

WHY KIDS STRUGGLE



and
WHAT YOU CAN DO ABOUT IT!

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Why Kids Struggle and What You Can Do About It!

adapted from the Silberts' award-winning book
Why Bad Grades Happen to Good Kids

Assess, Not Assume

At one time or another in their academic lives, all children will face obstacles that are too hard for them to manage alone. Sometimes those obstacles come in the form of learning disabilities, sometimes in other forms.

But a crucial first step in conquering any obstacle is accurate assessment of what the obstacle is. The very same behaviors can be symptoms of very different problems—so the key is remembering that accurate diagnosis relies on observation of a *pattern* of symptoms, not any single symptom itself. Think of it this way. If your car has an oil leak, no matter how many times you change the spark plugs, the problem will not go away.



- Remember first and always that your child is perfect just the way he is. No child is lazy. No child wants to struggle. No child wants to fail. You are his number one ally – not his adversary. Any struggles he may have with reading or writing or math is not a reflection on you as a parent.
- Rule out the most obvious contributors to why your child is struggling first. Have his or her vision and hearing checked. Many children who suffer from frequent ear infections as infants and toddlers often have difficulty with hearing and pronouncing the distinct sounds letters make, the first step after learning the alphabet on the way to learning to read.
- When hungry or tired or not feeling well, adults have trouble sustaining focus. That’s even more true for children. Make sure that all basic physiological needs of your child are met when you work with your child, especially on those tasks with which he or she may be having difficulty. Notice what time of day your child is most alert – schedule schoolwork during those times if at all possible. Provide plenty of time for physical activity – the younger the child, the more breaks should be taken.
- If struggling continues, ask your pediatrician or other professional for a referral for educational testing to assess for the presence of a learning disability.

No matter what the obstacle, the problem for struggling children is that they haven’t learned skills or facts that form the foundation on which increasingly complex concepts and skills are based – and the gaps they have are nobody’s fault – especially not theirs. In most cases, children know there is something wrong – they can tell by your reactions...

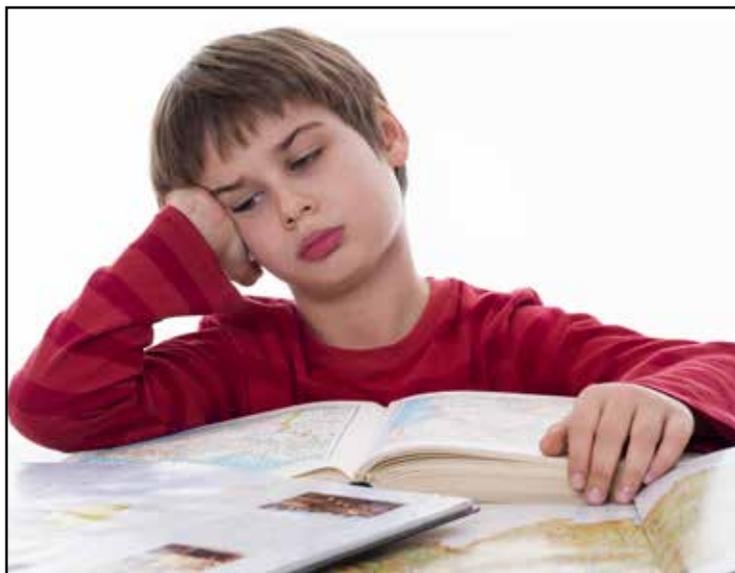
On the following pages, we have outlined the most common obstacles we've encountered in our over 40 years of working with children and teens who are struggling. The first obstacles are what we call "The Three 'Tions'" (pronounced "shuns") and the rest "The Terrible 'Toos.'" Following that is a summary of symptoms of the most commonly diagnosed learning disabilities, including Attention Deficit Disorder, and recommendations for how to help children with those problems develop strategies for overcoming them.

The Three "Tions"

Obstacle 1: Lack of MotivaTION

Research has shown that motivation comes from within. As a result, when children (adults, too) are truly resistant to something, pushing them doesn't accomplish anything. The old adage is true – you can lead a horse to water but you can't make him drink.

