation. See the Oklahoma Special Education Policies and Procedures to find out more information on requesting an evaluation, the responsibilities of the school to conduct the evaluation, or the responsibilities of the school to provide reasons for not conducting the comprehensive evaluation.
2. **Do students with an outside diagnosis of dyslexia, dysgraphia, and dyscalculia become automatically eligible for special education services?**
   a. Parents and families can seek a private diagnosis if they choose to do so (See Chapter 3 for the qualifications of a provider who can diagnose). Parents should then bring the evaluation results to the school, and the school must consider the results. However, during the consideration process the school may or may not determine the student needs a comprehensive evaluation. If the school determines a comprehensive evaluation is warranted, they will then need to seek informed parent consent to conduct the remaining components of the evaluation at school to determine the student's eligibility. Therefore, even with an outside diagnosis, a student may not receive a comprehensive evaluation or may be determined ineligible. See the Oklahoma Special Education Policies and Procedures to find more information on outside evaluation results.
3. **If my student doesn't qualify for special education, what are the next steps?**
   a. It can be difficult to watch your student struggle and not receive support in the form of special education. The Oklahoma Special Education Policies and Procedures has procedures parents and families can follow if they believe an evaluation was in error. However, if a student is determined ineligible for special education, parents and families still have many options to support their student. The student may be eligible for a Section 504 Plan, which has different eligibility criteria and services provided. A student may also be able to receive supports through an Individualized Plan of Reading Instruction (IPRI) or through their school's Multi-Tiered Systems of Support (MTSS).

Important Considerations Unit

Chapter 14: Special Population Considerations

Knowledge Self-Check

1. Can a student be identified as gifted and have dyslexia, dysgraphia, and/or dyscalculia?
2. Can an English Learner have dyslexia, dysgraphia, and dyscalculia?
3. Can students with dyslexia, dysgraphia, and dyscalculia have other co-occurring disabilities?
4. Is dyscalculia always co-occurring with dyslexia or autism?

Giftedness and Twice-Exceptional Students

"*What's not often well-known or well-understood is that students who are gifted may also have a special need or disability— just as students with disabilities may also be gifted. The term 'twice-exceptional,' also referred to as '2e,' is used to describe gifted children who have the characteristics of gifted students with the potential for high achievement and give evidence of one or more disabilities as defined by federal or state eligibility criteria. These disabilities may include specific learning disabilities (SpLD), speech and language disorders, emotional/behavioral disorders, physical disabilities, autism spectrum, or other impairments such as attention deficit hyperactivity disorder (ADHD)*."

– National Association for Gifted Children

According to OK State Law Title 70 O.S. 1210.301:

1. "Gifted and talented children" means those children identified at the preschool, elementary and secondary level as having demonstrated potential abilities of high-performance capability and needing differentiated or accelerated education or services. For the purpose of this definition, "demonstrated abilities of high-performance capability" means those identified students who score in the top three percent (3%) on any national standardized test of intellectual ability. Said definition may also include students who excel in one or more of the following areas:
   a. Creative thinking ability.
   b. Leadership ability.
   c. Visual and performing arts ability.
   and
   d. Specific academic ability.

Therefore, educators can provide gifted and talented services for students who demonstrate gifts and/or talents in areas that may not be recognized by standardized assessments of cognitive ability. Educators should consider offering multiple types of assessments in an inclusive environment (potentially offering assessments to an entire grade level).

For more information on giftedness, visit the Oklahoma Gifted and Talented Website: https://sde.ok.gov/gifted-and-talented-education.

Twice-exceptional, or 2E, is a term used to describe students who are both intellectually gifted (as determined by an accepted standardized assessment) and learning disabled,

which includes students with dyslexia. The National Association for Gifted Children (NAGC) describes three types of students who could be identified as 2E.

1. Students identified as gifted and talented as well as identified with a learning disability (including dyslexia).
2. Students whose learning disability has been identified but is potentially taking precedence over a gifted identification. These students are required to have their needs met and should have gifted services offered as soon as possible.
3. Students who have a learning disability and are gifted and talented, but neither are addressed due to their average school performance.

“Masking” is a term used when gifted traits and characteristics make it seem like a student does not have a learning disability that needs to be addressed OR when a learning disability overshadows or is addressed more readily than a student's gifted and enrichment needs.

When considering a gifted student with dyslexia, these considerations should be remembered.

- Cognitive measures must be administered when 2E is suspected.
- Dyslexia or giftedness may be overlooked.
- Oral language and background knowledge compensate for weak decoding, masking the dyslexia, OR severe decoding and spelling challenges mask the giftedness.

Therefore, educators must be vigilant in looking for characteristics that could indicate giftedness, dyslexia, or both.

Some characteristics (such as, but not limited to, those in the bulleted list below) observed in students may prompt educators to administer a cognitive assessment. Educators should consider multiple areas of cognitive assessment or non-cognitive assessment, depending on the student’s strengths.

It is important to note that students are required by law to receive services that address their giftedness, as well as receive services to address their dyslexia (or other specific learning disability) (70 O.S. 1210.307).

Characteristics of Twice-Exceptional Students

- Superior oral vocabulary.
- Advanced ideas and opinions.
- High levels of creativity and problem-solving activity.
- Extremely curious, imaginative, and questioning.
- Discrepant verbal and performance skills.
- Clear peaks and valleys in cognitive test profile.
- Wide range of interests not related to school.
- Specific talent or consuming area of interest.
- Sophisticated sense of humor.

(International Dyslexia Association, Gifted and Talented: Identifying and Instructing the Twice-Exceptional Student Pact Sheet, 2018.

This is bulleted list not provided as a fully comprehensive checklist, nor should it be used to identify 2E students. While many schools screen students for giftedness at regularly scheduled intervals, when that is not possible or a student has missed an interval, the school

should consider students with these characteristics to determine if an evaluation for giftedness is warranted. This consideration is only provided as guidance when screening large groups of students is not possible, and when educators want to ensure students who have learning differences, such as dyslexia, are assessed and considered for gifted programming properly.

English Learners (ELs)

Children who are learning English are just as likely to have dyslexia as their native-English-speaking counterparts, and there is a way to identify dyslexia in these children. The difference is that dyslexia might appear in the native language quite as vividly as it will when they attempt to learn English (Sandman-Hurley, 2021).
https://www.languagemagazine.com/dyslexia-and-the-english-learner-dilemma/

English Learners (ELs) are just as likely to have dyslexia as their native-English-speaking peers. Yet, they tend to be identified later in life, because some risk factors associated with dyslexia, such as issues related to phonemic and phonological awareness and rapid automatized naming, are often present in ELs as well. So this overlap can make it difficult to make determinations of dyslexia within this population (Hoeft, 2017). Teachers, and even parents, may think a child is having trouble with reading because they are learning a new language. It can be challenging to discern the difference between the natural process of language learning and reading difficulties.

If a child struggles with reading in their native language, as well as in English, that may be an indicator of dyslexia. Therefore, when evaluating bilingual students for characteristics of dyslexia, it is best practice to assess them in both languages. Then evaluators can better establish if a child is having difficulties with reading-related tasks in just one language or in both. At-risk factors for dyslexia would be present in both languages. Even if an EL is not literate in their native language, they can still be tested for phonemic and phonological awareness in their native language if they have oral language skills (Brown, 2008). However, if students lack both oral and literacy skills in their native language, it would be unhelpful to assess them in their native language. Due to this likelihood, evaluators should extensively review linguistic and educational history of ELs before making determinations with assessments.

Additionally, ELs who are proficient in their native language and whose language is transparent (languages with direct connections between letters and sounds) particularly benefit from assessments in both languages. With transparent languages, students are able to sound out words with ease. Comparatively, the opaque language of English, with letters that may and may not coordinate with sounds, often leads to decoding issues for ELs as well as some native-English-speaking students. Because transparent languages are predictable, native language assessments that reveal fluency and orthography (the conventional spelling system of a language) issues can be immediate indicators of dyslexia (Snowling, 2000). Below is a chart with transparent and opaque languages, including Oklahoma's top ten most common languages.

Transparent Language	Opaque Language
Spanish	English
Vietnamese	Chinese (Mandarin and Cantonese)
Zomi	Arabic
Cherokee (syllabary with a phonetic system)	Burmese
Italian	French
Marshallese	Japanese
Chuukese	Korean
Hmong (please note there are four orthographies.)	Russian

Furthermore, educators should consider educational and cultural backgrounds and experiences of ELs. Cultures throughout the world have varying perspectives and philosophies on education. Some ELs may have interrupted, limited, or no formal education. Furthermore, some ELs may have faced trauma or may be experiencing culture shock or the silent period which are both common stages in second language acquisition. Consequently, it is crucial for evaluators to thoroughly examine and investigate these possibilities.

ELs are doing double duty all the time. Their cognitive workload is continuously stressed as they navigate and make connections between languages and simultaneously learn content. ELs who struggle to read require the same access to effective, evidence-based, Tier 1, core instruction as their native-English-speaking peers. They should have access to explicit instruction and modeling in all strands of **Scarborough's Reading Rope** as outlined in Chapter 4 of this handbook. Moreover, EL students benefit from instruction using Structured Literacy. They need instruction that is diagnostic, explicit, systematic, and cumulative. See Chapter 7 of this handbook for more information.

Importantly, ELs must also have access to English Language Development (ELD) instruction and scaffolds. To learn more about ELD strategies for ELs, please visit the **Instruction for Newcomers** section (p.18) of OSDE's Serving and Supporting Oklahoma's Newcomers. These strategies work for all ELs and are not necessarily specific to newcomers.

Unaddressed dyslexia in ELs is certainly concerning as Brown (2008) suggested that students with below-average phonemic awareness in their native languages will have difficulty learning a new language. This low awareness is particularly worrisome, because language learners rely on transfer skills. In other words, linguistic strengths in a student's first language should transfer to English. This is why experts believe dyslexia should be remediated in the native language first since this will then transfer to English whenever

possible (Ortiz et al, 2002).

Concepts that Transfer from Language to Language

- Phonological/phonemic awareness.
- Alphabetic principle (if an alphabetic language).
- Decoding.
- Fluency.
- Comprehension strategies.

ELs also benefit when they receive meaningful, specific, and immediate feedback from trusted adults which allows students to learn new skills without confusion or incorrect learning (Carnine, Silbert, Kame'enui, & Tarver, 2004). Feedback can be given in the pronunciation, grammar, and usage of English by using the three types of feedback in the table below.

English Learner (EL) Feedback Types		
Type	**Description**	**Example**
Recasting	Do not focus on what is wrong. Instead, give a recap of the student's response with appropriate pronunciation, grammar, or usage while adding additional information if appropriate.	**Teacher**: Tell me about how an animal can survive in its habitat. **EL Student**: He survived with camivloge. **Teacher**: Yes, animals can survive by using camouflage to blend in with their surroundings.
Change the Mode of Response	This technique gives the EL a choice when answering. It helps reduce the language demand, but it also allows for a formative assessment of the student.	**Teacher**: What state of matter is coffee? Is it a solid or liquid? **EL student**: A liquid. **Teacher**: You are right. Coffee is an example of a liquid. It can take the shape of its container like coffee does when you pour it into a cup to drink it.
Reteaching	This technique is used in response to a student with a misunderstanding of the previously taught material. The teacher will determine the intensity of the reteaching to best suit the needs of the student. The teacher will then provide an explicit instructional opportunity to engage the student with the material again. Often this can happen informally with the student and the teacher, but it can also occur in a more formal and higher intensity setting.	**Teacher:** What state of matter is coffee? **EL student:** A solid. **Teacher:** A solid takes up a defined shape like a piece of metal or the wood on the top of your desk. A liquid takes the shape of its container like coffee does when you pour it into a cup. Coffee is a liquid. Let's say it together. **EL Student and Teacher:** Coffee is a liquid. **Teacher:** Now you say it. **EL Student:** Coffee is a liquid.
Modified from Teaching English Learners: A Supplementary LETRS Module (Arguelles, Baker, & Moats, 2011, pgs. 13-18)		

If an EL is determined to be at risk for dyslexia, many of the strategies used to remediate dyslexia are fortunately already incorporated into English Language Development (ELD) instruction for ELs. For example, dyslexia remediation calls for instruction on speech perception, phonemic and phonological awareness, and sound-symbol connections. These are embedded features of ELD. In addition, both students at risk for dyslexia and ELs should receive instruction, and be able to demonstrate understanding and learning, in a variety of modes (reading, writing, listening, and speaking).

For more information on ELs at risk for dyslexia, please contact the Office of English Language Proficiency at OELP@sde.ok.gov or (405) 522-5073.

Co-Occurring Disabilities

It is not unusual for someone with a learning disability to also be identified with a co-occurring disability (often referred to as a co-morbidity in medical settings). These difficulties vary in severity from mild to profound and will impact each person differently. Some neurodevelopmental conditions have an overlap in symptoms which can increase the impact for an individual. It is more common for students to have co-existing conditions than not. This should be taken into consideration during the referral and evaluation process.

Condition	Description of Condition	Possible Signs/ Characteristics (Not an Exhaustive List)	Prevalence	Co-Occurring Rates
Dyslexia	A Specific Learning Disability that affects the ability to learn to read and spell. It may involve weakness in one or more of the following areas: • Phonological awareness. • Orthographic awareness. • Memory. • Rapid naming. and • Perceptual speed.	• Difficulty learning letter names and sounds. • Slow and labor-intensive reading. • Poor spelling. • Reading errors that show no connection to the letters on the page. • Mixing up similar words.	15-20% of the population.	Up to 40% of people with ADHD (especially ones who are inattentive) could also be identified with dyslexia and vice versa (Willcutt & Pennington, 2000). Of children who met the criteria for a dyslexia diagnosis, 50% met the criteria for another diagnosis (Kaplan et al., 2001). Dyslexia and dyscalculia co-occurrence is reported as high as 50% (Grant et al, 2020). Adults with dyslexia named anxiety as the most frequent emotional symptom (Learning Ally).

Condition	Description of Condition	Possible Signs/ Characteristics (Not an Exhaustive List)	Prevalence	Co-Occurring Rates
Dysgraphia	A Specific Learning Disability (SLD) that affects how well children acquire written language and how well they use written language to express their thoughts.	**Motor Processing:** • Difficulty forming letters to shapes. • Awkward and/or painful pencil grip. • Difficulty with letter/word spacing. • Messy handwriting. **Information Processing:** • Difficulty organizing and putting thoughts down on paper. • Difficulty with written expression.	10-34% of children demonstrate difficulty writing (Smits-Engelsman, Niemeijer & Van Galen, 2001).	The correlation rate with another learning disability is approximately 70%, although a specific rate is unknown (Ehri, 2000). 30-40% of children who have difficulty writing also have difficulty reading (Chung, et al, 2019).
Dyscalculia	A learning disability that complicates mathematical concepts including accessing and applying mathematical skills.	• Difficulty connecting a number to a quantity. • Difficulty comparing amounts. • Difficulty recognizing a quantity without counting. • Difficulty recalling basic math facts (like multiplication tables). • Difficulty making sense of money and estimating. • Difficulty sorting out directions. • Difficulty reading time on an analog clock.	3-6% of the population.	A dyslexia and dyscalculia co-occurrence is reported to be as high as 50% (Grant et al, 2020). Dyscalculia is also thought to have a high co-occurrence with ADHD, but the exact numbers of this co-occurrence are unknown.

