



Cave Creek Unified School District

P.O. Box 426 Cave Creek, AZ 85327

Assistive Technology for Math

Assistive technology for math does exist!! There are so many facets to math it may be hard to decide what truly is keeping the student from getting what comes so easily to another student. As all of you who teach math are aware, the National Council of Math Teachers has created standards for School Mathematics. Without defining each standard, they are:

Number and Operation understanding
Algebra understanding
Geometry understanding
Measurement understanding
Data Analysis and Probability Understanding
Problem Solving ability
Reasoning and Proof ability
Communication ability
Connections understanding
Representational ability

Math does not come naturally to everyone. For some it is like learning a foreign language with unfamiliar vocabulary and concepts that are not in their everyday thoughts. They may have informational gaps with a lack of lower level concepts or skills and this prevents them from obtaining those higher level concepts and skills.

Symptoms of a person with math learning problems may include

- Computation errors
- Weak quantitative concepts
- Poor performance in daily math activities

The root of math problems can be attributed to

- Informational gaps
- Insufficient or ineffective instruction
 - This does not mean the instructor was poor. This speaks to the various differences that exist in math curriculums
- Learning differences, difficulties or disabilities
 - There is not a lot of research available on how to teach math to students who have difficulty.
 - It is also highly recommended that whatever reading/writing strategies students use should also be carried over to math.

Possible Solutions for Students who struggle with Math:

- Think Aloud—help a student discover a thought process for solving problems by modeling how you think the problem through out loud.

- Use music or white noise in the background—this seems to increase student time on task and concentration.
- Use movement and exercise prior to introducing new concepts or doing math exercises that are hard for students to grasp. Research has shown that the motor areas of the brain are activated when learning takes place and that the brain grows more axons and neurons when the body moves. It appears, according to research, that even simple motor movements help students retain the information being presented.
- Create Custom Math Paper—some students have specific needs in terms of specialized papers to help them do math computations. Custom papers can be made with Word Tables.
- Use Color—change the background color of math papers or if using the computer, change the background color. Text, font can be changed and highlighting colors can be used.

There are specific A.T. math tools for those who need more than has been mentioned. If there is a student who is struggling in math and none of the above solutions work for him/her, please feel free to contact Patti and/or Lesa. We can brainstorm some other possible tools.

A.T. websites for Math:

<http://nlvm.usu.edu/en/nav/vLibrary.html>

This is a free website which is also available in Spanish and French. It offers K-12 activities for learning math in 6 of the areas covered under the national math standards. Most lessons can be completed in 10 minutes or less and are Java applications involving sound and animation which really make the lessons come alive for the students.

<http://www.mathforum.com/mathtools/>

Free website that requires you to sign up for their newsletters and then contains the widest variety of problems across the K-12 curriculum.

<http://www.mathstories.com>

This site costs \$29.00 per year at last checking. It allows you to create an individualized worksheet by taking the K-6 math word problems in that grade grouping. You put in your criteria and the worksheet is generated.

<http://incompetech.com/graphpaper>

free online PDF's of various graph papers. This includes an online generator so you can create customized graph paper and print it out.

<http://www.geogebra.org/cms/>

Virtual tools for geometry, algebra and calculus.

These websites are provided as information only. Assistive Technology is an IEP process which is a team decision. If something here makes you think that a student may benefit from the product or website, please go to the IEP team with your thoughts before implementing. Although I reviewed all the websites prior to posting here, please understand that links are often changed without notice. If something here no longer applies, please contact pkeeling@ccusd93.org and advise her that the website no longer reflects the topic being considered.