Let's face it. Kids know when they're struggling and like adults, they avoid doing things that are hard or that they don't understand. So what can you do to influence motivation?



You better than anyone know what interests your child, what gives him trouble, where her talents and challenges lie. Focus on what your child can do as well as can't. Use games that require your child to demonstrate knowledge of the facts and skills they need in order to "win." Visit the Strong Learning Store...there are a host of card games, "lotto"-style games, activities and books, focused on everything from basic math skills to phonics to creative writing.

In the end, though, the greatest motivator for academic success is success. When children are having fun, they often don't even know that they're learning. As one of our young tutoring clients once said, "All of a sudden, I know how to read. I don't know how it happened, but it did."

Obstacle 2: DisorganizaTION

None of us is born with the ability to organize—we learn by watching others. The best way you can help children become organized is by 1) modeling being organized yourself and 2) involving them in designing a system that works best for them. I gave one child I worked with a red, three-ring, loose-leaf notebook with dividers. In addition to subject names, we created a section for time management sheets and other items that he'd eventually need. Then, I gave him an assignment book and we proceeded to put together a plan of attack.

This may seem simple but it is missing from the lives of many children. I often see children who are overwhelmed by the amount of schoolwork they have to do and have difficulty organizing their papers and assignments.

With children already struggling, many tasks take longer than anticipated and their agenda becomes more about finding out how *quickly* they can do their work so they can move on to more fun stuff. Show them how knowing how to organize increases the chance that they can complete their assignments and still have time to pursue outside hobbies and activities without becoming overwhelmed.



Establishing priorities

Even older children who understand short-term goal-setting don't always have the skills to prioritize those goals. They may need help to evaluate which activities are more important, which assignments should be done first, which can be put off for later, etc. Talk through the benefits or negatives of each. Talk about which subjects or activities are more important to their success. Give them choices and let them learn from the choices they make.

For younger children, adapt to them. Based on what you know about your child's patterns of alertness, determine which subjects to tackle first. For example, if a child's handwriting deteriorates as she gets tired, suggest that you work on English assignments first and do tasks that require less handwriting later in the day.

Organizing Paperwork

Recommend that your child gather all school-related notes, handouts and papers they collect and keep them all in one place—in one notebook, one folder, or one section of a folder with multiple pockets. Show them that when it's time to review, they can easily go to the appropriate location and find what they need to study. Once again, we're not born knowing how to create complex systems. Help your child develop a system that works for him or her.

Organizing Time

Time management skills are beneficial for all children—and adults, too. When we use time wisely, we can study more efficiently and, in turn, learn more in less time.

Strategies for Helping the Disorganized Child

- Be a good role model. If you're organized, your child will have someone to emulate. (If you have difficulty with organization, buy some books or go on line to find strategies dealing with how to get organized yourself! Remember, follow your own rules...)
- Buy a quality three-hole punch.
- Be sure your child has and uses an assignment book or other calendar.
- Help your child devise lists and schedules that work for him or her.

Having and using a time management grid or calendar allows children to see, at a glance, what assignments, projects and/or exams are upcoming in any given week or month. With our children, we use charts and grids like the one here. Visit our website at www.HelpForStrugglingStudents.com/downloads and download a free copy of the Time Management Grid. Adapt it for your particular circumstances.

TIME MANAGEMENT GRID							
TIME	Mon	Tue	Wed	Thu	Fri	Sat	Sun
6:00							
7:00							
8:00							
9:00							
10:00							
11:00							
12:00							
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Obstacle 3: ProcrastinaTION

Children who suffer from the third "Tion" really do intend to study and do their homework. They're motivated to get good grades. They may even be organized. And though they truly *believe* they will do an assignment, somehow, the assignments rarely get done.