Condition	Description of Condition	Possible Signs/ Characteristics (Not an Exhaustive List)	Prevalence	Co-Occurring Rates
Developmental Language Disorder (DLD)	Neuro-developmental communication disorder that interferes with learning, understanding, and using language. These language difficulties cannot be explained by other conditions.	**In Younger Children:** • Slow putting words into sentences. • Difficulty understanding spoken directions. • Frequent grammatical errors. **In Older Students/ Adults:** • Limited use of complex sentences. • Difficulty finding the correct word. • Disorganized story telling/writing. • Frequent grammatical and spelling errors. • Difficulty understanding figurative language (NIDCD).	The prevalence rate of DLD is approx. 7.5% (Norbury, et al., 2016).	> 50% of children with DLD also have a comorbidity of dyslexia (Adlof and Hogan, 2018). People with DLD are 6 times more likely to have reading difficulties and 4 times more likely to struggle with math (Young, et al., 2012).
Attention Deficit Hyperactivity Disorder (ADHD)	An ongoing disorder with a pattern of inattention, hyperactivity, or both that interferes with functioning or development. **Three subtypes:** **1.** Predominantly inattentive. **2.** Predominately hyperactive-impulsive. **3.** ADHD combined type (NIH).	• Difficulty finishing tasks. • Overlooks details or makes careless mistakes. • Difficulty with sustained attention. • Easily distracted. • Forgetful in daily activities. • Fidgeting and squirming while seated. • Feelings of restlessness. • Misplaces items needed for tasks.	7.2% of children worldwide have ADHD (Thomas, et al., 2015).	30-40% comorbidity with dyslexia (IDA). Up to 60% of children with ADHD will also have a learning disorder.

Condition	Description of Condition	Possible Signs/ Characteristics (Not an Exhaustive List)	Prevalence	Co-Occurring Rates
Anxiety	A generalized anxiety disorder (GAD) is when a person excessively worries about a variety of everyday problems for over 6 months.	May present as: • Persistent fear or worry. • Irritability or anger. • Stomach aches, headaches, or fatigue symptoms. • Difficulty sleeping.	Affects 1-3% of children and adolescents.	One study shows nearly 29% of students with a specific learning disability (SLD) also have an anxiety disorder.
Developmental Coordination Disorder (DCD); Dyspraxia	A neuro-developmental disorder that affects physical coordination and motor planning. This is not a learning disability.	• Difficulty with coordination. • Clumsiness. • Difficulty with gross or large motor movements (jumping, skipping, catching, kicking a ball, etc.). • Difficulty with fine motor tasks.	At least 5% of school-aged children have DCD.	50% of children with dyslexia have dyspraxia (Kaplan, et al, 1998). 50% of students with dyspraxia have ADHD. DCD is frequently seen with other neurodevelopmental disorders including ADHD, dyslexia, DLD, dysgraphia, and autism.
2E Dyslexia and Giftedness	Twice exceptional, or 2E, is a term to describe students who are both intellectually gifted (as determined by an accepted standardized assessment) and learning disabled.	• Superior Oral Vocabulary • Extremely curious and imaginative • Clear peaks and valley on diagnostic profiles • Advanced ideas and opinions	2-5% of children are 2E (IDA).	Up to 14% of gifted children may also have a learning disability.
Autism Spectrum Disorder	A neurological and developmental disorder that affects how people interact with others, communicate, learn, and behave.	• Difficulty with communication or interaction with others. • Difficulty with changes in routine. • Restrictive or repetitive behaviors (this could include echolalia or intense interest in certain topics). • Stereotypical movements.	Incidence of 1 in 36 children (8-year-olds) in the U.S. (CDC).	Autism and reading disorders co-occur between 6-30%. The variability depends on if it is a co-morbidity or if symptoms overlap.

Condition	Description of Condition	Possible Signs/ Characteristics (Not an Exhaustive List)	Prevalence	Co-Occurring Rates
Oppositional Defiant Disorder (ODD)	Recurrent patterns of defiance and hostile behaviors. Can be mild to severe.	• Frequent temper tantrums or anger outbursts. • Arguments with adults or authority figures. • Frequent active defiance to follow requests. • Often upsets people on purpose.	Ranges from 2-16% prevalence rates for children, but estimates of 1-3% for stratified community samples (NIH).	High co-occurrence with ADHD. Behavior problems can make it difficult to learn to read, and difficulty reading can lead to behavior problems.

Ongoing research is happening in the areas of dyslexia and co-occurring disabilities with an emphasis on family history and stacking of multiple identifications. Researchers are highlighting family history as a priority indicator. In asking for family history, it is important to note parents may not have been formally identified with dyslexia, and this may note a family member's struggles with reading in school.

Organization/Executive Function

The Center on the Developing Child at Harvard University defines executive function and self-regulation skills as the, "mental processes that enable us to plan, focus attention, remember instructions, and juggle multiple tasks successfully," (2022). These skills depend on three types of brain function:

1. **Working memory** - our ability to retain and manipulate distinct pieces of information over short periods of time.
2. **Mental flexibility** - sustaining or shifting attention in response to different demands or to apply different rules in different settings.
3. **Self-control** - setting priorities and resisting impulsive actions or responses.

The Center on the Developing Child at Harvard University identifies methods to support students' executive functioning and self-control through, "growth-promoting environments [to] provide children with 'scaffolding' that helps them practice necessary skills before they must perform them alone. Adults can facilitate the development of a child's executive function skills by establishing routines, modeling social behavior, and creating and maintaining supportive, reliable relationships. It is also important for children to exercise their developing skills through activities that foster creative play and social connection, teach them how to cope with stress, involve vigorous exercise, and over time, provide opportunities for directing their own actions with decreasing adult supervision," (2022).

Students with dyslexia can have difficulties starting or breaking down work into manageable pieces. Frustration with reading can also lead to avoidance, leading to missing assignment deadlines. Helping students to reign in the chaos with consistent routines can lessen their anxiety by establishing their internal clock.

Students need to learn and develop organizational habits. Providing access to good organizers can begin to build these skills. When students utilize technology, they may be able to link directly with their teachers and use alarms to keep themselves on track.

Anxiety

As discussed in Chapter 1, dyslexia can create environments that increase anxiety and decrease self-esteem. Novita (2016) found that students with dyslexia have higher generalized anxiety and lowered self-esteem (particularly at school) than their peers. Educators should be aware of this potential, and they should make use of dyslexia programs and supports that include strategies to improve students' self-concept. Supporting students through accommodations, discussed further in Chapter 15, can help alleviate anxiety for a student. Anxiety in students may present in a variety of ways, including acting out, being quiet or withdrawn, avoidance, stomachaches, and/or headaches.

Individual Differences

It is important to remember each child is different. Dyslexia, dysgraphia, and dyscalculia occur across a spectrum. Identify each child's unique strengths and challenges and support the child's personal learning style (the way the child learns best). Help them continue to develop their strengths and allow them to engage in activities they enjoy (e.g., sports, art, music, etc.). Acknowledge their ability to learn despite their challenges. Encourage ways of teaching and learning that optimize the child's abilities.

Key Takeaways

1. **Can a student be identified as gifted and have dyslexia, dysgraphia, and/or dyscalculia?**
   a. Students can be gifted and have dyslexia at the same time. To succeed, both their giftedness and their challenges need to be addressed. They need to be challenged in areas in which they're gifted. They also need support in the areas where they struggle, just like any other student with learning or attention issues.
2. **Can an English Learner (EL) have dyslexia, dysgraphia, and/or dyscalculia?**
   a. Dyslexia appears in all cultures and languages in the world with a written language, including those that do not use an alphabetic script such as Korean and Hebrew (Ziegler & Goswami, 2005). Dysgraphia and dyscalculia can also appear with ELs as they are deficits that would be present in their native language as well as in English.
3. **Can students with dyslexia, dysgraphia, and/or dyscalculia have other co-occurring disabilities?**
   a. Yes, students with dyslexia, dysgraphia, and/or dyscalculia can have other co-occurring disabilities, such as ADHD, dyspraxia, oppositional defiant disorder, anxiety, and challenges with organization and executive function. It is important to remember these challenges impact each student differently, and their specific deficits should be addressed on an individual basis.
4. **Is dyscalculia always co-occurring with dyslexia or autism?**
   a. Co-occurrence of dyscalculia with other developmental concerns like dyslexia and autism is possible. But, more often than not, dyscalculia happens in isolation with no other developmental concerns facing the individual.

Chapter 15: Accessibility: Assistive Technology, Accommodations, and Modifications

"*Fairness does not mean everyone gets the same. Fairness means everyone gets what they need*."

– Rick Riordan, 2010

Knowledge Self-Check

1. Do students who use accommodations or assistive technology have an advantage?
2. Is there a required list of accommodations or assistive technology that students with dyslexia, dysgraphia, or dyscalculia should be provided?
3. Are pencil grips and special pens the most important tool for students with dysgraphia?

Differentiation in the Classroom

Classrooms should host a variety of reading, writing, and math instruction to offer appropriately differentiated instruction to all students addressing the following:

- As explained in Chapter 7 of this handbook, Structured Literacy instruction is recommended for all students who fail to meet screening, benchmarks, or are observed by their teachers to struggle with reading and spelling. This instruction should be explicit, systematic, cumulative, and as individualized as possible within small group settings.
- Each classroom teacher should utilize a broad array of reading, writing, and math instructional strategies (e.g., direct, explicit Structured Literacy instruction, small group, shared writing, and other evidence-based practices).
- There should be continuity and consistency of programs, language/terminology, and methods across grade levels and schools.
- Per state and federal statute, bilingual, English as a second language, and English language services programs should be provided.
- All classrooms should be engaged in culturally responsive instruction.
- Early learners and struggling students of all ages, may need much more support with one-on-one sessions or small groups.
- For some students, there are times they will need to hear and read more complex text to build academic vocabulary and increase their ability to use more advanced learning strategies.

Universal Design for Learning (UDL)

Universal Design for Learning (UDL) is a framework of learning and teaching based on neuroanatomy and functional neuroimaging research techniques. UDL resists a one-size-fits-all approach to education and posits instead that teachers, educators, and instructional materials should effectively respond to individual differences inherent within a learning environment. Across learning goals, methods, materials, and assessments, Universal Design for Learning encourages teachers/educators to offer:

- Multiple means of **representation** to give learners various ways of acquiring information and knowledge.

- Multiple means of **expression** to provide learners alternatives for demonstrating what they know.
  and
- Multiple means of **engagement** to tap into learners' interests, challenge them appropriately, and motivate them to learn.

Using UDL principles in a classroom removes obstacles to curriculum access and provides students with alternative methods to demonstrate what they know. It acknowledges there is more than one way to learn, and it respects individual learning style differences. UDL is discussed further in Chapter 2: Introduction to Instructional Systems.

Basics of Accommodations

Accommodations provide students the opportunity to fully participate in the school environment, and they allow students to demonstrate their knowledge. The OSDE defines accommodations as changes in the curriculum, instruction, or testing format or procedures that enable students with disabilities to participate in the general education curriculum. Accommodations should be considered to include assistive technology and changes in presentation, response, timing, scheduling, and settings that do not fundamentally alter the requirements. Accommodations do not invalidate assessment results. Accommodations must be considered for students on IEPs and 504 Plans, but they should also be considered for students with dyslexia and students struggling to read with an Individual Plan of Reading Instruction (IPRI). Accommodations are to be employed during instruction (learning process), testing, and extracurricular activities.

Accommodations do not replace the need for evidence-based instruction. They enable students with disabilities to demonstrate knowledge, skills, and abilities without lowering their learning or performance expectations and without changing the complexity of the target skills being taught or the test construct being measured. Accommodations may need to remain with a student after intervention for dyslexia, dysgraphia, or dyscalculia. Students' reading ability may continue to be a hindrance to demonstrating their knowledge. The OSDE Accommodations Guide provides a framework for the selection and use of accommodations for students.

Accommodations vs. Modifications

Accommodations and modifications provide students with different educational opportunities. The chart below is a comparison of how accommodations and modifications may affect a student’s education. Modifications should be limited.

Accommodations	Modifications
• Do NOT change the curriculum. • Changes how a student interacts with and learns from the curriculum. • Can include changes to: presentation, response, setting, and/or schedule. • Can reduce assignment overload. • Are NOT a substitute for providing effective remediation. • Include Assistive Technology. • Can build **independence** and **strengths** to be used throughout their lifespan, even with the completion of effective remediation. • Remove the stigma, advocate for their use, and teach students to advocate using them.	• Change the curriculum by offering different or less content than regular classroom experience • Change the expectations for what the student will be learning • Build larger gaps between student and their peers • Reduce experience with grade- level content • Modifications should be limited to students who take an alternate assessment

Accommodations and Testing

Accommodations can also be accessed during state-level testing. Oklahoma state law requires students to participate in the Oklahoma School Testing Program (OSTP). OSDE updates the OSTP Accommodations Manual yearly, and school staff should review the Accommodations Manual for compliance with Standard and Non-Standard accommodations. A student should use accommodations for testing in the classroom to build their comfort and efficiency with the accommodations. Accommodations may be limited on a specific state test, but accommodations should not be removed from a student's daily use during the school year. The removal of an accommodation due to a test restriction limits the student's independence in the classroom.

As students enter high school, ACT/SAT accommodations will need to be applied for and granted approval. The ACT/SAT testing companies retain ultimate authority to determine whether a student will receive any testing accommodations and what accommodations the student will be permitted to use. One factor for approving accommodations that is reviewed is the uses of accommodation during the school career.

Common Classroom Accommodations

Below are some examples of accommodations grouped by task for students with dyslexia.

- ***Reading****:* May include providing the student access to audiobooks and text-to-speech software, the teacher not calling on the student with dyslexia to participate in oral reading (unless the student volunteers), and allowing the student extra time to complete reading assignments.
- ***Mathematics****:* May include the student's use of a calculator or graph paper, access to written or digital copies of notes/formulas used in class, and the teacher breaking down assignments into smaller steps.
- ***Spelling****:* May include the teacher reducing the number of items on spelling

lists, providing access to spell-check and word prediction software, and not deducting points for spelling errors.

- ***Writing**:* May include providing a student with a scribe, providing access to speech-to-text software, offering written or digital copies of notes, minimizing the need to copy from the board, and providing graphic organizers.
- ***Testing**:* May include providing extra time to students with dyslexia, allowing students to give answers orally, and providing students a quiet testing area.
- ***Science/Social Studies**:* Access to written or digital copies of notes, extended time on assignments/projects, and access to the class textbook in an audio format.
- ***Homework**:* Assignments may include reducing homework, allowing students to dictate their answers, allowing typewritten work, and allowing extended time to complete assignments.

