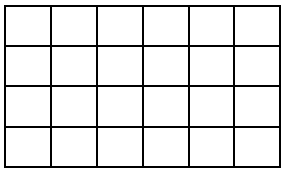
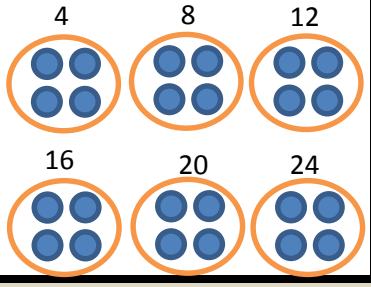
Grade 4 Important Math Information

Basic Multiplication and Multiplicative Comparison

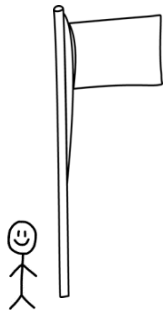
Dear Family,

Our class is beginning a unit of study in mathematics called *Basic Multiplication and Multiplicative Comparison.* This unit will focus on multiplication facts and multiplicative comparison word problems. Students will also learn about factors of numbers and the difference between prime and composite numbers. The specific learning goals your student will be working toward are listed below with examples of student work showing understanding of each learning goal.

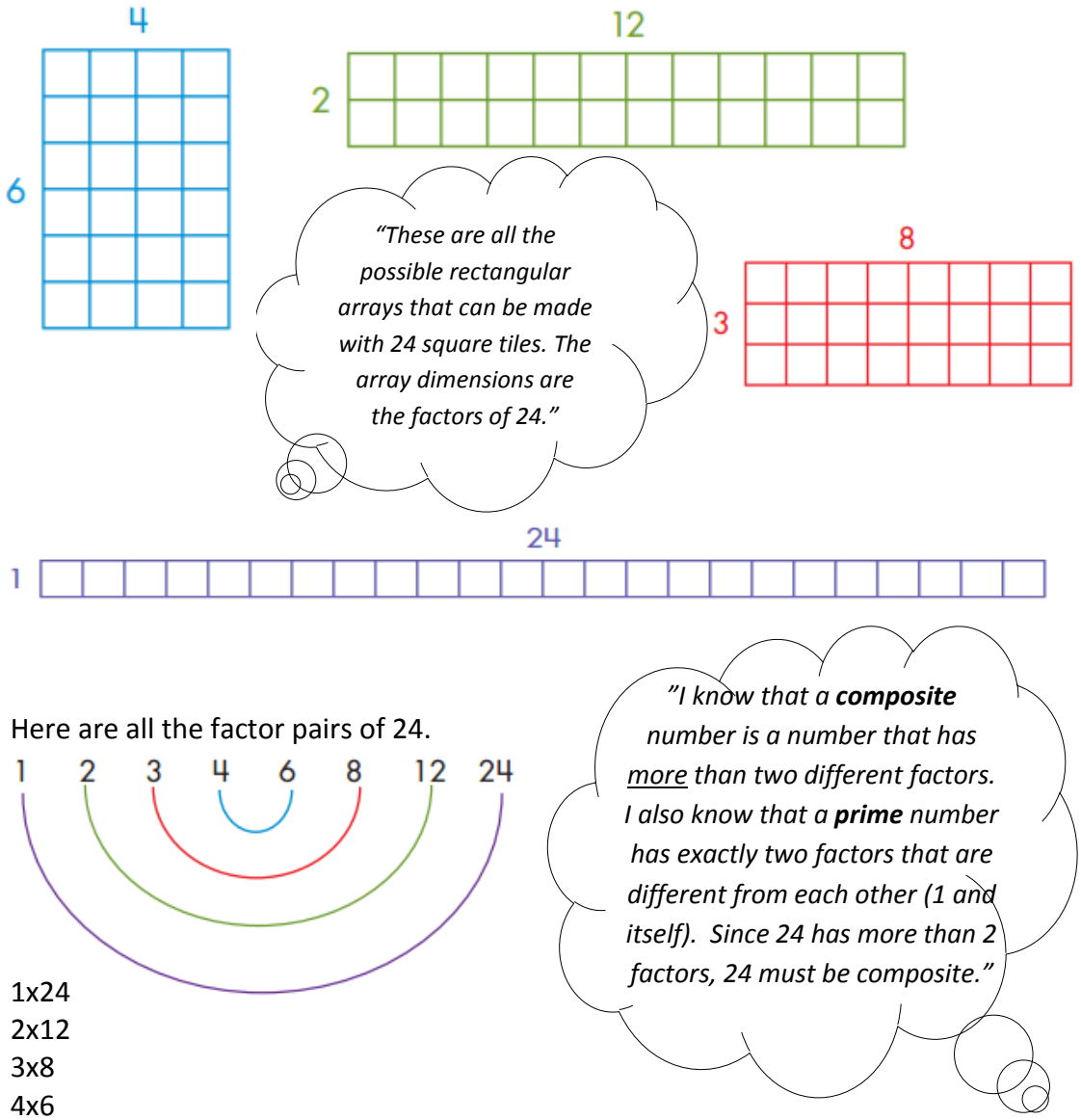
Learning Goal: Multiply up to 12 x 12 and be able to illustrate and explain the calculations with arrays, models, and equations.