Get procrastinators moving by starting their homework during the time set aside for school. If they need to write an essay, help them with the first few sentences. If they have difficulty getting started with math or science problems, do the first few with them. Often, once they get started, they will continue because they're on a roll. Sometimes they just need a nudge, and when they discover how good it feels to get things out of the way, they'll soon choose to do it themselves. (See "Establishing priorities" above.)

The “Terrible Toos”

Obstacle 4: Working Too Slowly

Even without learning disabilities, some children work too slowly relative to others. They need more time than most children to do almost anything. This includes writing down assignments, completing assignments and taking tests. These children seem to be driven by a slower clock. They even tie their shoes slowly. These children are perpetually playing “Beat the Clock,” which is surely anxiety-producing.

Strategies and Recommendations for Children Who Work Too Slowly

- Set aside extra time so slower-moving children will be able to complete assigned tasks. This includes copying notes, writing down assignments, and doing work during school time and taking tests.
- Look for time-saving options. Consider shortening assignments (for example, assigning all the even numbers or odd numbers on the math page instead of the entire page). Also, for these children, keep distractions to a minimum.
- Remember that learning is not a race. If a child has *not* been diagnosed as learning-disabled and is struggling because of time, provide for the extra time he needs.



Obstacle 5: Too Tired to Study

When we don’t get enough sleep, our brains and bodies do not work well. When a child doesn’t get enough sleep, she feels tired, has trouble concentrating and has trouble controlling her temper and frustration. A lack of sleep affects everything about us: our personalities, our ability to comprehend and remember information, and our ability to focus – all of which have impacts on learning.

Strategies and Recommendations

- Review your child’s schedule and make sure he or she is getting enough sleep.
- If involved in too many activities, talk with the child about which are most important to her and let her decide what to drop.

Obstacle 6: Too Stressed

Stress is not the exclusive domain of adults. Children and teens also have personal problems that cause stress. The teen years are especially stressful. Hormones are raging and peer pressure is at an all time high. School, college admissions and thinking about the future are often center stage when it comes to stress. Some kids worry so much about grades and testing, SAT or ACT scores, or college admissions that it’s hard for them to think about anything else.

Overstressed people have trouble concentrating, relaxing, sleeping and, consequently, learning. Research has shown that stress actually changes the brain to the point that prevents us from thinking sharply or properly.

Strategies and Recommendations:

- Think about whether you may be inadvertently causing the stress. Are you speaking or acting in a way that might create tension, fear, or undue pressure? Are your standards so high that your child is afraid he can't meet them? Examine how you may be affecting your child's level of stress and make changes in your expectations and how you respond when he struggles.
- Everyone's potential for stress is different; everyone's personality is unique. What may be easy for one child to deal with may not be so easy for another in the same family.

Obstacle 7: Too Much Multitasking

It's not that kids don't want to learn—most do. And it's not that they don't care. But we now live in a time and culture unlike any before—e-mailing, texting, phoning, playing video games, you name it. What we've suspected for a long time has now been confirmed by recent research—our performance, on the job or elsewhere, *suffers* when we do more than one thing at a time. In fact, when we move quickly from one task to another, we are actually slowed down. As with Obstacle 5, set the parameters and have an age-appropriate discussion with your child about which activities may need to be curbed and let him choose which ones go.



Learning Disabilities

Learning disabilities are often confused with *developmental delays*. Developmental delays are NOT learning disabilities. Where developmental delays suggest that the brain and nervous system will, in time, “catch up,” learning disabilities relate to dysfunctions in specific areas of the brain that may permanently affect a child’s ability to perform specific tasks and acquire certain skills. These disabilities, each involving different areas of the brain, occur in reading, math and written expression as well as in language processing and attention.

Finding that you have a learning-disabled child is like coming upon a washed-out bridge. You don’t abandon the trip – you search for a detour. It will likely take longer to get there, it will take more practice, but your child will still reach the destination.