Accessible Educational Materials (AEM)

Students who are unable to use traditional print materials to access their classroom curriculum may need specialized formats, such as large print, audio recordings, or digital text. Accessible Educational Materials (or AEM) are meant to provide to students as needed. Additional resources on Modifications and Accommodations can be found at Reading Sufficiency Act (RSA), Learning Ally, or Decoding Dyslexia.

Image: People with Disabilities Can Do the Same

Use of Assistive Technologies

Accommodations for students with dyslexia, dysgraphia, or dyscalculia can include Assistive Technology (AT). AT allows a student to overcome the weaknesses dyslexia, dysgraphia, or dyscalculia may highlight, and AT provides them with time-saving ways of demonstrating their knowledge. With the expansion of devices in our classrooms, AT is giving students independence.

"For people without disabilities, technology makes things easier. For people with disabilities, technology makes things possible".

– IBM training manual, 1991

What is Assistive Technology (AT)?

Assistive Technology (AT) is any device giving a student the ability to increase, maintain, or improve the capabilities in the classroom to help them access learning and demonstrate their knowledge. AT must be considered for all students on an IEP or 504 Plan, and AT should be considered necessary for students on an Individual Plan of Reading Instruction (IPRI) or for students with significant struggles in the classroom.

IDEA 2004 requires IEP teams to consider the technology needs of all children with disabilities, “to maximize accessibility for children with disabilities” (20 U.S.C. 1414(d)(3)(B)(v) & (20 U.S.C. 1400(c)(5)(H)). Students on a 504 Plan of the Rehabilitation Act are provided accommodations, including AT as part of related aids and services, to ensure a student is receiving an appropriate education (34 C.F.R. Part 104).

IEP teams must decide on AT devices and services based on a student’s individual needs during the development, review, and revision of the IEPs, 504 Plan, and IPRI, or when a team member deems it necessary due to changes in the student’s needs.

AT is a bridge between a students' areas of weakness and their abilities and skills. AT can assist students in a variety of ways including the following:

- Enabling access to material at their grade through the use of text-to-speech software and audiobooks.
- Enabling students to express their thoughts through the use of dictation, (e.g., speech-to-text software), keyboards, and word processing or word prediction software.
- Correcting spelling and grammar through electronic spelling and grammar checkers.
- Enabling students to create notes through the use of recording devices.

AT is utilized as a tool to compensate for the impact of dyslexia, dysgraphia, or dyscalculia on learning and demonstrating knowledge.

AT is not meant to be a replacement for direct instruction in the skills needed to alleviate reading, writing, math, and other deficits, nor is it intended to be used as a substitute for evidence-based remedial instruction. Rather, AT is designed to be used when the goal is to attain information or demonstrate knowledge a student is unable to attain without such support.

Considerations for Effective AT Implementation

AT evaluations may be conducted to assist in determining a student's AT needs in the student's environment by teachers or a specialist familiar with available technologies. Students may also need AT to fully and effectively participate in elective courses or extracurricular activities. Students who struggle to read and wish to participate in their school's debate team or drama production may need print material provided to them in an accessible format. Students with the ability to tells stories wanting to participate in yearbook or school newspaper may need grammar and spellcheck supports.

Quality Indicators for Assistive Technology (QIAT), a Comprehensive Guide to AT Services, includes a comprehensive list of criteria for review when considering the appropriateness of AT for individual students. Training is critical to AT implementation as, “software cannot be

fully effective unless the children who need it have adequate time and support to use it well" (Wise & Raskind, 2007). The National Center on Improving Literacy and IDA's Dyslexia In the Classroom provide training to schools on AT evaluation processes, such as QIAT, NCLD (National Center for Learning Disabilities), and Knowing My IEP.

Services Critical to a Student's Effective Use of AT

Services include:

- Selecting the programs or devices to effectively meet students' needs.
- A trial period for exploration and evaluation.
- Acquiring the devices and software programs.

Providing students, teachers, and parents instruction in the use, implementation, and integration of the technology in all appropriate settings is imperative for AT to be successful. AT needs to be available in all situations where the student is to complete tasks that are assisted by the AT. Provided AT may be made available in the child's home or in other settings (if the IEP/504 Plan team determines the student requires AT to gain equal access to the curriculum or as an accommodation to receive a free appropriate public education (FAPE)). School systems should develop policies, procedures, or operating guidelines in accordance with applicable regulations and laws that support the team's and/or district's ability to address and provide for the use of AT in all needed settings. AT should be coordinated with a student during transitions from school to college or to the workforce.

AT may need to be listed as goals in a student's IEP to help the student become proficient in the use of technology systems and to ensure dedicated time is being allocated in the student's day to achieve technological proficiency.

When selecting devices, schools can consider devices in their own inventory or on the invitation of demonstration loaners. Many AT developers will provide trial access for short periods of time when they are requested. Oklahoma AbleTech maintains a large library of loaner devices that are free for schools and parents. Technology device loans will allow students, and their school, to determine possible success before financial commitment. Oklahoma AbleTech can also discuss possible avenues for acquiring funds for procurement.

Educators and Parents & Families

Oklahoma AbleTech's mission is to improve the lives of all Oklahomans by providing AT devices and services, financing opportunities, digital accessibility services, advocacy, and education. Some Oklahoma ABLETech programs and projects:

- Device short-term loans.
- Device demonstrations.
- Device reutilization.
- Financial loans.
- Digital accessibility.
- Training and outreach.

Oklahoma AbleTech is a free resource for all schools and families.

Common AT Tools

Tool selection is based on the needs of the student, and there is not one perfect list of tools to try. The industry providing assistive technology is constantly changing and providing better options for students. For this reason, this handbook does not contain a list of specific devices or applications to use. The table below lists common tools that benefit a struggling student as a guide for identifying the needs of students.

Common Assistive Technology (AT) Tools	
Learning In to the Student	**Learning Out from the Student**

Text to Speech
• Audiobooks.
• Text synced audio books.
  ○ Bookshare.
  ○ Learning Ally.
  ○ Device built-in feature.
• Software integration.
  ○ Microsoft.
  ○ Google.
• OCR (optical character recognition).
  ○ Convert image and documents to text to speech.
  ○ Online and app-based options.
  ○ Scanning pens.
  ○ Math conversions.
	Speech to Text
	• Built-in device feature.
	  ○ Siri - Apple.
	  ○ Chromebook - dictation.
	• Software integration.
	  ○ Microsoft.
	  ○ Google.
	• Dragon writing/note taking.
	• Spellchecker.
	  ○ Built-in.
	  ○ Grammarly.
	  ○ Word prediction.
	  ○ Apps/software.
	Math
	• Calculator.
	• Graphing tools.

Dyslexia Supports

Text to Speech/Audiobooks

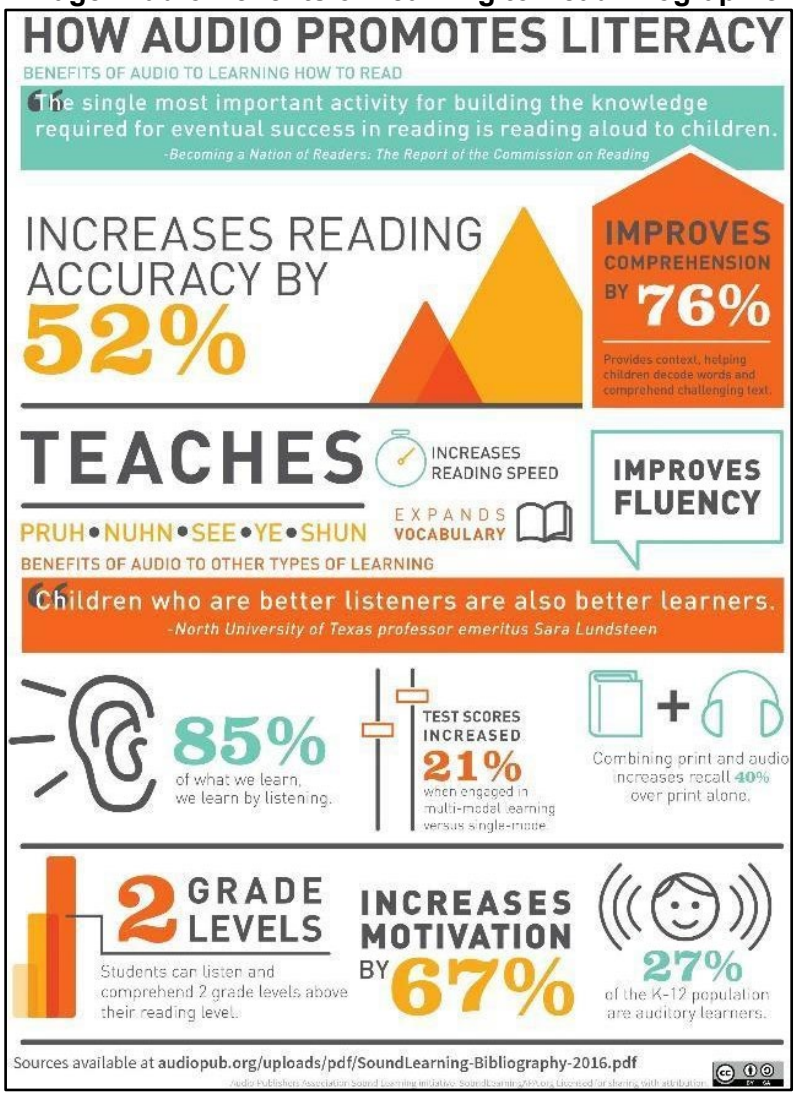
Text to Speech (TTS) is the most common assistive technology used to allow a student to work independently. TTS can be referred to as “ear-reading.” For some students, ear-reading can be the first positive experience with reading, and it can change a student’s perspective from torture to interest. The use of TTS or Audiobooks can build students' vocabulary, provide access to classroom content, and promote independence for students. Students will need time and support to build their stamina and find their best way of accessing text. As students become proficient, they may even access text in multiple ways.

As the table above indicates, multiple avenues are available to access TTS for students. TTS can be used as an accommodation to provide a student with Accessible Educational Materials (AEM). Some resources have Federal Legal Copyright requirements for eligibility by the student for the use of the resources. Below are some key features of the most popular resources for accessing audiobooks.

Text-To-Speech / Audiobook Resources				
Resource	**Cost**	**Book Count**	**Voice Style**	**Access**
Bookshare	Free	Over one million titles	Synthetic and human (limited)	Verified print disability
Learning Ally	Fee	80,000 titles	Human	Verified print disability
Overdrive/public library	Free	Varies by library	Synthetic and human	Anyone
Audible	Paid		Human	Anyone

Audiopub.org has additional information and resources on sound learning for educators and librarians.

Image: Audio Benefits of Learning to Read Infographic



Synthetic vs. Human Voice

The integration of audio-assisted devices is growing in use in a wide variety of products in our home and work life. This growth is allowing those with disabilities to have improved quality in the devices they use to complete daily tasks.

Students will prefer a synthetic or human voice for accessing audiobooks. The preference of voice is personal and should be considered over the preferences of teachers and family. During AT evaluations, a student can be screened for their preference using screening tools, including uPAR and PAR. A student's flexibility between synthetic and human readers can provide a broader selection of text availability. Synthetic voices are available in a variety of styles and in some cases can be customized. Human-narrated textbooks can have multiple readers within the text, and that can be confusing for some students.

Applications using synthetically voiced text-to-speech often allow for customization in text formatting, and they have features to bookmark or take notes. According to the National Assistive Technology in Education Network notes, “Research indicates this enhances student engagement, interest, and motivations” (NATE Network).

Educators are sharing the impact of using various assistive technology resources, including Bookshare. A November 2018 article in Edutopia discussed the benefits of ear-reading including how students with dyslexia are becoming the Student-Led Tech Crew. The Tech Crew is delivering professional development to teachers, allowing the students to be recognized for their strengths and achievements.

Dyslexia Font

In the last few years, a lot of discussion has happened on the new dyslexia fonts. While reports have shared the success of students using the font, the research has indicated the, “Dyslexia font did not lead to improved reading compared to normal ‘Arial’ font, nor was it preferred by most students” (Kuster, S. M., et al.). Students will be presented with a wide variety of fonts over a lifetime, and they should not be dependent on a single one or a single source. If the font is used, it should be one of many the student is interacting with.

Dysgraphia Supports

Handwriting instruction also includes posture, pencil grip, tool selection, and positioning. To improve pencil grip, students and teachers can explore pencil grip tools to assist in improved finger positions. Proper position is important for automaticity and legibility contributing to better spelling, writing, note taking, and comprehension. It also contributes to stamina as proper grip is less fatiguing.

- Use of manipulatives to help with letter formation.
- Low-tech assistive technology examples:
  - Pencil grips,
  - Paper with raised lines (for young learners).
  - Paper with large spaces between the lines or highlighting.
  - Graph paper for mathematics.
  - Slant boards.

Students with dysgraphia affecting their language processing of writing have additional assistive technology and AEM needs. Graphic organizers will help students prepare their thoughts before beginning the writing process.

With the integration of computers in the classroom, students have access to many built-in tools for spell checking, grammar, and predictive text. Students struggling with dysgraphia or dyslexia may benefit from using these programs, but they will need instruction on them to be able to apply their use independently. Programs with additional support may be necessary for some students with greater needs.

Common Assistive Technology (AT) Tools to Support Students with Dysgraphia	
Low Tech	Pencil grips Wide rule paper White boards with dry erase markers
Mid Tech	Speech to text (listed above) Word prediction (built-in to the device) Digital typewriters (Neo 2) Pen scanners (C Pen Reader or IrisPen) Cursive wizard Handwriting wizard
High Tech	One Note Notability Scanning Co:Writer Grammarly Immersive Reader (picture dictionary and parts of speech highlighting)

Dyscalculia Supports

Supports for dyscalculia focus on improving manipulatives to help students engage with math. Manipulatives help illustrate a math concept to a students. Manipulatives can be blocks or an abacus on a table or virtual renderings with technology. Calculators are a common tool for a student with dyscalculia, but they do not replace instruction in foundational math skills. Graphic organizers, although more commonly thought as a writing support, can help students maintain steps when working on longer problems. Computer integrations in the math classroom are limited, but Microsoft, Texthelp, and other organizations are building programs to make math more accessible for students.

