Family Letter
5th Grade Whole Number Multiplication and Division Concepts

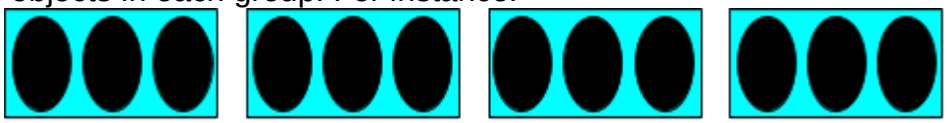
Dear Family,

Focus of the Unit

This unit on whole number multiplication and division builds on students' work from fourth grade. Students are introduced to the traditional U.S. standard algorithm for multiplication. Students also extend their understanding of division to 2-digit numbers.

Building off Past Mathematics

In previous grade levels, students learned that multiplication is counting or combining equal sized groups. Situations involving multiplication have a number of groups and a number of objects in each group. For instance:



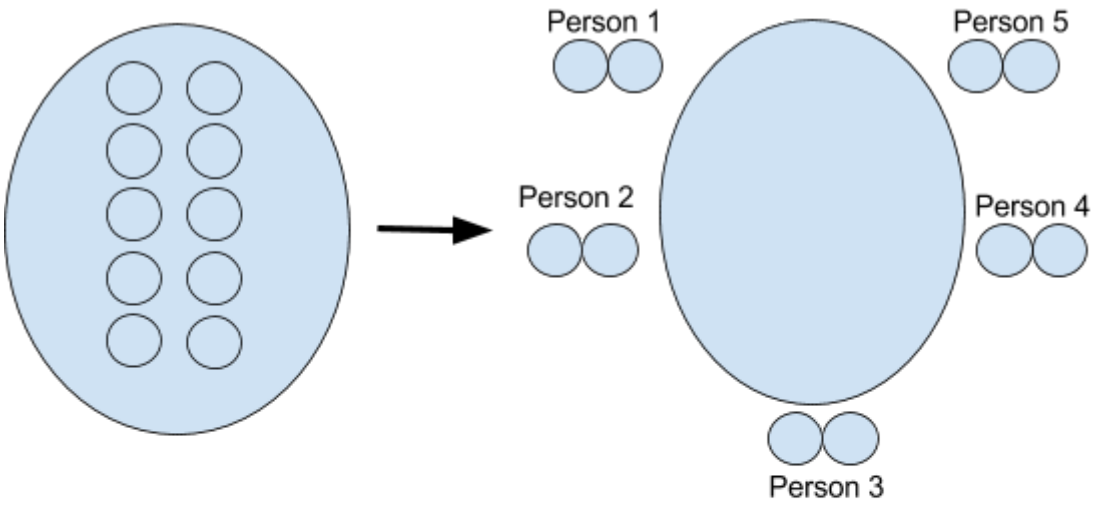
There are 4 packs of cookies on the counter.
Each pack has 3 cookies inside.
How many cookies are on the counter?

4 packs of 3 cookies in each pack is the same as 12 cookies
4 x 3 =12

So, students read multiplication equations like 4 x 3 = 12 as "4 groups of 3 objects is the same as 12 objects". Multiplication can also been seen as skip counting or repeated addition (4 x 3 can also be thought of as 3 + 3 + 3 + 3). Students also learned that multiplication can be interpreted as a comparison. For example, 45 = 5 x 9 means that 45 is 5 times as many as 9 and 9 times as many as 5.

Students have learned that division is separating a number of objects into equal shares or groups. Situations involving division contain a total number of objects, the number of groups, and the number of objects in the groups.

For instance:



There are 10 cookies on a plate, to be shared equally with 5 people. How many cookies will each person get?

If 10 cookies are shared equally with 5 people, each person will get 2 cookies.

10 cookie ÷ 5 people = 2 cookies per person

10 ÷ 5 = 2

Division can also been viewed as repeated subtraction:

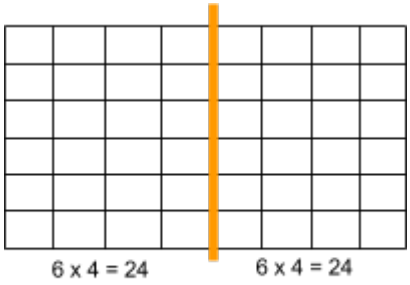
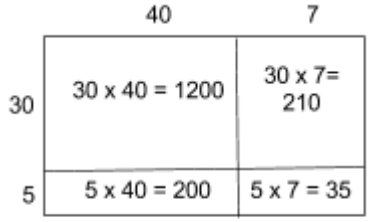
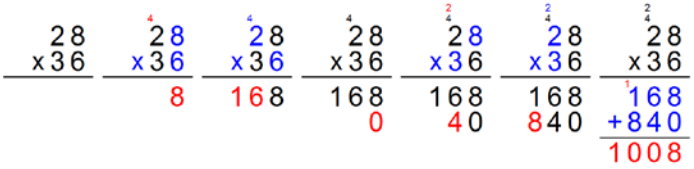
10 ÷ 5 = 2 is the same as 10 - 2 - 2 - 2 - 2 - 2 = 0 cookies left