And don’t blame yourself. Some disabilities easily go undetected, especially if they are mild. Gaps in learning, especially foundational facts and skills, many times don’t show up until schoolwork becomes more complex. Some kids figure out how to “get around” challenges on their own, only to hit a wall when they later need the skills not learned. Others become anxious, act out inappropriately, or dig in their heels and refuse to try anything. Failing at something never feels good and if you don’t try, you don’t have to feel bad. The good news is that, once a child’s problems are accurately diagnosed (and only when they are accurately diagnosed), workable strategies for overcoming them can be put into place. Once your child begins to experience success and recognizes it, the resistance will eventually go away.

On the following pages, we’ve presented a sampling of the most common learning disabilities and have provided brief descriptions of the problems, common symptoms and appropriate remedial strategies.



Reading Disorder — Dyslexia

Reading is one of the most important skills a child needs to master because it provides a foundation for learning every other subject in school and beyond. Developing reading skills is difficult, especially for those with dyslexia. However, with appropriate intervention, those with dyslexia *can* and *do* learn to read.

Symptoms of a Reading Disorder

- Has difficulty matching letters and sounds.
- Inserts or deletes words when reading.
- Demonstrates a persistently weak vocabulary.
- Has trouble comprehending what has been read.
- Reads a word but cannot remember it seconds later.
- Cries or becomes upset when asked to read.

Strategies for Working with Children Struggling with Reading

- The first step is helping them learn the phonemes and develop strategies to recall and apply them.
- To make reading easier and to facilitate fluency, have the child memorize commonly used “sight” words.
- Provide easy-to-read books for the child (one or two levels below the grade level he or she is on).
- Have the child read the same books, poems, or plays over and over again. Familiarity improves fluency, as well as retention and confidence.
- Be sure to give the child adequate time. All children need to learn phonics, but those with reading problems tend to need more time than average readers to develop alternative neural paths when decoding words.
- Play memory games using new sight words and vocabulary words.

Note: If your child reads accurately and fluently, and comprehension is the *only* difficulty, then dyslexia is not the issue.

Writing Disorder — Dysgraphia

Children with *dysgraphia* have difficulty with anything involving writing. Their handwriting is poor and they often have trouble with grammar, punctuation, capitalization and spelling, which, in turn, affects their ability to construct sentences and organize paragraphs. Even their math suffers as there is a lot of writing required to do math.



As you might imagine, these children develop a *fear* of writing on top of the neurological dysfunction itself because when doing schoolwork, they are often required to write, rewrite and rewrite again. This takes time for any child, but for those who have a writing disorder, it's torture.

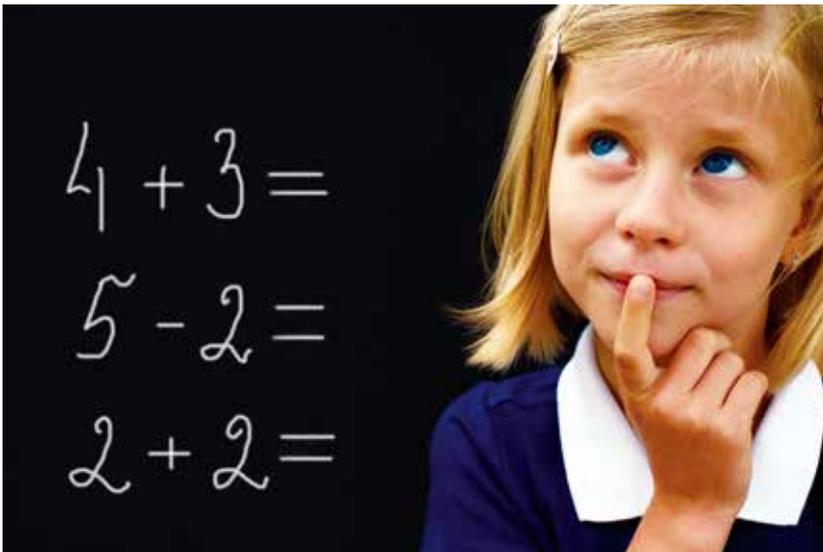
Because of the frequency with which handwriting is involved in every academic subject, children with dysgraphia face tremendous challenges. It is especially important for these children to be provided with acceptable alternatives for recording notes and assignments and for demonstrating what they've learned, which, after all, is the point.