Common Assistive Technology (AT) Tools to Support Students with Dyscalculia	
Low Tech	Manipulative blocks Rekenrek/arithmetic rack Abacus Math fact cards Graph paper
Mid Tech	Speech to Text/Text to Speech (listed above) Graphing tools Talking calculators
High Tech	Talking scientific calculators Equatio Microsoft

Curricula to Support Students with Dyscalculia	
Online Components	• Big Math for Little Kids (Pearson) • Building Blocks (McGraw Hill) • Dynamo Math Intervention (Dynamo Maths) • Fact Fluency Foundations Guide: Laying the Foundation for Math Fact Fluency (Tom Snyder Productions/Scholastic Publications)

Selective Math Interventions
Ronit Bird, **The Dyscalculia Toolkit** and other resources: http://www.ronitbird.com
Sharon Griffin, **Number Worlds**: https://www.mheducation.com/prek-12/program/microsites/MKTSP-TIG05M0.html
Catherine Stern, **Stern Math**: http://sternmath.com

Additional AT Resources

Advancements in educational tools and technology are changing rapidly in today's classrooms. Organizations like Oklahoma ABLETech, Understood.org, International Dyslexia Association (IDA), and Decoding Dyslexia Oklahoma offer guidance, consultations, trainings, and webinars on current and new applications and devices.

Key Takeaways

1. **Do students who use accommodations or AT have an advantage?**
   a. Students who use accommodations or AT are not receiving an advantage. These students have a disability that impacts their ability to interact with content. This can be likened to people who need to wear glasses; those who do not wear glasses are not impacted by those who do. And if people do not need glasses, glasses will not help them have an advantage they didn't have before. Students who receive these accommodations and AT should be taught how to use any of the supports they do not know how to use.
2. **Is there a required list of accommodations or AT that students with dyslexia, dysgraphia, or dyscalculia should be provided?**
   a. It is not advised to use a list of accommodations or AT for any disability. Similar to the way not everyone needs glasses or a wheelchair, not every student with the same disabilities needs the same set of supports. Accommodations and AT must be made on an individual basis and may change over the years as the student gets older and their needs change. Consider the specific deficit a student has and work with the school to determine what accommodations or AT is the most supportive for their needs.
3. **Are pencil grips and special pens the most important tool for students with dysgraphia?**

a. No. Students with dysgraphia may benefit from a range of accessibility tools and instructional tools. However, while pencil grips and other writing aids alone won't address all the issues of dysgraphia, these tools can encourage students to use a better grip. There's no one-size-fits-all support, so work with your child/student to find the best fit.[3]

Chapter 16: Graduation and Post-Secondary Considerations

Knowledge Self-Check

1. Will dyslexia, dysgraphia, and dyscalculia impact my student's ability to have access to post-secondary opportunities?

Driven to Read (8th Grade Reading Test)

Driving is a right of passage in high school. Oklahoma has provisions to ensure students with reading difficulty are not prevented from earning a driver's license when they are on an IEP. Students on IEPs, specifically for reading difficulties, must meet the goals as outlined on their IEP. If the student satisfactorily demonstrates these goals have been met, the school must provide documentation to the student to take to the Department of Public Safety (DPS). Additional information is available from the OSDE on Driven to Read for requirements and exemptions.

Individual Career Academic Planning (ICAP)

Beginning with the Class of 2023, Individual Career Academic Planning (ICAP) is required for all Oklahoma students, including students with disabilities, as part of their graduation requirements under House Bill 2155. The ICAP process must begin in 9th grade, but many districts start in 6th grade or earlier to provide students more opportunities to discover careers that may be available to them and help them develop career-readiness skills, such as working and playing with others, making decisions, being a leader, solving problems, and more. An ICAP identifies a student's interests, skills, postsecondary and workforce goals, and experiences that lead to a meaningful plan. An ICAP charts the progress needed to prepare students for college, career, and life. An ICAP must include the following pieces.

- Career and college interest surveys.
- Written postsecondary and workforce goals and progress toward those goals.
- Scores on assessments (required state and federal assessments and college and career-readiness assessments).
- Experiences in service-learning and/or work environments including apprenticeships, internships, mentorships, job shadowing, and others.
- The intentional sequence of courses that reflects progress toward the postsecondary goals (this may include career pathways or career endorsements).
- Academic progress.

ICAPs for students with disabilities must take into account, and work in cooperation with, the student's IEP or Section 504 Plan (70 O.S. 1210.508-4). They must remain separate documents, but parts of the ICAP will be integrated into the transition plan of the IEP. The ICAP and the IEP are complementary. An IEP team should take the information gathered during the ICAP process into account when developing the transition plan. Students'

postsecondary and workforce ICAP goals should align with their Education/Training and Employment postsecondary goals in the IEP. There should also be alignment in the intentional sequence of courses in the ICAP and the course of study in the IEP. All students, including students with disabilities, must complete at least one service learning and/or work environment (work-based learning) activity between 9th grade and graduation. Some districts may have additional requirements. Districts are encouraged to provide multiple work-based learning (WBL) opportunities and to develop inclusive WBL and service-learning programs to foster engagement of all youth. The goal of ICAP is for all students to take a more active role and participate in meaningful and intentional career planning activities at an earlier age. Students with disabilities need to be included in all ICAP processes and activities including internships. They may need appropriate accommodations and modifications to participate fully.

	**Students** For complete graduation requirements, see Oklahoma's Secondary Transition Handbook. The necessary graduation requirements are highlighted within the handbook, and there are specific considerations for students with dyslexia, dysgraphia, and dyscalculia.

College and Career Readiness and High School Graduation Requirements

Students with dyslexia have many strengths which often include creativity, strong visual/spatial abilities, determination, and the ability to think outside the box. These students need to be encouraged to identify and focus on their strengths, interests, and preferences. They will be successful in high school and beyond when they are prepared and supported. Students need to make plans to further their education and achieve their desired career. Goals for future education, athletics, and career need to be reviewed to determine the impact of class choices.

The following guidance and graduation requirements are provided as a resource only. Graduation requirements are subject to change. Therefore, students, families, and educators need to work closely with the corresponding school counselor to make sure students are up to date on the latest information, on track to meet their goals, and graduate.

College and Career-Readiness Assessment (CCRA)

All students must take the ACT or the SAT, the Science Assessment, and the U.S. History & Government assessment during their 11th grade year. Students with dyslexia may receive pre-approved accommodations on the CCRA (including the ACT or SAT). See Chapter 14 of this handbook for more information on accommodations. The requested accommodations should be based on the classroom accommodations the student currently receives. It is important all school officials work closely with students and families to complete the requests for accommodations through the ACT or SAT process in advance of testing. For detailed information, refer to the OSDE Office of Assessment, the ACT website, and the SAT website.

Foreign Language/Graduation Requirements

Students with dyslexia can be successful in high school and beyond when prepared and supported. Goals for future education, athletics, and career need to be reviewed to determine the impact of their class choices. Foreign language can be difficult for students, especially if they are still receiving intervention. Alternatives for fulfilling a Foreign Language requirement may include computer science or American Sign Language (ASL). For students wanting to pursue college admission, especially for National Collegiate Athletics Association (NCAA) sports participation, they need to work with their school's accreditation and counselor to ensure they will meet the minimum requirements for acceptance. Students seeking to attend a military academy, or enlist, will need to work with military recruiters to verify what documentation is needed, and what possible appeals may need to be made, to gain acceptance. These discussions need to begin as early as possible even if the student is considering several options.

U.S. Citizenship Test

The naturalization test is a graduation requirement set by the Oklahoma Legislature. The law states, "a passing score shall be 60 out of 100 questions." If a student has an IEP, the IEP team may determine citizenship test accommodations the student might need. A student with a Section 504 Plan in place must also be provided any accommodations they usually receive for tests. A student with disabilities, whose IEP indicates they are to be assessed with alternate achievement standards through the Oklahoma Alternate Assessment Program (OAAP), is exempt from the naturalization test for graduation eligibility purposes (70 O.S. §11-103.6(F)(3)).

For more information, refer to the FAQ US Naturalization Test Graduation Requirement Guidance.

Athletics

Students wanting to pursue college admission for sports participation, especially for the National Collegiate Athletic Association (NCAA), need to work with their school's accreditation office and counselor to ensure they will meet the minimum requirements for acceptance.

Military

Students seeking to attend a military academy or enlist will need to work with military recruiters to verify what documentation is needed, and what possible appeals may need to be made, in order to gain acceptance. These discussions need to begin as early as possible even if the student is considering several options.

Oklahoma's Promise

Oklahoma's Promise offers Oklahoma students, who meet specific academic and financial requirements, a scholarship for college tuition to an Oklahoma college/university. If a student plans to attend college and participate in Oklahoma's Promise, they need to ensure all the requirements, including coursework requirements, of the program are considered and addressed when enrolling in college classes.

For more information on Oklahoma's Promise program, visit OK Promise.

Self-Determination and Transitioning

It is important to review accommodations and modifications at all major changes in a student's life. These changes will include moving between classes, grades, and schools. As a student's class demands change, the accommodations required may change. It is important to include students in their accommodation selection, especially as students become more independent in high school. By the end of their high school career, a student needs to understand their disability, the reasoning for accommodations, and be prepared with knowledge on how to ask for help/accommodations in college or work environments. Building the self-advocacy within a student begins in the classroom, and it grows as they reach independence and can be fostered with conversations about accommodations.

It is crucial to teach students to understand their strengths and challenges, rights and responsibilities, and self-advocacy skills. Students can then develop a transition portfolio that details their self-understanding and includes documents needed to facilitate the transition from high school to adult life. Students should actively participate in the discussion of their future goals and plans. Active participation requires student engagement. When students participate in their 504 Plan/IEP meetings, they develop self-advocacy skills. Research indicates these skills are associated with post-school success including succeeding in the workplace. To avoid students becoming passive team members, students should be informed of their roles and responsibilities and provided opportunities for interaction prior to the 504 Plan/IEP meetings. These skills provide students with direction on setting and mastering their goals. Several websites, resources, and curriculums are available in the OK Secondary Transition Handbook to help teach students important self-determination skills and to actively participate in their 504 Plan/IEP meetings.

Postsecondary Education Accessibility and Disability Services

Students who plan to attend a post-secondary education setting must self-disclose their disability to the school's disability services office (it may be called Student Accessibility Services, Accessibility and Disability Resource Center, Student Accessibility and Support, or a similar name). This self-disclosure is necessary for a student to apply for services and to receive accommodations. Educators and parents can prepare students to self-advocate while in high school by implementing student lessons relating to self-advocacy skills.

Postsecondary education disability services are not universal, and not all schools, colleges, and career technology centers offer, or allow, the same accommodations. Support services for a school/college may even differ from campus to campus. Oklahoma's chapter of the

Association on Higher Education and Disability (OK-AHEAD) represents the disability service providers across the state working in higher education programs. They have documents for educators on topics such as a guide educators can use to prepare students for higher education, the rights and responsibilities of students with disabilities preparing for postsecondary education, and information on aids and services for students with disabilities enrolled in postsecondary education programs. Students, families, and educators need to be knowledgeable about the transition into postsecondary education programs to fully prepare students for the transition into higher education. Educators and families can have students practice asking and answering questions to prepare for contacting a disability service provider at a postsecondary educational setting.

For more information, refer to the Oklahoma Secondary Transition Handbook and the International Dyslexia Association: Transitioning from High School to College.

Key Takeaways

1. **Will dyslexia, dysgraphia, and dyscalculia impact my student's ability to have access to post-secondary opportunities?**
   a. In some cases, students with disabilities may be impacted due to specific post-secondary requirements. Students seeking specific opportunities should ensure they have met their needed requirements for coursework, standardized assessments, and specific applications.

Chapter 17: Resources and Additional Learning

"*There is a vast amount of empirical research on literacy acquisition and reading disabilities that has been largely untapped by those working in schools...Many educational professionals in general and special education can benefit tremendously from this information, not to mention developers of reading series and intervention materials*."

– David Kilpatrick, 2015

"*When a flower does not bloom, you fix the environment in which it grows, not the flower*."

– Alexander Den Heijer, 2015

School and District Resources

Pre-Service and In-Service Preparation for Educators

Although the problems experienced by students with dyslexia may originate with neurobiological differences, the most effective interventions for these students, and for those who struggle with related reading and language problems, is skilled teaching. For that reason, it is critical that educators receive accurate and current information about evidence-based instructional strategies as well as the science of reading. Effective classroom instruction, informed by reliable research using evidence-based practices, can prevent or reduce the severity of reading and language problems (IDA, 2010, 2018).

"*Teachers must be taught to identify the characteristics of high-quality research and to distinguish between research that is trustworthy and research that is weak and ill-informed*."

– Lyon 2002, 2016

State statute, Title 70 Section 6-194, requires all schools to provided dyslexia awareness professional development (PD) beginning in the 2020-2021 school year. Beginning in the 2023-24 school year, dysgraphia will be added to the dyslexia awareness professional development. The OSDE will provide online modules and PD opportunities to assist districts with meeting this requirement. The dyslexia and dysgraphia awareness PD will include training in identifying indicators, and effective classroom instruction, to meet the needs of students with dyslexia and dysgraphia. The PD will also identify available dyslexia and dysgraphia resources for teachers, students, and parents. OSDE will be providing additional information and resources for dyscalculia to help educators and families.

"*Both special and general educators must be prepared with evidence-based research about how children learn, why some children have difficulties, and how the most effective instructional approaches can be identified and implemented.*"

– Lyon 1997, 2002

Learning to teach reading, oral language, and written expression is a complex undertaking. The competence and expertise of teachers can be cultivated with training that emphasizes the study of reading development, language structure, individual patterns of language, and

learning strengths and weaknesses. In addition, to learn to use instructional strategies effectively, teachers should have supervised practicum opportunities, especially if they are responsible for teaching students with dyslexia or dysgraphia.

The Need for a Variety of Engaged Educators

A great need is evident for all educators and related service providers to prepare to meet the needs of students with dyslexia, dysgraphia, and dyscalculia, including speech-language pathologists, school psychologists, psychometric specialists, school counselors, reading specialists, special education teachers, school administrators, and paraprofessionals. This preparation should be provided both at the pre-service and in-service levels. There needs to be a commitment on the part of university teacher preparation and educational credentialing programs to prepare individuals to directly address the needs of students in the classroom. Appropriate recognitions and interventions for dyslexia are the responsibility of all educators and support personnel in a school system, not just the classroom teacher, reading specialist, or special education teacher.

More Information

International Multisensory Structured Language Education Council (IMSLEC) accredits training courses that incorporate evidence-based curricula for teaching reading and written expression to students with dyslexia.

The International Dyslexia Association (IDA) maintains lists of university programs accredited by IDA and lists of independent teacher training programs accredited by IDA.

The Neuhaus Education Center (Neuhaus) was founded by IDA and offers accredited independent teacher training programs. Visit the Neuhaus website for additional information about the purpose of the center and its teacher training programs.

The Florida Center for Reading Research at Florida State University (FCRR) provides resources and materials to educators. In addition, the center has partnered with the University of Oregon and the Research Making Change (RMC) Research Corporation to create the National Comprehensive Center to Improve Literacy for Students with Disabilities.

National Comprehensive Center to Improve Literacy The National Center on Improving Literacy is a partnership among literacy experts, technical assistance providers, and researchers at the University of Oregon, Florida State University, and RMC Research, with funding from the United States Department of Education.