Example Problem	**Example Student Solutions**		
There are 6 bags of oranges, with 4 oranges in each bag. How many oranges are there in all?	Draw an array: 	Use a model: 	Write an equation: 6 x 4= 24 or (6x2) + (6x2) = 24

Learning Goal: Represent multiplicative comparison word problems with word problems with equations and be able to solve them using multiplication or division.

Example Problem	**Example Student Solutions**	
A flag pole is 28 feet tall. Sam is 7 feet tall. How many times taller is the flag pole than Sam? 	Use multiplication: __?__ x 7 = 28 *"I thought to myself, what do I multiply 7 by to get 28? So I wrote ? x 7=28 and I knew it was 4."*	Use division: 28 ÷ 7 = __?__ *"My equation is 28 ÷ 7=?. I know that 28 divided by 7 is 4. So the flag must be 4 times as tall as Sam."*

Learning Goal: Find the factors of two-digit numbers and be able to determine whether a number is prime or composite.

Example Problem	Example Student Solutions
List the factors of 24. Then decided if 24 is a prime number or a composite number.	

Mathematical Thinking and Practices Learning Goal: Persevere to understand and solve problems using multiple strategies while asking, "Does this make sense?"

Things you can do at home to support your child throughout this unit of study:
Multiplication is very important to your child's success in math. Use any opportunity to practice the multiplication facts up to 10 x 10. Practicing facts while making dinner or riding in the car are great ways to "sneak" in multiplication practice.

When your child asks you for help in solving a problem, it may be helpful for you to ask questions such as these:

- What is the problem asking you to figure out?
- Does this remind you of other problems?
- What part of the problem do you already know how to solve?
- What is a good place to start?
- What have you figured out so far?
- Would drawing a picture or diagram help?
- How can I help you (without telling you an answer)?

Modeling Multiplication Situations: Encourage your child to help you solve multiplication situations that come up in your daily activities. While you shop, you might ask, "How many juice boxes will we have if they come in packages of 3, and we buy 6 packages?" At the park, you might ask, "If there are 8 soccer teams in our town and each team has 11 players, how many kids play soccer?"

Array Search: Look for items around your house or at the grocery store that are packaged or arranged in rectangular arrays: tiles on the floor, eggs in a carton, window panes, a six-pack of juice cans, and so on. Talk with your child about the dimensions (number of rows and columns), and discuss ways to figure out the total number of items.

Arranging Chairs: Suppose that you have 40 chairs. You want to arrange them into straight rows for an audience to watch a play. You need to arrange the chairs so that there will be the same number in every row. How many different ways could you do this? (What if you start with 50 chairs? 75? 72? 71?)

Math and Literature: Here are some suggestions of children's books that contain relevant mathematical ideas about multiplication. Look for these books at your local library.

- A Remainder of One by Elinor Pinczes
- The Best of Times by Greg Tang