Symptoms of a Writing Disorder:

- Handwriting is poor. Pencil grip is poor or incorrect.
- Artwork is poor relative to that of most of their age peers.
- Letters and numbers are often reversed or inverted.
- Can tell you answers verbally but has difficulty getting those same thoughts onto paper.
- Has difficulty copying from a board or a book.
- Complains that his hand hurts when he writes.
- Cannot keep the numbers lined up in columns while doing math computations.
- Has difficulty with spelling and grammar.

Strategies for Working with Children Struggling with Writing

- Encourage a dysgraphic child to use a computer when possible (unless penmanship is the goal of the assignment).
- Teaching your child to write in cursive. The continuous stroke of the pencil vs. picking up and putting down the pencil again is much easier for dysgraphics.
- If your child reverses letters, write the correct letters for him so that he can refer to them when necessary. Note: *Writing in reverse is not dyslexia.*
- Play writing games. For example, give your child one or more words and ask him to write a sentence using them. For each sentence of six or more words completed, give him a small reward.
- Provide adequate time to write. Many kids actually enjoy the creative part of writing, but may need extra time to organize their thoughts.
- Don't force a dysgraphic child to keep rewriting. It contributes to little or no improvement.



Math Disorder — Dyscalculia

Math is a frustrating subject for many children—either they can't remember number facts or they memorize them in a flash but don't understand or process the associated concepts. Some children experience difficulty with both computation and application, a condition known as dyscalculia. These children have difficulty understanding, recognizing, or naming mathematical symbols, copying numbers or figures correctly, or remembering mathematical steps and sequences.

Symptoms of a Math Disorder:

- Avoids math work of all kinds.
- Becomes confused when encountering math concepts.
- Has trouble with word problems.
- Changes the order of numerals when copying them.
- Cannot keep numbers in columns.
- Adds one column of numbers then switches to subtraction for the next.
- Has difficulty remembering addition and multiplication facts.
- Has difficulty remembering math steps. For example, cannot remember how to carry or borrow numbers, how to do long division, or how to add, subtract, multiply, or divide fractions.

Strategies for Working with Children Struggling in Math

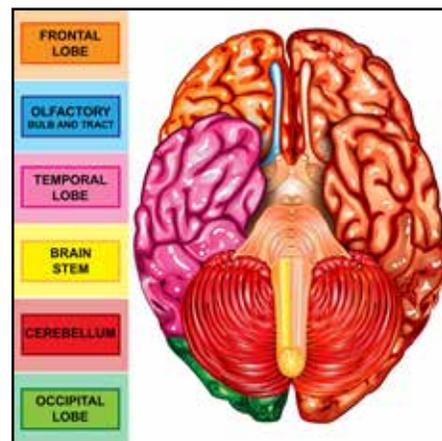
- If your child has trouble keeping numbers in their columns, have her use the vertical columns on graph paper or lined paper turned sideways.
- Have your child cover up all columns except those she is working on.
- If a child is being tested on math concepts and has difficulty with computation, allow the use of a calculator.
- Suggest that your child circle the “+” or “-” sign before computing the problem.
- Color-code “fact families” and multiplication facts for younger children. For example you color the facts “ $2+3=5$, $3+2=5$, $5-2=3$, $5-3=2$ ” in green and “ $3+4=7$, $4+3=7$, $7-3=4$, $7-4=3$ ” in blue.
- When working on a word problem, show your child how to organize the “clues” contained in the problem, including what she is being asked to solve. The clues can be organized in any way that works for a given child, e.g., underlining, listing, or making diagrams.
- When appropriate, suggest that your child draw a picture that illustrates the math problem.
- Have your child sub-vocalize while doing math work.