The National Center for Intensive Intervention (NCII) has the mission to build knowledge and capacity of state and local leaders, faculty and professional development providers, educators, and other stakeholders to support the implementation of intensive intervention for students with severe and persistent learning and/or social, emotional, or behavioral needs using data-based individualization (DBI).

Wrightslaw (Wrightslaw) – Parents, educators, advocates, and attorneys come to Wrighslaw for accurate, reliable information about special education law, education law, and advocacy

for children with disabilities.

State and Community Resource Support

What services and supports are available through the school and community, and how can we get access to those services? Parents and teachers sometimes have difficulty understanding a path forward when their gut is telling them something is wrong for the student. Both parents and teachers should know there are multiple routes and options for support. Providing a holistic approach to supporting students with dyslexia, or students significantly behind in reading, can benefit a student. In the following pages, this handbook describes the supports that can be used starting with school supports.

Typically, parents and teachers look for resources offered outside the school setting to broaden the scope of help for students with dyslexia. Multiple community resources are available that provide additional supports, rendering a more complete approach to assisting these students. The following list provides a glimpse of services and supports that may be helpful in meeting these needs.

- Tutoring services.
- Library programs.
- Psychologists.
- Speech pathologists.
- Medical doctors.
- Alternate educational materials (AEMs).
- *Summer reading intervention.
- *Assistive technology.
- *State services.
- *Support organizations.
- *Advocacy organizations.

(List adapted from the *Holistic Approach to Support Students with Reading Difficulties*.)
*These items not in the original list for community resources.

When utilizing community resources, teachers and parents must align students' needs with what is being offered to maximize the effectiveness of those resources on their students' academic and cognitive development. It is important for teachers and parents to recognize and identify specific areas of weakness and strength for students who struggle with dyslexia in an effort to address the specific needs students may have. The ability to pinpoint the exact area(s) of difficulty is essential in helping students with dyslexia grow academically and reach their full potential at each level of growth.

The ***Components of Structured Literacy Intervention Checklist*** included in the Appendix of this handbook can be used to guide decisions about appropriate intervention programs. The IDA fact sheets on Effective Reading Instruction for Students with Dyslexia & Evaluating Professionals can provide guidance on services for students.
Students with dyslexia generally become adept at covering up their cognitive weaknesses through intellectual strengths, which can make it difficult to detect areas where targeted instruction is needed. The effects, or indicators, of dyslexia may not be immediately

apparent. However, taking into consideration noticeable difficulties in cognitive ability, coupled with a student's intellectual strengths, yields a better picture of the underlying learning disability.

Because difficulties associated with dyslexia sometimes coincide with other issues, such as speech impairment, attention deficit disorder, and avoidance behaviors, the actual struggles with dyslexia can be hard to discern and can be possibly attributed to something else.

Ongoing Learning

"*Do the best you can until you know better. Then when you know better, do better.*"
– Maya Angelou

Seeking Effective Professional Development and Learning

Under the Every Student Succeeds Act (ESSA), programs for instruction should be "evidence-based." We should look at professional development in a similar way. Improved teaching can only be achieved if we are learning effective ways of improved teaching. The OSDE provides free professional development opportunities throughout the year to meet the needs of students.

National Organizations

The following national organizations share information on both free and paid professional development opportunities including conference, webinars, and book studies.

- AIM Institute for Learning and Research - institute.aimpa.org
- Bookshare - Bookshare.org
- CAST - Cast.org
- Cox Campus - coxcampus.org
- English Language Arts Oklahoma Framework - elaokframework.pbworks.com
- Glean Education - gleaneducation.com
- International Dyslexia Association (IDA) - http://www.dyslexia.org/knowledge-and-practices/
- IDA Kansas Missouri Branch - ksmo.dyslexiaida.org
- IDA Upper Midwest Branch - umw.dyslexiaida.org/
- Keys to Literacy - keystoliteracy.com
- Learning Ally - learningally.org
- Lexia LETRS Training - lexialearning.com
- Literacy How - literacyhow.org/
- Lindamood-Bell Learning Centers - lindamoodbell.com
- Multisensory Math - marilynzecher.com/math.html
- National Center for Learning Disabilities - ncld.org
- National Center for Improving Literacy - improvingliteracy.org/
- Neuhaus Education Center - neuhaus.org
- Noodle - noodle.org/articles
- Oklahoma Able Tech - OklahomaAbleTech.org

- Oklahoma Tiered Intervention System of Support - otiss.net
- Pathways Neuropsychology Associates - pathwaysneauropsychology.com
- Quality Indicators for Assistive Technology Services - qiat.org
- Reading Rockets - readingrockets.org
- Sage Journals, Journal of Learning Disabilities - https://journals.sagepub.com
- Slingerland Institute for Literacy - http://slingerland.org
- The Reading League - thereadingleague.org
- Understood - understood.org
- University of Michigan - dyslexiahelp.umich.edu
- Windward Institute - thewindwardschool.org
- Woodin Math - landmarkschool.org
- Yale Center for Dyslexia and Creativity - dyslexia.yale.edu/
- The 95% Group, INC - 95percentgroup.com/

Books for Learning

Many books are available about dyslexia. This is another incidence though where “buyer or reader beware,” because many books contain false or inaccurate information. Below is a list of our top 14 books about dyslexia. Get ready to grow in what you know about dyslexia and how to support those with dyslexia.

1. Coletti, Cinthia. *Blueprint for a Literate Nation - How You Can Help*. XLIBRIS, 2013. Coletti approaches reading instruction and dyslexia from the perspective of a parent and CEO. Drawing heavily from researchers in the field, Ms. Coletti outlines how schools, districts, communities, and the government can change America’s reading profile. As a call to arms, this book is effective. The last third of the book has endless resources and the “blueprint” for a literate nation.

2. Dehaene, Stanislas. *Reading in the Brain: The New Science of How We Read*. Penguin, 2009. A fascinating book from the perspective of a neuroscientist regarding the brain and reading. Although often heavy in technical terminology, Dehaene is able to incorporate enough human experiences to bring the science to life. He also explores the oft overlooked implications of vision on the reading experience.

3. Foss, Ben. *The Dyslexia Empowerment Plan: A Blueprint for Renewing Your Child’s Confidence and Love of Learning*. Ballantine Books, 2016. Foss is an articulate and relatable advocate for children and families dealing with dyslexia and the school system. Through personal stories, Foss manages to commiserate while providing actionable ways to improve outcomes in school, work, and life. This is an excellent book for parents or students feeling overwhelmed by the implications of dyslexia and needing encouragement.

4. Green, Joan L. *Assistive Technology in Special Education: Resources to Support Literacy, Communication, and Learning Differences 3rd Edition*. *Assistive Technology in Special Education.* Routledge, 2018. presents a wealth of practical, well-organized information to help families, teachers, and therapists find effective solutions for students with learning, literacy, and cognitive challenges. As technology changes and new

operating systems make older programs obsolete, this book will empower readers to explore the most current resources as they become available.

5. Henry, Marcia K. *Unlocking Literacy: Effective Decoding and Spelling Instruction*. Brooks Publishing, 2010. After tutoring countless students with dyslexia, there is one thing that becomes apparent: poor spelling can linger long after decoding improves. Many English words do not respond to conventional sound to symbol spelling methods or syllable types. Students with dyslexia will need a solid foundation of morphology, etymology, and orthography that are the keys to truly unlocking encoding. Henry's book provides a logical and effective way of approaching English spelling that offers every student the opportunity to spell (and understand) more words with confidence.

6. Kilpatrick, David A. *Essentials of Assessing, Preventing, and Overcoming Reading Difficulties*. John Wiley and Sons, Inc., 2015. Perhaps one of the best books available to walk educators and parents through the often-complicated landscape of screening, assessing, and treating dyslexia. Kilpatrick provides foundational understanding of why students may struggle with reading and how to interpret various screeners to improve instructional outcomes. Kilpatrick also provides well-researched evaluations of many of the latest and most popular reading programs.

7. Sedita, Joan. *The Writing Rope: A Framework for Explicit Writing Instruction in All Subjects 1st Edition*. Brookes Publishing, 2022. Writing is a task as complex and multifaceted as reading—but it's often taught as a single skill. Discover how to plan and deliver comprehensive, explicit, and evidence-based writing instruction with this groundbreaking book, aligned with IDA's Structured Literacy approach and based on the latest research.

8. Sandman-Hurley, Kelli. *Dyslexia Advocate! How to Advocate for a Child with Dyslexia within the Public Education System*. Jessica Kingsley Publishers, 2016. This book should be on the shelf of every school administrator, educator, and parent. It contains sensible and well-researched approaches for helping students with dyslexia within the public education system. Every SPED employee should be required to read this book before assessing and completing an IEP for students with reading difficulties. Read this book and banish useless reading goals forever.

9. Seidenberg, Mark. *Language at the Speed of Sight: How We Read, Why So Many Can't, and What Can be Done About It*. Basic Books, 2017. This is one of the more narrative books on reading issues. Language often reads more like a good novel, but don't make the mistake of thinking it is not equally well-researched and informative. Seidenberg explores the educational world to discuss why so many teachers aren't given the basic educational understanding to teach reading well in the United States.

10. Selznick, Richard. *Dyslexia Screening: Essential Concepts for Schools and Parents*. Bookbaby, 2015. If a school wants to get started with some practical interventions for students with dyslexia, then this book is a must. It is a thin volume that outlines exactly how any school can get started with screening and intervening on dyslexia.

11. Shaywitz, Sally. *Overcoming Dyslexia: A New and Complete Science-Based Program for*

Reading Problems at Any Level, Second Addition. Vintage, Updated 2020. Considered one of the first, and perhaps best, introductions to the latest fMRI research regarding dyslexia and the brain, Shaywitz's *Overcoming Dyslexia* has become synonymous with understanding how reading occurs in the brain. Shaywitz distills much of the "new" science into actionable items for parents, teachers, and administrators.

12. Willingham, Daniel. *The Reading Mind: A Cognitive Approach to Understanding How the Mind Reads*. Jossey-Bass, 2017. One of the latest reading books to enter the market, *The Reading Mind* benefits from its predecessors and seems to sum up the latest research with perspective of hindsight being 20/20. Willingham fills in the gaps from other books and clarifies some of the misunderstandings all with well-researched examples that make fine points about the need for solid reading instruction across the grades.

13. Wolf, Maryanne. *Proust and the Squid: The Story and Science of the Reading Brain*. Harper Perennial, 2008. Although fairly dated, Wolf's book is a must-read for anyone interested in the science behind reading and dyslexia. Many reviewers consider this the book you, "actually want to read about brain science."

14. Wolf, Maryanne. *Reader, Come Home: The Reading Brain in a Digital World*. Harper Collins, 2018. Harper Paperbacks, 2019.

15. Woodin, Christopher. *Multiplication and Division Facts for the Whole-to-Part, Visual Learner*. Christopher L. Woodin and Landmark School, 2014. The program in this book utilizes semantic reasoning strengths, and a combination of whole-to-part processing and gross motor kinesthetic therapies, to compensate for deficits in working memory, expressive language mechanisms, and executive function. Multiplication concepts and facts are linked to the student's existing knowledge base across a broad spectrum of modalities.

Appendix

Components of Structured Literacy Intervention Checklist

This rubric is designed to help educators evaluate intervention programs. It identifies the necessary components of sturctured literacy interventions and will help to identify areas that may need to be supplemented with additional evidence-based instructional practices.

Intervention Name: Date:

Does the intervention program include all components of structured literacy instruction?

Yes	No	Phonological Awareness
		Segmenting Sentences Into Words
		Syllable Segmentation and Blending
		Phonemic Awareness - Segmentation, Blending & Manipulation

Yes	No	Sound-Symbol Association
		Sounds & Letters Connected for Both Reading (visual) and Spelling (auditory) to Mastery
		Blending of Sounds & Letters into Words to Mastery
		Segmenting Whole Words into Individual Sounds to Mastery

Yes	No	Syllable Instruction
		6 Basic Syllable Types: Identify the Sound of the Vowel Within a Syllable
		Syllable Division Rules: Enhance Accuracy for Reading Unknown Words to Mastery

Yes	No	Orthography
		Focus on Spelling Patterns and Rules as well as Word Meanings, Parts of Speech and Word Origins
		Explicit Instruction in Letter Formation

Yes	No	Morphology
		Study of Base Words, Roots, Prefixes and Suffixes

Yes	No	Grammar/Syntax
		Focus on Grammar & Sentence Variations
		Study of Mechanics of Language & Function of Word Order to Convey Meaning

YES	NO	Vocabulary
		Words Taught Explicitly in Multiple Settings
		Synonyms, Antonyms and Multiple Meanings Integrated into Discussions
		Essential Features with Visual Representations for Concepts Indentified During Discussions
		Idioms Integrated When Appropriate to Situations

Yes	No	Fluency
		Attention to Accuracy, Rate and Prosody
		Use of Normative Data to Ensure Adequate Progress

Yes	No	Reading Comprehension
		Process of Deriving Meaning & Establishing a Coherent Mental Model of the Text's Content
		Attention to Integration of Ideas Within Text and Between Texts
		Use of Text Structure to Accomplish a Goal (i.e., explaining main idea or recalling details)
		Purposeful Teaching of Strategies Related to the Text Structure with Opportunities to Apply in New Situations
		Access Background Knowledge & Identify Language in Text that May be Problematic (indirect meanings, figurative language, complex sentences, pronoun referents, new vocabulary)
		Use of Graphic Organizers

Yes	No	Delivery of Instruction
		Training Standards and Fidelity of Implementation Measures Defined
		Explicit Instruction is Provided One Language Concept at a Time
		Sequence of Instruction is Systematic and Cumulative
		Provides Multisensory Instruction
		Includes Assessments for Diagnostic Teaching (Pre/Post Tests, Mastery Checks)
		Establishes Guidelines for Student Grouping (Size, Homogenous Needs)

Notes

Dyslexia Checklist for Teachers

Dyslexia Checklists for Teachers are not required for use by the Oklahoma State Department of Oklahoma but can provide additional informal data collection. When a teacher reviews this checklist with a student in mind they may identify needs for students they may have overlooked because they are not behavior issues or can verbally compensate for their deficit. The checklists provided can be given in elementary and middle/ high school asking relevant questions associated with risk of dyslexia. Teacher observations are critical for student identifications along with the Family Checklist.

Dyslexia Checklist for Teachers: Elementary Checklist

Administration: The checklist should be completed for 1st, 2nd, and 3rd grade student as part of the Universal Screening process. It should be completed for Kindergarten students at the beginning of the Spring semester. The classroom teacher(s) responsible for the students' reading instruction should complete the checklists. Mark a check beside each behavior observed in the classroom.

