Multiplicative Thinking

Parent Communication

This is **not** a test! These questions and example tasks are provided to give you insight into the importance of multiplicative thinking in **mathematics.** Remember, we all come to the tasks with different levels of understanding. If you are using it with your child, both of you should focus on thinking and talking and comparing what you thought. Let your child respond first and listen carefully. You may be surprised by what they say or already know. Try to avoid statements like "No. That's wrong. Here's the answer." Instead, ask questions like "What makes you think that?" and "Can you show me what you're thinking?" Then turn the page over and look at the information on the back. Compare your thinking to what is explained here. What's the same? What's different? Did anything surprise you? **At home** activities are a chance to further explore your child's understanding.

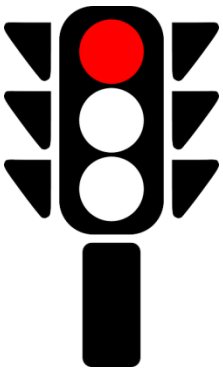
1. Which of the equations below matches the word problem? There are 5 dogs, each with 4 legs. How many legs are there altogether?
   a. 5 x 4 = 20
   b. 4 x 5 = 20
   c. 20 = 4 x 5
   d. 20 = 5 x 4

2. A case of soup cans comes in 24. They are stacked 3 high. How stacks are in the case? Which of the following represents this word problem?
   a. 24 ÷ 3 = 8
   b. 24 ÷ 8 = 3
   c. 24 = 3 x 8
   d. 24 = 8 x 3

Big Idea 3: The concept of equality and knowledge of number properties form the basis for developing multiplicative thinking.

1. **Which equation matches the word problem?**
   All 4 equations are correct. However, you may be most drawn to 5 x 4 = 20 because you are reading 5 dogs with 4 legs on each. Since order doesn't matter when you record a multiplication equation, all three are correct. This is called the Commutative Property.
   At home, have your child explain how number in the equation fits the problem. For example 4 x 5 = 20 could be stated as 4 legs on each of the 5 dogs is a total of 20 legs. For example 20 = 4 x 5 could be stated as 20 legs altogether is the same as 4 legs on 5 dogs. Every time your child is reading a multiplication equation, ask them to explain how the numbers fit the word problem and if there is another way to write the equation.

2. **Which equation matches the word problem?**
   All 4 equations are correct. However, you may be most drawn to 24 ÷ 3 = 8 because you are readings 24 cans divided into 3 stacks is 8 cans in each stack. Multiplication and division are inverse operations. This word problem can be explained using either operation. For example, your child might say "I know 3 x 8 = 24" therefore the answer is 8. You can then say "I solved it using division. 24 ÷ 3 = 8. Can you explain why we are both correct?"
   At home, every time your child is reading a division equation, ask them to explain the inverse operation of multiplication.



Stop saying "Multiplying by 10 is just adding a 0"! Does this work for 0.03 x 10? No! Just adding a 0 would give you 0.030! When you say just add a 0, you're also implying that "Dividing by 10 is just dropping a 0"! Does this work for 13 ÷ 10? Give your child lots of opportunity to explore what multiplying by 10 looks like by building it. They will generalize a pattern as a result.