Expressive or Receptive Language Disorder

“Expressive or Receptive Language Disorders” are characterized by difficulty understanding directions, difficulty explaining or writing down what is heard, or both. They may have perfectly good hearing, yet cannot accurately comprehend what has been said to them. Or they may understand, but have difficulty demonstrating that they do orally or in writing.

Symptoms of an Expressive / Receptive Language Disorder:

- Frequently has trouble understanding oral directions.
- Has trouble remembering exactly what someone says.
- Has trouble taking decipherable notes by hand or otherwise.
- When asked to repeat what has just been said, responds with “I don’t know,” and means it, because she really *doesn’t* know. These children hear the words but *can’t put them together in a meaningful and logical way*. In other words, they see the trees but they don’t see the forest. When they attempt to find meaning in what they hear, it’s often totally wrong.



Strategies for Working with Children with Expressive or Receptive Language Disorder:

- When talking with your child about a subject, ask him to tell you what he *thinks* you said. If he has no idea or responds incorrectly, keep explaining in different ways.
- Provide visual cues when possible. Instead of just verbally giving an assignment, write it down for your child to read. (This helps visual learners also.)
- Assure your child that it is okay if he doesn’t understand something. Welcome his honesty and try to explain or demonstrate what you’re talking about in another way, and avoid relying only on auditory cues.

ADD/ADHD

Having an attentional issue does *not* necessarily mean that a child or adult has ADD or ADHD. (ADHD is an attention deficit problem with physical hyperactivity.) In fact, most people have trouble staying focused on what they are doing if the phone rings, if people are talking nearby, if traffic is rushing past the window, or if loud music is playing. Distractions are everywhere, creating an ongoing impediment to focusing even for people with no neurological dysfunction. In other words, having difficulty sustaining focus is one of the most common problems kids have. *This is normal.*

Difficulty focusing is **only one of the symptoms** seen in children diagnosed with ADD or ADHD. There are many reasons children may have problems with attention. But don't ignore them. If a child's symptoms become excessive and you suspect ADD/ADHD, discuss your observations with your pediatrician.

Symptoms of ADD/ADHD:

- Has difficulty paying close attention to details or makes careless mistakes on homework or tests.
- Has difficulty sustaining attention at virtually anything.
- Does not seem to listen when spoken to directly.
- Does not follow through with instructions and often fails to finish schoolwork.
- Avoids schoolwork that has to be done over a long period of time, like a term paper or major project.
- Often loses or misplaces books or assignments. Becomes distracted easily.
- Seems to "fidget" all the time. Has difficulty remaining seated.
- Seems to always want *what* he wants *when* he wants it.

Strategies for Working with Children with ADD/ADHD:

- Try to change activities with reasonable frequency.
- If your child complains that he can't stay focused when reading, suggest he sub-vocalize or use a highlighter.
- Provide 10-minute breaks once every half hour. Have a snack ready, let him shoot a few baskets or take a short walk outdoors.
- Give him or her a timer to use when doing homework or studying. This helps to keep on task and work at a good pace. If using a timer distracts or creates anxiety, use a clock and alarms to determine when to take breaks.
- Spread assignments over time whenever possible. Studying or writing a report a little each day, rather than in one sitting, makes the process more manageable.
- Demonstrate how to skim books and chapters. Let your child read the title of the chapter and try to guess what that chapter is about. Have him read the headings and look at the pictures and the captions beneath them. When skimming is done, see if he can answer the questions at the end of the chapter.
- While reading a textbook or notes in class, have your child stop and ask himself what he just read. Let him write down everything he can remember. If he can't remember much, have him reread the material and write down ideas or draw pictures, graphs, or charts during the process—anything that will help him to stay focused long enough to remember the information.

The Importance of Games for Struggling Children

Common sense tells us that we learn more when we're enjoying ourselves and having fun. We pay attention, we're engaged, we're not anxious. There's a bona fide reason that speeches and sermons injected with humor are far easier to attend to. Laughter and fun are indeed the best medicine. But children who struggle with reading, writing or math *aren't having fun*.