Student_____ Grade_____

Teacher_____ Date_____

Alphabet Knowledge:	_____	Difficulty learning and remembering the names of letters in the alphabet.
	_____	Difficulty sequencing the alphabet orally (without singing).
	_____	Difficulty writing the letters of the alphabet in sequence without a model.
	_____	Difficulty naming the vowels.
Sound/Symbol Recognition:	_____	Difficulty associating letters with sounds, such as the letter t with the /t/ sound.
Phonological Awareness:	_____	Difficulty recognizing and/or generating rhyming patterns.
	_____	Difficulty pulling words apart into individual sounds (ex. mat = /m//a//t/).
	_____	Difficulty blending sounds to form words.
Reading:	_____	Slow in acquiring reading skills.
	_____	Difficulty sounding out words using phonics skills, often making guesses.
	_____	Difficulty identifying basic sight words.

Oral reading is slow and laborious.

_____

Spelling:

Difficulty using the correct short vowels in spelling words.

_____

_____ Difficulty spelling words correctly in connected text tasks however, may be able to memorize words for a spelling test.

_____ Frequently makes spelling errors that involve changing the order of letters within a word (ex. left/felt; past/taps).

Handwriting:

_____ Handwriting is often illegible or messy.

_____ Pencil grip is awkward, tight, or fist-like.

_____ Difficulty getting thoughts on paper.

Other considerations:

_____ Reading, writing or spelling skills are below what you would expect in view of perceived intellectual, academic, and/or oral language ability.

_____ Difficulty "finding the right word" and/or seems to hesitate when trying to answer a direct question.

Difficulty with organization, memory and/or following directions.

_____

Difficulty with spatial orientation (ex. left/right, before/after).

_____

Homework takes longer than typical to complete.

_____

If any item is checked, the teacher should administer the Informal Classroom Diagnostic to the student.

_____Student does NOT demonstrate any of the behaviors listed above.

Teacher's signature_____

Date_____

Adapted from the Alabama Scottish Rite Foundation Learning Center Checklist

Dyslexia Checklist for Teachers: Middle School/High School Checklist

Administration:The checklist should be completed for middle and high school grade student as part of the Universal Screening process. The classroom teacher(s) responsible for the students' reading and or English instruction should complete the checklists. Mark a check beside each behavior observed in the classroom.

Student_____ Grade_____

Teacher_____ Date_____

Reading:	_____	Difficulty sounding out words using phonics skills, often making guesses.
	_____	Difficulty identifying basic sight words.
	_____	Oral reading is slow and laborious with many inaccuracies.
Spelling:	_____	Difficulty with spelling.
	_____	Often spells the same word differently within the same writing task.
	_____	Frequently makes spelling errors that involve changing the order of letters within a word (ex. left/felt; past/taps).
Handwriting/ Written Expression:	_____	Handwriting is often illegible or messy.
	_____	Pencil grip is awkward, tight, or fist-like.
	_____	Difficulty getting thoughts on paper.
	_____	Often procrastinates or avoids writing tasks.
	_____	Difficulty summarizing or outlining information in writing.
Other considerations:	_____	Reading, writing or spelling skills are below what you would expect in view of perceived intellectual, academic, and/or oral language ability.
	_____	Difficulty "finding the right word" and/or seems to hesitate when trying to answer a direct question.
	_____	Difficulty with organization, memory and/or following directions.
	_____	Difficulty with spatial orientation (ex. left/right, before/after).
	_____	Reports that homework takes an increased amount of time to complete.

If any item is checked, the teacher should administer the Classroom Diagnostic Screener to the student.

_____Student does NOT demonstrate any of the behaviors listed above.

Teacher's signature_____
Date_____

Adapted from the Alabama Scottish Rite Foundation Learning Center Checklist

FAMILY QUESTIONNAIRE

Administration: The classroom teacher responsible for the student's reading instruction should orally administer or request the questionnaire be completed by a family member. Note: Additional informal classroom diagnostics should not be postponed if this teacher is unable to complete the family questionnaire.

Student_____ Grade_____
Teacher_____

Yes: No:

_____ _____ Do you have any concerns about your child's work at school? If yes, explain:

_____

_____ _____ Has your child received any special instruction or tutoring at school or privately?
If yes,
explain:

_____

_____ _____ Has your child repeated a grade? If yes,
explain:

_____

_____ _____ Has your child had a speech or language problem? If yes,
explain:

_____

_____ _____ Has your child ever been critically or chronically ill? If yes,
explain:

_____

_____ _____ Does your child have any physical problems that you feel may cause difficulty in learning? If yes,
explain:

_____

_____ _____ Does your child seem to have difficulty following directions? If yes,
explain:

_____

_____ _____ Does your child seem to have more difficulty in reading, writing, and spelling than in most other subjects? If yes,
explain:_____

_____ _____ Does your child need a significant amount of help to complete homework?
If yes,
explain:

_____

_____ _____ Does your child enjoy being read to by adults? If yes, explain:

_____

_____ _____ Does your child hesitate to read to you? If yes, explain:

_____

_____ _____ Is reading difficult for any family member (Parent, Grandparent, etc..)? If yes, explain:

_____

Completed by:_____ **Relationship** _____
Date_____

Knowledge and Practice Standards Self-Study Checklist

Aligned to the IDA Knowledge and Practice Standards for Teachers of Reading, this checklist can assist teachers in assessing their current knowledge base about the science of reading in order to develop meaningful professional development plans.

Name: Date:

Rating Scale: This simple rating scale may help teachers evaluate the amount of knowledge they possess for each of the competencies and identify areas where they may benefit from professional development.

3 – I Know It Well Enough to Use It: I have sufficient understanding and experience to operate at a full professional level with this information and I can generalize basic principles to effectively function in both predictable and new situations with my students.

2 – I Have Some Knowledge: My knowledge is newly developing in this area. I have a general understanding of key principles but limited or no applied experience using this with my students. I am capable of using this with coaching and support, in simple situations.

1 – I Have No Knowledge: I have no understanding of this information and will need to learn more.

Level Identification: Many of the competentcies are followed by the designation of Level 1 or Level 2. These designations indicate whether a competency should be met by:

Level 1: teachers or any staff member whose responsibilities include general reading instruction for all students, such as a classroom teacher

Level 2: specialists or any staff member whose responsibilities include delivering reading interventions to struggling readers, such as a therapist, a reading specialist, an intervention teacher, a basic skills instructor, a Learning Disabilities Teacher-Consultant, a special education teacher, etc.

Foundation Concepts of Oral and Written Learning

Rating			Content Knowledge	Application
3	2	1		
			1. Understand and explain the language processing requirements of proficient reading and writing • Phonological (speech sound) processing • Orthographic (print) processing • Semantic (meaning) processing • Syntactic (sentence level) processing • Discourse (connected text level processing)	a. Explain the domains of language and their importance to proficient reading and writing (Level 1). b. Explain a scientifically valid model of the language processes underlying reading and writing (Level 2).
			2. Understand and explain other aspects of cognition and behavior that affect reading and writing • Attention • Executive function • Memory • Processing speed • Graphomotor control	a. Recognize that reading difficulties coexist with other cognitive and behavioral problems (Level 1). b. Explain a scientifically valid model of other cognitive influences on reading and writing, and explain major research findings regarding the contribution of linguistic and cognitive factors to the prediction of literacy outcomes (Level 2).
			3. Define and identify environmental, cultural, and social factors that contribute to literacy development (e.g., language spoken at home, language and literacy experiences, and cultural values).	Identify (Level 1) or explain (Level 2) major research findings regarding the contribution of environmental factors to literacy outcomes.
			4. Know and identify phases in the typical developmental progression of • Oral language (semantic, syntactic, pragmatic) • Phonological skill • Printed word recognition • Spelling • Reading fluency • Reading comprehension • Written expression	Match examples of student responses and learning behavior to phases in language and literacy development (Level 1).
			5. Understand and explain the known casual relationships among phonological skill, phonic decoding, spelling, accurate and automatic word recognition, text reading fluency, background knowledge, verbal reasoning skill, vocabulary, reading comprehension, and writing.	Explain how a weakness in each component skill of oral language, reading, and writing may affect other related skills and processes across time (Level 2).

Knowledge and Practice Standards Self-Study Checklist

Rating			Content Knowledge	Application
3	2	1		
			6. Know and explain how the relationships among the major components of literacy development change with reading development (i.e., changes in oral language, including phonological awareness; phonics and word recognition; spelling; reading and writing fluency; vocabulary; reading comprehension skills and strategies; written expression).	Explain how a weakness in each component skill of oral language, reading, and writing may affect other related skills and processes across time (Level 2).
			7. Know reasonable goals and expectations for learners at various stages of reading and writing development.	Given case study material, explain why a student is/is not meeting goals and expectations in reading or writing for his or her age/grade (Level 1).

Knowledge of the Structure of Language

Rating			Content Knowledge	Application
3	2	1		
Phonology (The Speech Sound System)				
			1. Identify, pronounce, classify, and compare the consonant and vowel phonemes of English.	a. Identify similar or contrasting features among phonemes (Level 1). b. Reconstruct the consonant and vowel phoneme inventories and identify the feature differences between and among phonemes (Level 2).
Orthography (The Spelling System)				
			2. Understand the broad outline of historical influences on English spelling patterns, especially Anglo-Saxon, Latin (Romance), and Greek.	Recognize typical words from the historical layers of English (Anglo-Saxon, Latin/ Romance, Greek) (Level 1).
			3. Define grapheme as a functional correspondence unit or representation of a phoneme.	Accurately map graphemes to phonemes in any English word (Level 1).
			4. Recognize and explain common orthographic rules and patterns in English.	Sort words by orthographic “choice” pattern; analyze words by suffix ending patterns and apply suffix ending rules (Level 1).
			5. Know the difference between “high frequency” and “irregular” words.	Identify printed words that are the exception to regular patterns and spelling principles; sort high frequency words into regular and exception words (Level 1).
			6. Identify, explain, and categorize six basic syllable types in English spelling.	Sort, pronounce, and combine regular written syllables and apply the most productive syllable division principles (Level 1).
Morphology				
			7. Identify and categorize common morphemes in English, including Anglo-Saxon compounds, inflectional suffixes, and derivational suffixes; Latin-based prefixes, roots, and derivational suffixes; and Greek based combining forms.	a. Recognize the most common prefixes, roots, suffixes, and combining forms in English content words, and analyze words at both the syllable and morpheme level (Level 1). b. Recognize advanced morphemes (e.g., chameleon or assimilated + prefixes) (Level 2).
Semantics				
			8. Understand and identify examples of meaningful word relationships or semantic organization.	Match or identify examples of word associations, antonyms, synonyms, multiple meanings and uses, semantic overlap, and semantic feature analysis (Level 1).
Syntax				
			9. Define and distinguish among phrases, dependent clauses, and independent clauses in sentence structure.	Construct and deconstruct simple, complex, and compound sentences (Level 1).
			10. Identify the parts of speech and the grammatical role of a word in a sentence.	a. Identify the basic parts of speech and classify words by their grammatical role in a sentence (Level 1). b. Identify advanced grammatical concepts (e.g., infinitives, gerunds) (Level 2).
Discourse				
			11. Explain the major differences between narrative and expository discourse.	Classify text by genre; identify features that are characteristic of each genre, and identify graphic organizers that characterize typical structures (Level 1).
			12. Identify and construct expository paragraphs of varying logical structures (e.g., classification, reason, sequence).	Identify main idea sentences, connecting words, and topics that fit each type of expository paragraph organization (Level 2).
			13. Identify cohesive devices in text and inferential gaps in the surface language of text.	Analyze text for the purpose of identify the inferences that students must make to comprehend (Level 2).

Knowledge and Practice Standards Self-Study Checklist

Structured Language Teaching: Phonology

Rating			Content Knowledge	Application
3	2	1		
			1. Identify the general and specific goals of phonological skill instruction.	Explicitly state the goal of any phonological awareness teaching activity (Level 1).
			2. Know the progression of phonological skill development (i.e., rhyme, syllable, onset-rime, phoneme differentiation).	a. Select and implement activities that match a student's developmental level of phonological skill (Level 1). b. Design and justify the implementation of activities that match a student's developmental level of phonological skill (Level 2).
			3. Identify the differences among various phonological manipulations, including identifying, matching, blending, segmenting, substituting, and deleting sounds.	Demonstrate instructional activities that identify, match, blend, segment, substitute, and delete sounds (Level 1).
			4. Understand the principles of phonological skill instruction: brief, multisensory, conceptual, and auditory-verbal.	a. Successfully produce vowel and consonant phonemes (Level 1). b. Teach articulatory features of phonemes and words; use minimally contrasting pairs of sounds and words in instruction; support instruction with manipulative materials and movement (Level 2).
			5. Understand the reciprocal relationships among phonological processing, reading, spelling, and vocabulary.	a. Direct students' attention to speech sounds during reading, spelling, and vocabulary instruction using a mirror, discussion of articulatory features, and so on as scripted or prompted (Level 1). b. Direct students' attention to speech sounds during reading, spelling, and vocabulary instruction without scripting or prompting (Level 2).
			6. Understand the phonological features of a second language or dialect, such as Spanish, and how they may interfere with English pronunciation and phonics.	Explicitly contrast first and second language phonological systems, as appropriate, to anticipate which sounds may be most challenging for the second language learner (Level 2).

Structured Language Teaching: Phonics and Word Recognition

Rating			Content Knowledge	Application
3	2	1		
			1. Know or recognize how to order phonics concepts from easier to more difficult.	Plan lessons with a cumulative progression of word recognition skills that build one on another (Level 1).
			2. Understand principles of explicit and direct teaching, model, lead, give guided practice, and review.	Explicitly and effectively teach (e.g., information taught is correct, students are attentive, teacher checks for understanding, teacher scaffolds students' learning) concepts of word recognition and phonics; apply concepts to reading single words, phrases, and connected text (Level 1).
			3. State the rationale for multisensory and multimodal techniques.	Demonstrate the simultaneous use of two or three learning modalities (to include listening, speaking, movement, touch, reading, and/or writing) to increase engagement and enhance memory (Level 1).
			4. Know the routines of a complete lesson format, from the introduction of a word recognition concept to fluent application in meaningful reading and writing.	Plan and effectively teach all steps in a decoding lesson, including single-word reading and connected text that is read fluently, accurately, and with appropriate intonation and expression (Level 1).
			5. Understand research-based adaptations of instruction for students with weaknesses in working memory, attention, executive function, or processing speed.	Adapt the pace, format, content, strategy, or emphasis of instruction according to students' pattern of response (Level 2).

Structured Language Teaching: Fluent, Automatic Reading of Text

Rating			Content Knowledge	Application
3	2	1		
			1. Understand the role of literacy in word recognition, oral reading, silent reading, comprehension of written discourse, and motivation to read.	Assess students' fluency rate and determine reasonable expectations for reading fluency at various stages of reading development, using research-based guidelines and appropriate state and local standards and benchmarks (Level 1).

