2020 Guide

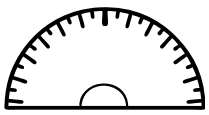
EduCalc, Inc.

DYSCALCULIA

EduCalc's 2020 guide to Dyscalculia helps educators and parents understand this Specific Learning Disorder and the ways it impacts math knowledge.

K-5 grade

Time, money, measurement, estimation, and basic facts are all difficult to impossible for dyscalculics to master, due to a weakened wiring system in the parietal lobe. Elementary math classes can be very tough for these students, but there is hope.



6-8 grade

Students with dyscalculia tend to have low self-esteem in math, and high math anxiety. Middle school sometimes reinforces these negative beliefs, but this can be a time of greater success for these students.

9-12 grade & college

Higher level math classes are typically much easier classes for these students to succeed in, If they have the right resources and proper support. Sadly, many are kept out of these classes (or choose to avoid them) because of early math experiences.

Keep reading to find out more!

Honora Wall, M.A. * Chicago, IL * Virtual training available

Dyscalculia in K-5 grades

EARLY WARNING SIGNS

In early elementary, students with dyscalculia have trouble moving beyond the number line when they count. They have a hard time matching written symbols ("5") to words ("five") and to quantity (a group of 5 dots). They have trouble mastering addition and subtraction, and continue to count on their fingers long after other students have developed advanced pattern recognition or memorized basic facts. This is due to a weak parietal lobe, which is where we store math knowledge.

TIME, MONEY, BASIC FACTS

People with dyscalculia have trouble counting money, making change, telling time, and understanding elapsed time, even as adults. For children, these difficulties make 2nd through 4th grade a nightmare. They need extra help, extra time, and extra resources. They work best with concrete problems, 1 to 100 charts, worked examples, and a lot of patience. Students with dyscalculia usually have average-to-above average intelligence; they are more frustrated than you are!

DYSCALCULIA VS. LOW NUMERACY

Low numeracy means having a weak math foundation. Students with low numeracy will improve after practicing with flashcards, learning songs that support math memory, or doing pattern-based math drills. Students with dyscalculia will not. In fact, with dyscalculia, a student might learn something on Monday and forget it by Thursday. This loss of information over time is a key feature of dyscalculia.

Home | PolyMath Publishing: Dyscalculia

PolyMath Publishing helps students with...

educalcinc.com

Dyscalculia in 6-8 grades

BASIC FACTS AND THE FOUR OPERATIONS

Specific Learning Disorders last a lifetime. Without interventions, use of resources, and different teaching methods, students with dyscalculia still rely on the parietal lobe for math memory. This part of the brain drops basic facts, making the four operations of math (add, subtract, multiply, and divide) hard to do, slow to complete, and wrong more often than right. This stops students from succeeding where they could. Calculator use is a standard and appropriate accommodation for students dyscalculia.

PROCEDURES AND FORMULAS

Students with dyscalculia can learn a formula and complete classwork well, have trouble with the homework or the next day's lesson, and have no idea what to do when they take a quiz or test. That's because procedural steps and formulas are also stored in the parietal lobe. Same issues persist. Having a worked example, vocabulary bank, or reference sheet helps dyscalculics remember the steps and formulas needed to solve problems. Multi-modal teaching can help them store information in other areas of the brain, but this does not reduce the need for outside resources.

A SHIFT TO THE ABSTRACT

Many dyscalculic students struggle in middle school because they are stuck on the operations part, even if they get the abstract concept. Their learning disorder slows them down and they can get the wrong answer even when they do the correct work, because a basic fact was wrong. This lowers their self-esteem and keeps them out of higher-level math classes. The real shame is that most of these students could pass math if they had the right support.

Home | PolyMath Publishing: Dyscalculia

PolyMath Publishing helps students with...

educalcinc.com

Dyscalculia in 9-12 grades

THE CALCULATOR CONUNDRUM

In most higher level math classes, students are required to use a calculator. Oh, the irony! This simple tool could have changed a dyscalculic student's K-12 trajectory, but now that it's required, the student feels that using a calculator is cheating. They resist. They feel they aren't able to understand any math, and they also haven't been taught how to use a calculator properly, so they remain lost. Spending a little time reinforcing and encouraging calculator use can help students with dyscalculia succeed in higher level classes.

THE DYSCALCULIA GATEKEEPER

People with dyscalculia have been labeled as "bad at math" and kept in lower-level math classes for years. Because many educators don't understand this Specific Learning Disorder and how to best help students who have it, children suffer. Many are not properly diagnosed; they are not taught how to use resources; they are not given the tools they need to succeed. Accommodations and interventions for dyscalculia are protected by federal law, but that doesn't matter if help is not available.

THE LOST OPPORTUNITIES

When students have struggled with dyscalculia without the right interventions and accommodations, they tend to stay away from anything involving math. This means lost college majors, lost careers, lost salaries, and lost opportunities. Dyscalculics can live their lives thinking they can never "do" math, and this is simply untrue. You can help people with dyscalculia succeed in math by making just a few recommended changes to their classroom experiences.

Home | PolyMath Publishing: Dyscalculia

PolyMath Publishing helps students with...

educalcinc.com

....AND ALSO COLLEGE

Dyscalculia lasts a lifetime. So should its accommodations.

Some of our past in-person presentations and trainings include:

DYSLEXIA, DYSCALCULIA, DYSGRAPHIA, & ANXIETY

Heartland Education Consortium, 2019

CLIMATE CHANGE, TRAUMA, AND THE CLASSROOM: TEACHING DISPLACED STUDENTS

Association of Teacher Educators National Conference, 2019

DYSCALCULIA: WHAT DO WE KNOW, WHAT SHOULD WE DO?

Association of Teacher Educators National Conference, 2019
Association of Educational Therapists Chicago, 2020

GOOGLE DOCS: LESS PAPER, MORE LEARNING

Palm Beach County School District Literacy Fest, 2017

Sign up for Professional Development here, or sign up for K-12 online math courses here.

Contact us at educalcmath@gmail.com for more information.