We've worked successfully with literally thousands of children over the past 40 years, and the number one factor in our success has been that the learning environment we provide is one where children know that the way we feel about them doesn't vary based on whether they know how to read or write or do math. They know we're not going to try and force them to do anything. And by the end of our first sessions, the same children who came into our offices crying, clinging, even stamping their feet in defiance...are asking to come back. Why? *Because they lose themselves in the sheer act of having fun.*

Over the years, every time a new product or program purporting to help kids learn something was introduced, we tried it—and set it aside. We began to develop card games, old-style “lotto” games. We created “story starters” for children who struggled to write. We created what we call “Make My Own Book Kits” for preschoolers—art activities that teach letters, numbers, shapes, animals. And the more we played, the more struggling kids learned the basic skills they needed to build on. Today, we're playing the same games we were thirty years ago and they're still working. They've worked for us. They'll work for you.

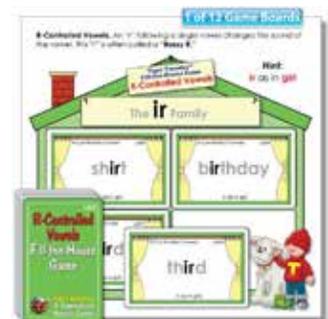
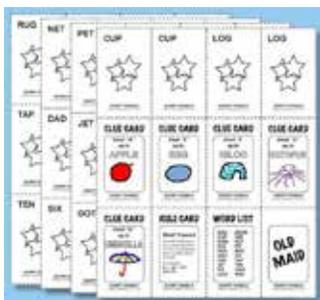
In learning to read, phonics are key.

After learning to identify the letters of the alphabet, the next step to learning to read is putting together the letters with the sounds (phonemes) they make in the English language. Some of us pick up those connections automatically. Kids who are struggling don't. The fastest and best and most fun way to make those connections is by playing games.

So what should you do?

If you're child is struggling to learn to read, start by downloading the [Tiger Tuesday Reading Inventory](#), a quick-to-administer “test” to determine where gaps of learning may exist in identifying letters, consonants, and vowels and the sounds they make. Once you know where to start, purchase a module from our comprehensive reading program or individual games that will provide your child with purposeful, playful practice in filling in the gaps.

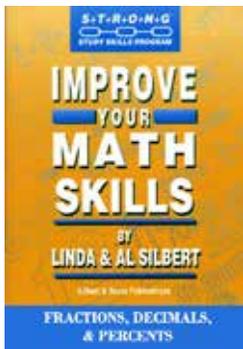
[Click here to purchase phonics card and/or “lotto” games we designed just for children struggling to learn to read.](#)



All phonics games are based on the Orton-Gillingham Approach, beginning with learning the alphabet, beginning and ending consonant sounds, and the five major vowel phoneme patterns: CVC, VCE, Vowel Digraphs, R-Controlled Vowels and Diphthongs. Additionally, games are available for learning syllabication, homophones, prefixes and suffixes, compound words, and more! Be sure to take a look at the full Tiger Tuesday Reading Program and its individual phonics modules.

To do math, understanding number concepts and the basic skills of adding, subtracting, multiplying and dividing are key. All other math concepts, from fractions, percents, and decimals to algebra, geometry, and trigonometry build on those.

[Click here to purchase math card and/or "lotto" games we designed just for children struggling in math. There's even a book for older kids to review fractions, percents and decimals, too!](#)