Knowledge and Practice Standards Self-Study Checklist

Rating			Content Knowledge	Application
3	2	1		
			2. Understand reading fluency as a stage of normal reading development, as the primary symptom of some reading disorders; and as a consequence of practice and instruction.	Determine which students need a fluency-oriented approach to instruction, using screening, diagnostic, and progress-monitoring assessments (Level 2).
			3. Define and identify examples of text at a student's frustration, instructional, and independent reading level.	Match students with appropriate texts as informed by fluency rate to promote ample independent oral and silent reading (Level 1).
			4. Know sources of activities for building fluency in component reading skills.	Design lesson plans that incorporate fluency-building activities into instruction at sub-word and word levels (Level 1).
			5. Know which instructional activities and approaches are most likely to improve fluency outcomes.	Design lesson plans with a variety of techniques to build reading fluency, such as repeated readings of passages, alternate oral reading with a partner, reading with a tape, or rereading the same passage up to three times (Level 1).
			6. Understand techniques to enhance student motivation to read.	Identify student interests and needs to motivate independent reading (Level 1).
			7. Understand appropriate uses of assistive technology for students with serious limitations in reading fluency.	Make appropriate recommendations for use of assistive technology in general education classes for students with different reading profiles (e.g., dyslexia versus language disabilities) (Level 2).

Structured Language Teaching: Vocabulary

Rating			Content Knowledge	Application
3	2	1		
			1. Understand the role of vocabulary development and vocabulary knowledge in comprehension.	Teach word meanings directly using contextual examples, structural (morpheme) analysis, antonyms and synonyms, definitions, connotations, multiple meanings, and semantic feature analysis (Levels 1 and 2).
			2. Understand the role and characteristics of direct and indirect (contextual) methods of vocabulary instruction.	Lesson planning reflects: a. Selection of material for read-alouds and independent reading that will expand students' vocabulary. b. Identification of words necessary for direct teaching that should be known before the passage is read. c. Repeated encounters with new words and multiple opportunities to use new words orally and in writing. d. Recurring practice and opportunities to use new words in writing and speaking (Levels 1 and 2).
			3. Know varied techniques for vocabulary instruction before, during, and after reading.	
			4. Understand that word knowledge is multifaceted.	
			5. Understand the sources of wide differences in students' vocabularies.	

Structured Language Teaching: Text Comprehension

Rating			Content Knowledge	Application
3	2	1		
			1. Be familiar with teaching strategies that are appropriate before, during, and after reading and that promote reflective reading.	a. State purpose for reading, elicit or provide background knowledge, and explore key vocabulary (Level 1). b. Query during text reading to foster attention to detail, inference-making, and mental model construction (Level 1). c. Use graphic organizers, note-taking strategies, retelling and summarizing, and cross-text comparisons (Level 1).
			2. Contrast the characteristics of major text genres, including narration, exposition, and argumentation.	Lesson plans reflect a range of genres, with emphasis on narrative and expository texts (Level 1).
			3. Understand the similarities and differences between composition and text comprehension, and the usefulness of writing in building comprehension.	Model, practice, and share written responses to text; foster explicit connections between new learning and what was already known (Level 1).
			4. Identify in any text the phrases, clauses, sentences, paragraphs and "academic language" that could be a source of miscomprehension.	Anticipate confusions and teach comprehension of figurative language, complex sentence forms, cohesive devices, and unfamiliar features of text (Level 2).

Knowledge and Practice Standards Self-Study Checklist

Rating			Content Knowledge	Application
3	2	1		
			5. Understand levels of comprehension including the surface code, text base, and mental model (situation model).	Plan lessons to foster comprehension of the surface code (the language), the text base (the underlying ideas), and a mental model (the larger context for the ideas) (Level 2).
			6. Understand factors that contribute to deep comprehension, including background knowledge, vocabulary, verbal reasoning ability, knowledge of literary structures and conventions, and use of skills and strategies for close reading of text.	Adjust the emphasis of lessons to accommodate learners' strengths and weaknesses and pace of learning (Level 2).

Structured Language Teaching: Handwriting, Spelling, and Written Expression

Rating			Content Knowledge	Application
3	2	1		
			Handwriting	
			1. Know research-based principles for teaching letter naming and letter formation, both manuscript and cursive.	Use multisensory techniques to teach letter naming and letter formation in manuscript and cursive forms (Level 1).
			2. Know techniques for teaching handwriting fluency.	Implement strategies to build fluency in letter formation, and copying and transcription of written language (Level 1).
			Spelling	
			3. Recognize and explain the relationship between transcription skills and written expression.	Explicitly and effectively teach (e.g., information taught is correct, students are attentive, teacher checks for understanding, teacher scaffolds students' learning) concepts related to spelling (e.g., a rule for adding suffixes to base words) (Level 1).
			4. Identify students' levels of spelling development and orthographic knowledge.	Select materials and/or create lessons that address students' skill levels (Level 1).
			5. Recognize and explain the influences of phonological, orthographic, and morphemic knowledge on spelling.	Analyze a student's spelling errors to determine his or her institutional needs (e.g., development of phonological skills versus learning spelling rules versus application of orthographic or morphemic knowledge in spelling) (Level 2).
			Written Expression	
			6. Understand the major components and processes of written expression and how they interact (e.g., basic writing/transcription skills versus text generation).	Integrate basic skill instruction with composition in writing lessons (Levels 1 and 2).
			7. Know grade and developmental expectations for students' writing in the following areas: mechanics and conventions of writing, composition, revision, and editing processes.	a. Select and design activities to teach important components of writing, including mechanics/conventions of writing, compositions, and revision and editing processes. b. Analyze students' writing to determine specific instructional needs. c. Provide specific, constructive feedback to students targeted to students' most critical needs in writing. d. Teach research-based writing strategies such as those for planning, revising, and editing text. e. Teach writing (discourse) knowledge, such as the importance of writing for the intended audience, use of formal versus informal language, and various schemas for writing (e.g., reports versus narratives versus arguments) (Levels 1 and 2).
			8. Understand appropriate uses of assistive technology in written expression.	Make appropriate written recommendations for the use of assistive technology in writing (Levels 1 and 2).

Interpretation and Administration of Assessments for Planning Instruction

Rating			Content Knowledge	Application	Observable Competencies for Teaching Students with Dyslexia and Related Difficulties
3	2	1			
			1. Understand the differences among screening, diagnostic, outcome, and progress-monitoring assessments.	Match each type of assessment and its purpose (Level 1).	Administer screenings and progress monitoring assessments (Level 1).
			2. Understand basic principles of test construction, including reliability, validity, and norm-referencing, and know the most well-validated screening tests designed to identify students at risk for reading difficulties.	Match examples of technically adequate, well-validated screening, diagnostic, outcome, and progress-monitoring assessments (Level 1).	Explain why individual students are or are not at risk in reading based on their performance on screening assessments (Level 1).

Knowledge and Practice Standards Self-Study Checklist

Rating			Content Knowledge	Application	Observable Competencies for Teaching Students with Dyslexia and Related Difficulties
3	2	1			
			3. Understand the principles of progress-monitoring and the use of graphs to indicate progress.	Using case study data, accurately interpret progress-monitoring graphs to decide whether or not a student is making adequate progress (Level 1).	Display progress-monitoring data in graphs that are understandable to students and parents (Level 1).
			4. Know the range of skills typically assessed by diagnostic surveys of phonological skills, decoding skills, oral reading skills, spelling, and writing.	Using case study data, accurately interpret subtest scores from diagnostic surveys to describe a student's patterns of strengths and weaknesses and instructional needs (Level 2).	Administer educational diagnostic assessments using standardized procedures (Level 2).
			5. Recognize the content and purposes of the most common diagnostic tests used by psychologists and educational evaluators.	Find and interpret appropriate print and electronic resources for evaluating tests (Level 1).	Write reports that clearly and accurately summarize a student's current skills in important component areas of reading and reading comprehension (Level 2).
			6. Interpret measures of reading comprehension and written expression in relation to an individual child's component profile.	Using case study data, accurately interpret a student's performance on reading comprehension or written expression measures and make appropriate instructional recommendations.	Write appropriate, specific recommendations for instruction, and educational programming based on assessment data (Level 2).

Knowledge of Dyslexia and Other Learning Disorders

Rating			Content Knowledge	Application
3	2	1		
			1. Understand the most common intrinsic differences between good and poor readers (i.e., cognitive, neurological, and linguistic).	a. Recognize scientifically accepted characteristics of individuals with poor word recognition (e.g., overdependence on context to aid word recognition, inaccurate non-word reading) (Level 1). b. Identify student learning behaviors and test profiles typical of students with dyslexia and related learning difficulties (Level 2).
			2. Recognize the tenets of the NICHD/IDA definition of dyslexia.	Explain the reasoning or evidence behind the main points in the definition (Level 1).
			3. Recognition that dyslexia and other reading difficulties exist on a continuum of severity.	Recognize level of instructional intensity, duration, and scope appropriate for mild, moderate, and severe reading disabilities (Level 1).
			4. Identify the distinguishing characteristics of dyslexia and related reading and learning disabilities (including developmental language comprehension disorder, attention deficit hyperactivity disorder, disorders of written expression or dysgraphia, mathematics learning disorder, nonverbal learning disorders, etc.).	Match symptoms of the major subgroups of poor readers as established by research, including those with dyslexia, and identify typical case study profiles of those individuals (Level 2).
			5. Identify how symptoms of reading difficulty may change over time in response to development and instruction.	Identify predictable ways that symptoms might change as students move through the grades (Level 2).
			6. Understand federal and state laws that pertain to learning disabilities, especially reading disabilities and dyslexia.	a. Explain the most fundamental provisions of federal and state laws pertaining to the rights of students with disabilities, especially students' rights to a free, appropriate public education, an individualized educational program, services in the least restrictive environment, and due process (Level 1). b. Appropriately implement federal and state laws in identifying and serving students with learning disabilities, reading disabilities, and dyslexia (Level 2).

Adapted from: Moats et al. (2010). Knowledge and Practice Standards for Teachers of Reading. International Dyslexia Association. https://dyslexiaida.org/knowledge-and-practices/

Sample Scope and Sequence Chart

Structured literacy instruction is systematic and cumulative. This sample scope and sequence illustrates what a progression of skills might typically look like in such programs. It is not, however, a comprehensive sample.

Level I Phonograms
Group 1: a /ă/, b, c, f, h, i /ĭ/, j, k, m, p, t
Group 2: g, o /ŏ/, r, l, n, th, u /ŭ/, ch, e /ĕ/, s, sh, d, w, wh, y (consonant), qu, v, x, z
Glued Sounds – all, ing, ong, ang, ung, ink, ank, onk, unk
Suffixes – -s /s/ and /z/, -ed /d/, /ĕd/ and /t/
Bonus Letters – ff, ll, ss, zz
Concepts – digraph, blend, short and long vowel sound, trigraph
Double Vowels: ai, ay, ee, ea, oi, oy, oo, ow, ie, ou, y (vowel)
Syllable Types – closed (one and two syllables), open, and vowel-consonant-e

Level II Phonograms
Closed syllable exceptions: ind, ild, ost
r-controlled sounds: ar, or, ir, er, ur
Suffixes – es, er, est, ly, y, ful, less, ness, en, ment
Prefixes – un, dis, mis, in, non, pre, re
Concepts – diphthong, compound word, base word, present tense, past tense, singular, plural, contraction
Syllable Types – r-controlled, vowel pair

Level III Phonograms
Vowel Sounds: ea /ĕ/ and /ā/, oe, c before i, e, y, g before i, e, y, igh, ew, au, aw, ue, ou, eu
Suffixes – -able, -ive, -ion
Prefixes – anti-, con-, de-, ex-, inter-, per-, pre-, pro-, semi-, sub-, super-
Latin Roots – cept, dict, duct, fort, ject, port, rupt, sist, spect, vert, flex, fic, fin, gen, mit, pos, plic, scrib, vis
Syllable Types – consonant-le

Level IV Phonograms
Vowel Sounds: ei, eigh, ey, ar (beggar), or (doctor), wa (want), u (push, pull), ou (country, cousin)
Silent Letters – wr, kn, gn, mb, gh, stle, ps, pn, alk, ough, augh
Additional Sounds: ch (Christmas), ch (Chicago), ture, ti, si, ci
Suffixes – -ture, -ous, -al, -ic, -ure, -age, -an, -able, -ible, -ate, -ite, -ine, -ology
Prefixes – uni-, bi-, micro-, sy-, hyper-, hydro-, tele-, phone-, auto-

Glossary

Accessible Educational Materials (AEM) – educational materials and technologies usable for learning across the widest range of individual variability, regardless of format or features; this includes technology designed to be accessible for all learners or made accessible for learners with disabilities.

Accommodation – changes in the curriculum, instruction, or testing format or procedures that enable students with disabilities to participate in the general education curriculum. Accommodations should be considered to include assistive technology as well as changes in presentation, response, timing, scheduling, and settings that do not fundamentally alter the requirements. Accommodations do not invalidate assessment results.

Accuracy – the ability to recognize words correctly.

Adaptation – the broader application of altering curriculum to meet the needs of learners, either by providing accommodations or modifications to what is being taught. Adaptation includes changes to curriculum, instruction, or assessments that fundamentally alter the requirements but that also enable a student with an impairment an opportunity to participate in general education. Adaptations include strategies that change the level of learning expectation.

Adequate Progress – the level of improvement based on an individual student's trajectory toward expected grade-level performance within a reasonable time period, consistent with national or local growth rate comparisons.

Alphabet Knowledge – the ability to automatically recognize and name the 26 lowercase and 26 uppercase alphabet letters with ease and accuracy.

Alphabetic Principle – the ability to associate sounds with letters and use those sounds to form words.

Alternate Assessment – a specific assessment, developed by the state in lieu of statewide assessments or by the district in lieu of districtwide assessments, designed to measure functional skills within the same domains required by the regular statewide or districtwide assessments. An alternate assessment is designed for students who are unable to demonstrate progress in the typical manner and who meet the state-established criteria.

Analytic Instruction – pertains to instruction or a process that separates the whole into its constituent parts to reveal the relationship of its parts (Birsh, 2011).

Assistive Technology Device – any item, piece of equipment, or product system, whether acquired commercially, off a shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of a student with a disability. This excludes surgically implanted medical devices.

Assistive Technology Service – any service that directly assists a student who has a disability with the assessment, selection, acquisition, or use of an assistive technology device.

Automaticity – the ability to perform a skill easily with little attention, effort, or conscious awareness.

Background Knowledge – connections formed between the text and the information and experiences of the reader.

Base Words – words from which many other words are formed. Base words can stand alone, unlike root words. Examples of a base word and its various forms are “migrate”: “migration,” “migrant,” “immigration,” “immigrant,” “migrating,” and “migratory” (Hougen & Smartt, 2012).

Benchmark – a standard or point of reference against which things may be compared or assessed. A benchmark is also a major milestone describing the progress the student is expected to make toward annual goals within a specified time period.

Blending – the ability to combine individual sounds together to create spoken words (Mather & Wendling, 2012).

Characteristics – strengths and weaknesses in the various components of literacy associated with dyslexia. The characteristics are included in the definition of dyslexia as poor decoding, poor word recognition, poor fluency, and poor spelling.

Comprehension – understanding the intended meaning of language.

