

In 7th grade, your child will grow in skill and understanding as he or she continues the previous grade's work in proportional relationships, *equations*, and positive and negative numbers. These topics will remain a major emphasis throughout the middle school years and into high school. A good understanding of rates and proportional relationships, including percentages, is also an important life skill.

Skills Your Child Will Be Working On

- Analyzing proportional relationships (e.g., by graphing in the *coordinate plane*), and distinguishing proportional relationships from other kinds of mathematical relationships
- Solving percent problems (e.g., tax, tips, and markups and markdowns)
- Adding, subtracting, multiplying, and dividing positive and negative numbers, and solving related word problems
- Solving *equations* such as $\frac{1}{2}(x - 3) = \frac{3}{4}$ quickly and accurately, and writing equations of this kind to solve word problems
- Solving problems involving scale drawings
- Using statistics to draw *inferences* and make comparisons
- Solving word problems that have a combination of whole numbers, fractions, and decimals

Learning Activity to Use at Home

One way to make *variables* and *expressions* more concrete for middle school students is to use real-world examples. Using items around your house, create a "store" and set up expressions to represent the cost of the items. It takes just a few minutes to set up, but this activity will have lasting effects. Those once abstract and confusing *variables* and *expressions* will now represent real-world thinking – and real-world shopping!

Activity: Set Up Shop with Algebra

What You Do:

- Set out several household items (1 of each) and label each with a variable and a price (on sticky notes). For example:

(b) book = \$10.00	(s) spoon = \$2.50
(n) napkin = \$.25	(f) forks = \$3.50
(y) playing cards = \$1.00	(w) water = \$1.75
(a) apple = \$.90	(d) soda can = \$1.50
(p) paper clips = \$.10	(c) cucumber = \$3.50
- Begin the activity by explaining to your child that every time you are shopping, especially at the grocery store, you write *expressions* "in your head". It's really simple if you think of writing expressions as just writing out what you are thinking as you shop.
- Explain how you would set up a simple *expression* to represent the cost of one item.
- Say: "I want to buy 3 apples.
- First, I set up an expression to represent the cost of the apples: $3a$
- Next, I calculate the cost of the apples by filling in the price of each apple: $3(.90) = \$2.70$
- Now, demonstrate how you would set up an *expression* with 2 terms.
- Say: "I want to buy 2 books and 3 forks.
- First, I set up an expression to represent the cost of both items: $2b + 3f$
- Next, I calculate the total cost of the items by filling in the price of each item: $2(10.00) + 3(3.50)$; $20.00 + 11.50$; 31.50
- Continue providing examples, each time adding another item. Once you feel your child has an understanding of the process, it's time to send him shopping! Give your middle schooler lists of items and the quantity for each. Ask him to set up *expressions* and calculate a total for each shopping list. Extend the activity by asking him to predict which list will be the most/least expensive before solving.

Tips:

Review by asking your child what each *expression* means. For example, $2f + 8s + 3p$ means: the cost of 2 forks, 8 spoons, and 3 paper clips. Take your child to the grocery store. Give him/her a notepad and, as you shop, have him/her write expressions to represent the cost of what is in the cart. For example, if you are buying 4 cans of tomatoes, the *expression* is $4t$. If each can costs \$.80, he should evaluate the *expression*: $4(.80) = \$3.20$. Ask him/her to estimate the total cost of the items in your grocery cart before you check out. Challenge him/her to come as close to the actual total as possible.

Teacher and Parent Conferencing - Topics for ongoing conversations throughout the school year with your child's teacher.

Ask to see a sample of your child's work. Ask the teacher questions such as: Is this piece of work satisfactory? How could it be better? Is my child on track? How can I help my child improve or excel in this area? If my child needs extra support or wants to learn more about a subject, are there resources to help his or her learning outside the classroom?