<p>Multiplying With Mixed Numbers</p> <p>Fractions pop up everywhere—even in making pancakes, for example. The recipe calls for $1\frac{1}{2}$ cups of flour. Since you don't need that many pancakes, you want to cut the amount in half. How much flour should you use? In other words, what is $\frac{1}{2}$ of $1\frac{1}{2}$ or $\frac{1}{2} \times 1\frac{1}{2}$?</p> <p>How to Multiply With Mixed Numbers Change the mixed numbers to improper fractions. Then multiply as usual.</p> <p>Ex. 1: Multiply $1\frac{1}{2} \times \frac{1}{2}$</p> <p>$1\frac{1}{2} = \frac{3}{2}$ Change $1\frac{1}{2}$ to an improper fraction. $\frac{3}{2} \times \frac{1}{2} = \frac{3 \times 1}{2 \times 2} = \frac{3}{4}$ Now multiply the tops and then the bottoms. which changes to $2\frac{1}{2}$ (proper form)</p> <p>Ex. 2: Multiply $2\frac{3}{4} \times 1\frac{1}{2}$</p> <p>$2\frac{3}{4} = \frac{11}{4}$ Change both mixed numbers to improper fractions. $1\frac{1}{2} = \frac{3}{2}$ Now multiply the tops and then the bottoms. $\frac{11}{4} \times \frac{3}{2} = \frac{11 \times 3}{4 \times 2} = \frac{33}{8}$ which changes to $4\frac{1}{8}$ (proper form)</p> <p>Explain: To multiply mixed numbers, change the mixed numbers into _____ the denominator to _____ (smaller to larger) terms (smaller change to mixed numbers, _____ when necessary instead)</p>  <p>...just to offer help... No, I DON'T DO ANYTHING. All I do is answer it without to make fractions bigger!</p>	<p>Dividing Using Fractions</p> <p>You buy 5 pounds of food for your dog. He eats $\frac{3}{4}$ pound every day. How long will the food last? In other words, how many $\frac{3}{4}$ lbs are there in $5\frac{1}{2}$? This is a division problem: $5\frac{1}{2} \div \frac{3}{4}$. Before you do this, you have to know how to divide a fraction. The inverse of a fraction is the fraction with the top and bottom switched. It's sometimes called the reciprocal. Here are two examples. The inverse of $\frac{1}{2}$ is $\frac{2}{1}$. The inverse of $2\frac{3}{4}$ is $\frac{4}{7}$.</p> <p>How to Divide by a Fraction Dividing by a fraction = multiplying by its inverse.</p> <p>Ex. 1: $1\frac{1}{2} \div \frac{2}{3}$</p> <p>$1\frac{1}{2} = \frac{3}{2}$ dividing by a fraction equals $\frac{3}{2} \times \frac{3}{2}$ Change both into improper fractions. $= \frac{3 \times 3}{2 \times 2} = \frac{9}{4}$ multiplying by its inverse. $\frac{9}{4} = 2\frac{1}{4}$ dividing by a fraction equals multiplying by its inverse.</p> <p>Ex. 2: $4\frac{1}{2} \div 3$ Dividing by a whole number</p> <p>$4\frac{1}{2} = \frac{9}{2}$ Change both into improper fractions. $\frac{9}{2} \div 3 = \frac{9}{2} \times \frac{1}{3}$ dividing by a fraction equals multiplying by its inverse. $= \frac{9 \times 1}{2 \times 3} = \frac{9}{6}$ multiplying by its inverse. $\frac{9}{6} = 1\frac{1}{2}$ or $1\frac{1}{2}$ does $\div 2\frac{1}{4}$</p> <p>Ex. 3: $3\frac{2}{3} \div 1\frac{1}{4}$</p> <p>$3\frac{2}{3} = \frac{14}{3}$ Change mixed numbers to improper fractions. $1\frac{1}{4} = \frac{5}{4}$ dividing by a fraction equals multiplying by its inverse. Just change the mixed numbers into improper fractions before you begin. $\frac{14}{3} \div \frac{5}{4} = \frac{14}{3} \times \frac{4}{5} = \frac{56}{15}$ multiplying by its inverse. Cancel, then multiply before you begin. $\frac{56}{15} = 3\frac{11}{15}$ or $4\frac{1}{15}$</p> <p>Explain: The inverse of a fraction is the same fraction with its numerator and denominator switched. When I divide by a fraction, I have to _____ the fraction I am dividing by. Then I switch from division to _____.</p> <p>Dividing using mixed numbers is the same as dividing by fractions except that I have to change all mixed numbers into _____ before I begin.</p>
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