Core Instruction – the curriculum and instructional practices that are provided to all students in the general education setting.

Connected Text – words that are linked as in sentences, phrases, and paragraphs.

Consonant – one of a class of speech sounds in which sound moving through the vocal tract is constricted or obstructed by the lips, tongue, or teeth during articulation (Birsh, 2011).

Controlled Text – reading materials in which a high percentage of words can be identified using their most common sounds and using sound-letter correspondences that students have been taught.

Cumulative Instruction – an approach that builds upon previously learned concepts.

Decoding – the process of using sound-letter correspondences to sound out words or nonsense words.

Diagnostic Assessment – assessments used to measure current skills and knowledge, often for the purpose of educational planning.

Differentiated Instruction – varying educational practices to meet the needs of different students.

Digraphs – a combination of two letters representing one sound, as in “ph” and “ey.”

Diphthong – a sound formed by the combination of two vowels in a single syllable in which the sound begins as one vowel and moves toward another (as in “coin,” “loud,” and “side”).

Dyscalculia – a specific learning disability characterized by difficulties understanding or performing mathematical processes or operations.

Dysgraphia – a specific learning disability characterized by difficulties in physically writing.

Dyslexia – a specific learning disability characterized by difficulties with accurate and fluent word recognition, poor spelling, and decoding abilities that typically result from the phonological component of language and are often unexpected in relation to other cognitive abilities.

Elision – the ability to identify the remaining word when a specified sound is deleted.

Encoding – the process of using sound-letter correspondences to spell.

Evaluation – using all required procedures to determine whether a child has a disability and to determine the nature and extent of the special education and related services the child needs.

Evidence Based Research – an intervention, tool, or practice that meets one of the four evidence levels in the federal Elementary and Secondary Education Act, as amended by ESSA (strong, moderate, promising, or demonstrates a rationale).

Explicit Instruction – a direct, structured, systematic approach to teaching that includes both instructional design and delivery procedures.

Expressive Language – language that is spoken aloud.

Fidelity – an adjective describing an intervention that is done as the author of the program intended.

Fidelity of Implementation – the degree to which an instruction follows the intent and design of the program.

Fine Motor – the coordination of small muscles in movement with the eyes, hands, and fingers.

Fluency – the ability to read the words in text effortlessly and efficiently (automaticity) with meaningful expression that enhances the meaning of the text (prosody).

Formative Assessments – a planned, ongoing process used by all students and teachers during learning and teaching used to elicit and use evidence of student learning to improve a student's understanding of intended disciplinary learning outcomes; and used to support students in becoming more self-directed learners (ADE, Balanced Assessment Framework).

Grapheme – a letter or letter cluster that represents an individual phoneme (e.g., "i," "i-e," "igh," "ch," "tch," etc.).

Gross Motor – movements that require whole body movement and that involve the large muscles of the body to perform everyday functions such as standing, walking, running, jumping, and sitting upright at a table.

Guided Practice – an approach in which students practice newly learned skills with the teacher providing prompts and feedback.

High Frequency Word – a word that is encountered numerous times in text and is important to know (Birsh, 2011).

Independent Educational Evaluation (IEE) – one or more assessment(s) conducted by a qualified examiner(s) who is not employed by or contracted by the public agency or district responsible for the education of the student in question.

Indicator – a sign that shows or suggests the condition of something. Indicators of dyslexia are the early warning signs indicating a child might have dyslexia. Indicators of dyslexia may differ at different ages.

Individualized Education Program (IEP) – a written document (developed collaboratively by parents and school personnel) which outlines the special education program for a student with a disability. This document is developed, reviewed, and revised at an IEP meeting at least annually.

Individualized Instruction – instruction that is designed to meet the specific needs of the student in a small group setting. Individualized instruction is intensive and highly concentrated instruction that focuses on the student's area(s) of primary difficulty and the instructional delivery necessary to assist students in accelerating their learning, maximizing student engagement in the process of learning.

Individuals with Disabilities Education Act (IDEA) – the federal law outlining rights and regulations for students with disabilities in the U.S. who require special education.

Interventions – sets of teaching procedures used by educators to help students, who are struggling with a skill or lesson, to succeed in the classroom.

Instructional Intervention – an action or strategy based on an individual student's problem that is designed to remedy, improve, or eliminate the identified problem.

Learning Disability – a disorder in one or more of the basic psychological processes in understanding or using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations.

Linguistic Instruction – instruction aimed toward improving student proficiency and fluency with the patterns of language so words and sentences are carriers of meaning.

Metacognitive Skills – strategies that help students to "think about their thinking" before, during, and after they read.

Morpheme – the smallest meaningful unit of a language.

Morphological Awareness – the awareness of the semantically meaningful units and structure of words.

Morphology – the study of words, how they are formed, and their relationship to other words in the same language.

Multisensory Instruction – instruction that incorporates the simultaneous use of two or more sensory pathways (visual, auditory, kinesthetic, and tactile) during teacher presentations and student practice.

Nonsense Word – a word having no meaning by itself, the spelling of which is usually phonetic (e.g., "vop"). Reading and spelling nonsense words are phonic reinforcement for students who have already memorized a large number of words. Nonsense words can be used for teaching older students how to apply phonetic decoding.

Norm – the standard of performance on a test that is derived by administering the test to a large sample of students.

Norm-Referenced Test – an assessment that provides an estimate of the student's performance compared to other students in the population of the same age or grade.

Onset – the initial written or spoken single consonant or consonant cluster before the first vowel in a syllable (e.g., /s/ in "sit," /str/ in "strip," etc.). Some syllables do not have an onset (e.g., "on," "ask," etc.).

Onset-Rime Awareness – awareness of the two separate elements in syllables, the consonant sounds before the vowel sound (onset) and the vowel sound and any consonant sounds that follow (rime); a subcategory of phonological awareness.

Orthographic Knowledge – information in memory of how to represent spoken language in a written form.

Orthographic Processing – the use of the visual system to form, store, and recall words.

Orthography – the conventional spelling system/writing system of a language.

Phoneme – the smallest unit of sound within spoken words.

Phoneme-Grapheme Connections – the relationships between the speech sounds (phonemes) of words and the spellings (graphemes) of words (Mather & Wendling, 2012).

Phonemic Awareness – the awareness of individual sounds/phonemes in spoken words; a subcategory of phonological awareness.

Phonics – a systematic process for teaching sound-symbol relationships and their use in reading and spelling words.

Phonological Awareness – the ability to recognize and manipulate the sound system in spoken language; it encompasses the entire continuum of skills related to the awareness of the phonological structure of language.

Phonological Processing – the use of the sounds of one's language to process spoken and written language.

Phonology – the study of how sounds are organized and used in natural languages.

Phonology Disorders – errors involving phonemes, sound patterns, and the rules governing their combinations.

Prefix – an affix attached to the beginning of a word that changes the meaning of that word (e.g., "tri-" in "tricycle") (Birsh, 2011).

Present Levels of Performance – a statement of the student's current level of achievement or development in an area of need, and how the student's disability affects his or her involvement and progress in the general education curriculum. Present levels of academic achievement and functional performance (PLAAFP), typically shortened to 'present levels,' is a central component of the IEP and is intended to comprehensively describe a child's abilities, performance, strengths, and needs. Present levels are based on all the information and data previously collected and known about the child, most especially the full and individual evaluation of the child that must be conducted in accordance with IDEA's evaluation/eligibility provisions.

Procedural Safeguards – the formal requirements of Part B of the IDEA 2004 that are designed to allow a parent/adult student to participate meaningfully in decisions concerning an appropriate educational program for a student with a disability and, if necessary, dispute such decisions. Also referred to as special education rights.

Progress Monitoring Assessments – a tool to determine whether students are making adequate progress. This may be curriculum embedded (measuring to what extent students have mastered curriculum) or general/external (measuring critical reading skills, such as phonemic awareness, phonics fluency, vocabulary, or comprehension). They serve to predict success in meeting grade-level expectations (Hougen & Smartt, 2012).

Progress Monitoring – a tool to assess students' academic performance, to quantify a student rate of improvement or responsiveness to instruction, and to evaluate the effectiveness of instruction.

Prosody – reading aloud with expression, proper intonation, and phrasing.

Rapid Naming or Rapid Automatized Naming (RAN) – the ability to quickly name aloud a series of familiar items (e.g., colors, objects, letters, or numbers). Variations in rapid naming time in children provide a strong predictor of their later ability to read.

For more information, visit https://www.understood.org/en/school-learning/evaluations/types-of- tests/rapid-automatized-naming-tests-what-you-need-to-know.

Reading Comprehension – a multicomponent, highly complex process that involves many interactions between readers and what they bring to the text (e.g., previous knowledge, strategy use) as well as variables related to the text itself (e.g., interest in the text, understanding of text types) (Hougen & Smartt, 2012).

Reading Rate – the speed of reading at the single word level or at the connected text level. (Mather & Wendling, 2012).

Receptive Language – language that is heard.

Reliability – consistency with which a tool classifies students from one administration to the next.

Research-Based Instruction – instruction that is based on the findings of scientific research.

Response to Intervention (RtI) – a formal process for evaluating student response to scientifically research-based interventions, consisting of the core components of: (1) problem identification, (2) problem analysis, (3) applying research-based interventions, and (4) progress monitoring/decisions rules.

Root – the main part of a word; affixes are added to the roots to make new words (e.g., “sect”:“intersect,” or “intersection”) (Hougen & Smartt, 2012).

Scope and Sequence – a blueprint providing an overall outline of an instructional program including the range of teaching content and the order or sequence in which it is taught.

Screening – an informal, although organized, process of identifying students who are not meeting or who may not be meeting Oklahoma Academic Content Standards.

Screening Assessment – an efficient assessment given to all students to identify students who are at risk for not meeting grade-level standards.

Sensory impairment – a vision or hearing impairment, or a combination of both, that cannot be corrected to a degree that the student can receive educational benefit from print and/or auditory information.

Segmentation – the ability to break apart spoken words into syllables or phonemes (Mather & Wendling, 2012).

Semantics – the study of the meaning of morphemes, words, phrases, and sentences.

Sequencing – in multisensory structured language education, the orderly presentation of linguistic concepts based on frequency and ease of learning in a continuous series of connected lessons (Birsh, 2011).

Sight Word – a word immediately recognized “on sight” regardless of whether it is phonically regular or irregular.

Small Group – a typical classroom reading group with a maximum of 5-6 students. If a student exhibiting the characteristics of dyslexia hasn’t been successful in the typical small reading group, he or she will likely need a smaller group for the dyslexia intervention. The group size for dyslexia intervention begins with the program guidelines, but it should also take into consideration the severity of the reading deficiency and may need to be adjusted based on the individual student’s progress monitoring data.

Sound Symbol Recognition – ability to automatically produce sound(s) or grapheme names (grade level letters or letter clusters) during recognition, production, and/or writing tasks.

Sound-Letter Identification – a phoneme (sound) associated with a letter or letters (grapheme); also called sound-letter correspondence.

Specially Designed Instruction – adapted content, methodology, or delivery of instruction to address the unique needs of an eligible student that result from the student’s disability. Specially Designed Instruction ensures access to the general education curriculum so the student can meet the education standards of that district that apply to all students. As defined in IDEA, specially designed (tiered) instruction is the unique set of supports provided to an individual student, based on his or her learning needs, to remove barriers that result from the student’s disability. The supports are reflected in the student’s individual educational plan (IEP) and are infused throughout the student’s learning experiences and environments as described in the IEP.

Specific Learning Disability (SLD) – an IDEA disability category in which a specific disorder, of one or more of the basic psychological processes involved in understanding or in using spoken or written language, may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations, adversely affecting the student’s educational performance. This term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include a student who has needs that are primarily the result of visual, hearing, or motor disabilities; cognitive impairment; emotional disturbance; or environmental, cultural, or economic disadvantage.

Speech or Language Impairment (SLI) – an IDEA disability category that includes articulation/phonology, voice, and fluency disorders.
Speech-Language Pathologist (SLP) – a professional who can assess and treat persons with speech, language, voice, and fluency disorders. This professional coordinates with, and may be a member of, the evaluation and IEP teams.

Strategy-Based Instruction – providing instruction in the step-by-step processes needed for students to independently complete complex tasks.

Structural Analysis – the perception and examination of syllables and morphemes. Structural analysis enables the reader to recognize different syllables and decode long, unfamiliar words (Birsh, 2011).

Structure of the English Language – English language structure consists of morphology (understanding the meaningful roots and affixes that make up words in the language), semantics (understanding how language carries meaning), syntax (understanding the conventions and rules for structuring meaningful sentences), and pragmatics (understanding how language conveys meaning in specific situations).

Systematic Instruction – sequential, cumulative instruction that follows a logical plan and progresses from easiest to most complex with careful pacing to ensure students successfully master each step in the process. Systematic instruction includes scaffolded support for accomplishing each learning step by breaking down complex skills into manageable learning steps and providing temporary supports to control the level of difficulty as students gain mastery.

Suffix – a morpheme attached to the end of a word that creates a word with a different form or use (e.g., “-s” in “cats,” or “-ing” in “lettering”). Suffixes include inflected forms indicating tense, number, person, and comparatives (Birsh, 2011).

Syllabication – the act of breaking words into syllables.

Syllable – a word part that contains a vowel sound in a spoken language.

Syntax – the way words are put together to form phrases, clauses, or sentences.

Universal Design for Learning (UDL) – a scientifically valid framework for guiding educational practice that: (A) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and (B) reduces barriers in instruction, provides appropriate accommodations or supports, and challenges and maintains high achievement expectations for all students, including students with disabilities and students who are limited in English proficiency (Definition of UDL included in the Higher Education Opportunity Act 2008).

Universal Screening Assessments – a type of criterion-referenced assessment designed to be teacher friendly so they can be quickly administered to all children in a class several times per year. The screening assessments help a teacher determine which students are

achieving as expected and which are at risk for specific components of reading (Hougen & Smartt, 2012).

Validity – the extent to which a tool accurately measures the underlying construct it is intended to measure.

Vocabulary – the words understood and used when listening, speaking, reading, and writing.

Voiced Consonant – a consonant sound produced in which the vibration of vocal cords is present (e.g.,/b/, /d/, etc.) (Hougen & Smartt, 2012).

Vowel – a speech sound produced by the free flow of air through the vocal tract (Hougen & Smartt, 2012).

Word Recognition – a reader's ability to recognize written words correctly and effortlessly.

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Legal Citations

United States Code, Title 20: Education

20 U.S.C. §7801(33) Strengthening and Improvement of Elementary and Secondary Schools – Definitions - MTSS

Code of Federal Regulations, Title 34: Education
34 C.F.R. §300.8 Child with a Disability
34 C.F.R. §300.302 Screening for Instructional Purposes is Not Evaluation

Oklahoma Statutes, Title 70: Schools
70 OK Stat §70-6-194 District Professional Development Programs
70 OK Stat §70-18-109.5 Definitions – Children with Learning Disabilities