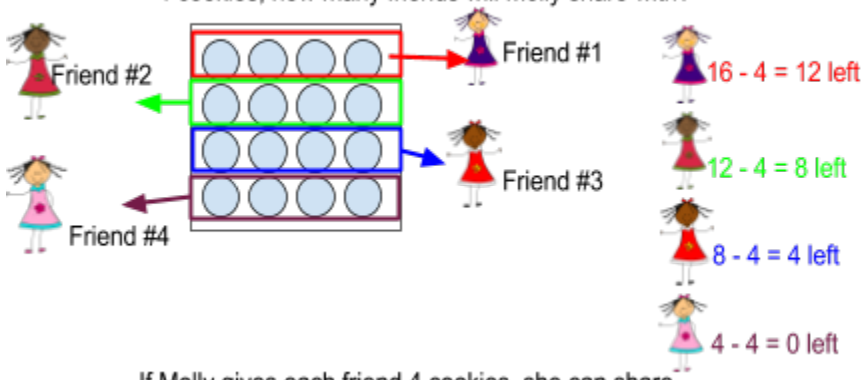
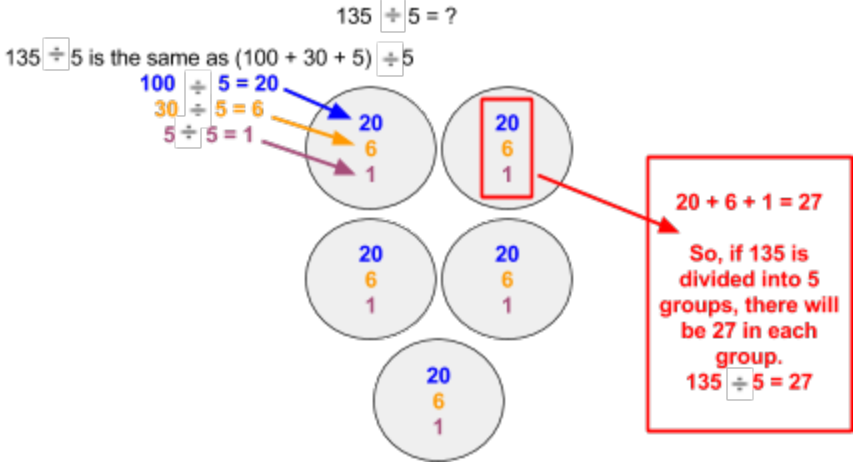
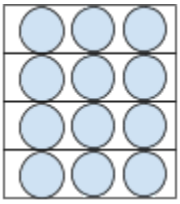
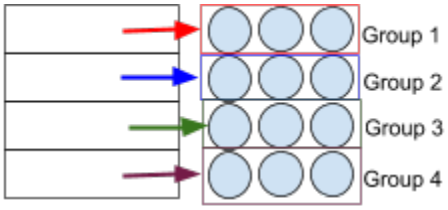
Students use their understanding of multiplication and division to solve story problems about real-life situations. These story problems involve situations where the number of groups, number of objects in a group, or total amount are missing. It is important that students “act out” story problem situations, so they can clearly see what information is given and still needed.

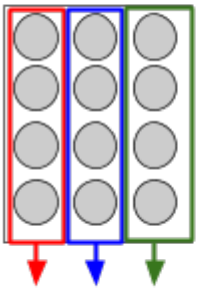
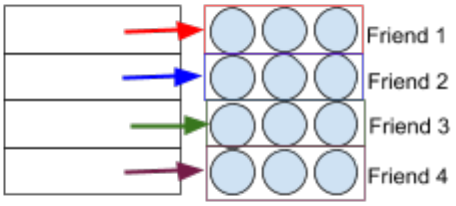
Strategies that Students Will Learn

In fifth grade, students use their previous understanding of multiplication and division strategies, and apply them to larger numbers. Below are some specific strategies that students use as they solve multiplication situations:

Strategies for Multiplication		
Use facts you already know	6 x 3 = ? I know 6 x 2 = 12, so 6 x 3 = 18	29 x 7 = ? I know 30 x 7 = 210 and 210 - 7 = 203, so, 29 x 7 = 203

Use an array to break apart unknown facts	"I do not know what 6 x 8 is, but I do know that 6 x 4 = 24 and 6 x 4 again is 24, and 24 + 24 = 48. So, 6 x 8 = 4."  24 + 24 = 48
Use an area model to break apart numbers by their place value	47 x 35 = (40 x 30) + (40 x 5) + (30 x 7) + (7 x 5) 47 x 35 = 1200 + 200 + 210 + 35 47 x 35 = 1645 Example of an area model:  (30 x 40) + (5 x 40) + (30 x 7) + (5 x 7) = 1645 1200 + 200 + 210 + 35 = 1645
U.S. Standard Algorithm	

Strategies for Division	
Repeated subtraction in groups	Taking a group at a time Molly has 16 cookies to share with her friends. If each friend gets 4 cookies, how many friends will Molly share with?  If Molly gives each friend 4 cookies, she can share with 4 friends.
Separating into groups	
Using relationship between multiplication and division	 4 groups of 3 is 12 4 x 3 = 12 so  12 objects divided into 4 groups is 3 objects in each group 12 ÷ 4 = 3

** Although the division situations may have the same equation, the story may be different.	$12 \div 4 = 3$ **Story #1:** Tyshawn has 12 video games to give each of his friends 4 video games. How many friends could he share his video games with?  Friend 1 Friend 2 Friend 3 Tyshawn can share his video games with 3 friends. **Story #2:** Tyshawn has 12 video games to share with his 4 friends. How many video games will each friend get?  Each friend will get 3 video games.

Ideas for Home Support

As a family, notice things that you purchase that come in groups and how many come in each group. As you plan for parties and events, involve your child in the process of determining how many packs of cups, plates, utensils, etc. are needed to serve the attendees. This helps them see and apply multiplication and division in a real-life context. Also, talk about other situations where you see multiplication and division in your everyday life, such as: how many legs are on all the ants on the log? How many juice boxes are on the shelf? If I bake 48 cookies for your class, how many cookies will each student get?

Thank you for serving as partners in your child's success as a mathematician!

TOOLS FOR TEACHERS