

Students must learn math with understanding, actively building new knowledge from experience and prior knowledge.

Helping Children Understand How to Solve Math Problems

When students have difficulty with reading comprehension, they often also struggle to understand word problems in math. In fact, reading disabilities and math disabilities frequently occur together.

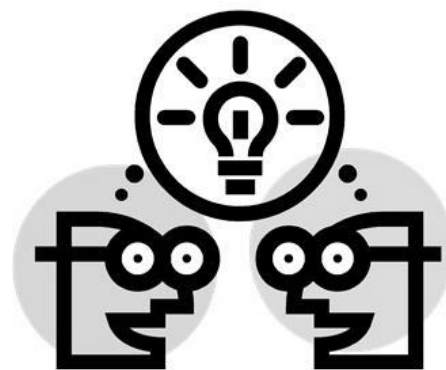
Students with reading comprehension problems need to learn to read math so they can understand how to solve word problems. Today, math textbooks contain more information for students to manage than other texts, with a reading level that is years above grade level. So, what can schools and parents do to help children with learning disabilities understand how to solve math problems?

Draw from real-life

Math lessons are very helpful for middle school students when they begin with real-life situations that actively engage students in getting information. Students listen to each other think out loud which develops an understanding of the language and structure of math applied in different situations. They also use tools, such as manipulatives and graphing calculators, and strategies to solve problems, which help them to make “math sense.”

Helping students learn the language of problem solving through writing is another approach schools can take.

Talking and writing about problems and their solutions using the language of mathematics promotes better problem-solving strategies. To learn the language of problem solving through writing, students write their own word problems that link their experiences to the problem-solving process.



Students first follow steps taught by the teacher in order to identify what a number story is - any story, happening, or event that has to do with quantities or amounts. Then they work in pairs to write their own stories. They also learn to categorize math stories as active or static.



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Active story

A story is active when the quantity has been changed and something has happened to it. An active subtraction story example, Jane bought three pieces of bubble gum and chewed one piece on the way home. She had two pieces of gum left to chew.

Static story

A static story is one in which the quantity is not changed - one quantity is put together with another quantity, but no action has changed. Instead, the initial quantities may be combined or compared in the story. A static story example, Jill has 20 marbles and Jim has 15 marbles. They are playing with 35 marbles. Or Bob and Bruce were running laps. Bob ran 20 laps and Bruce ran 30 laps. Bruce ran ten more laps than Bob. Students become skilled in recognizing how the story's cues by thinking about ways to solve a math problem.

Students can take part in a structure plus writing approach

Students write number stories in pairs. They solve problems that their classmates have written by categorizing and labeling the problem as they solve them. And then they discuss the mathematical ideas as they process the writing and solving of their peers' story problems. This method builds math vocabulary from the inside of the problem by the students paying attention to the structure and concepts of the problems they are writing and solving.

Homework

To help children at home, parents can follow a similar idea. Ask your child to identify a problem from their experience and then to write a new math story. Ask as many questions as possible to manipulate the information from the story. Then identify different ways to solve the problems. Creating a similar problem before working on the original problem will help your child feel more comfortable with a word problem assignment.

K-N-W-S

Your child can further their understanding of word problems by using these questions.

- K- What facts do I know from the information in the problem?
- N- Which information do I not need?
- W- What does the problem ask me to find?
- S- What strategy, operation, and/or tools will I use to solve the problem?

The S-Q-R-R strategy

Work with your child to solve problems using this approach:

- S- Survey the problem. Read the question first.
- Q- Question yourself. "What is this problem asking me to find?"
- R- Read the problem aloud. Explain how you will identify key information and the information that is not important. Draw a picture or chart if needed. Ask yourself, "What is the correct process to solve this problem?" Work the problem.
- R- Check your Reasoning. "What process did I use? Why did I choose that process? Was my reasoning correct?"

Your newspaper

Explore the local newspaper with your child. As you do so, make connections between math and real-world applications. Look at news stories for: election results, catastrophic weather information, or sales flyers. Check out sports scores, batting averages and salaries. From the financial page to real estate and travel, engage your child in mathematical thinking.

Resources

[National Center for Learning Disabilities](http://www.nclad.org)
Materials for early learning.
301-966-2234

[Stern Center for Language and Learning](http://www.sterncenter.org)
Offers services to meet learners' needs
802-878-2332