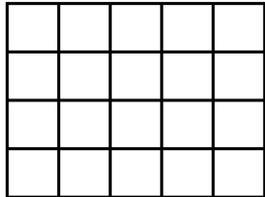


# Grade 3 Important Math Information

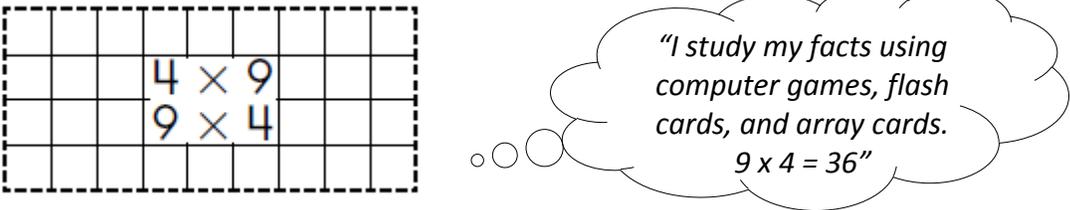
## Multiplication as an Array and Division

Dear Family,

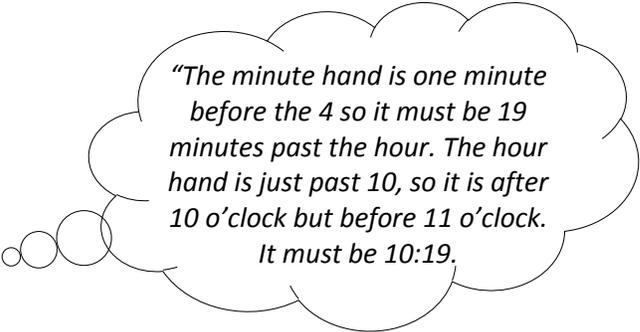
We are beginning a new unit of study called *Multiplication as an Array and Division*. In this unit of study students continue to work with multiplication and use arrays to solve multiplication problems. Students will develop an understanding that division is used to separate a quantity into equal groups. Students will practice telling time to the nearest minute. By the end of Grade 3, it is expected that students know and use all multiplication combinations for any two one-digit 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: Represent and solve multiplication and division situations and explain the strategies used.	
Example Problems	Example Student Solutions
<p>The cafeteria has 4 rows of tables. There are 5 tables in each row. How many tables are in the cafeteria?</p>	 <p><math>4 \times 5 = 20</math></p> <p>"I drew an array to represent the 4 rows of tables and the 5 tables in each row. I skip counted by 5 four times to get to 20."</p>
<p>There are 12 tennis balls. Gina wants to put 3 tennis balls in each container. How many containers can Gina fill?</p>	<p><u>Repeated Addition</u></p> <p><math>12 \div 3 = ?</math></p> <p><math>3 + 3 + 3 + 3 = 12</math></p> <p><math>12 \div 3 = 4</math></p> <p>"Each container will have 3 tennis balls, so I added 3 four times to get to 12."</p>
	<p><u>Repeated Subtraction</u></p> <p><math>12 \div 3 = ?</math></p> <p><math>12 - 3 = 9</math></p> <p><math>9 - 3 = 6</math></p> <p><math>6 - 3 = 3</math></p> <p><math>3 - 3 = 0</math></p> <p><math>12 \div 3 = 4</math></p> <p>"I subtracted 3 from 12 four times to get to 0."</p>
	<p><u>Using Multiplication Combinations</u></p> <p><math>12 \div 3 = ?</math></p> <p><math>3 \times 3 = 9</math></p> <p><math>1 \times 3 = 3</math></p> <p><math>12 \div 3 = 4</math></p> <p>"I know that <math>3 \times 3 = 9</math> and <math>1 \times 3 = 3</math>, so <math>4 \times 3 = 12</math>. If <math>4 \times 3 = 12</math>, then <math>12 \div 3 = 4</math>."</p>
Learning Goal: Understand the relationship between multiplication and division and determine the unknown number in a multiplication or division equation.	
Example Problem	Example Student Solution
<p><math>18 \div \square = 6</math></p>	<p><math>18 \div \square = 6</math></p> <p><math>6 \times 3 = 18</math></p> <p><math>18 \div \boxed{3} = 6</math></p> <p>"I know that 18 divided by a number equals 6 is the same thing as 6 times a number equals 18. I know that <math>6 \times 3 = 18</math>, so <math>18 \div \boxed{3} = 6</math>."</p>

**Learning Goal:** Recall all multiplication facts from memory and recall all division facts with fluency.

Example Problem	Example Student Solution
What is $9 \times 4$ ?	

**Learning Goal:** Tell and write time to the nearest minute.

Example Problem	Example Student Solution
What time is it? 	It is 10:19. 

**Mathematical Thinking and Practices Learning Goal:** Recognize patterns and use them to solve problems.



Things you can do at home to support your student throughout this unit of study:

**What time is it now?**

In this unit of study, students are learning to tell time to the nearest minute. At home, you can work with your student on telling time. See if your student can tell you what time it is at various times throughout the day.



**Practice multiplication facts**

Create single-digit multiplication fact flash cards with your student to practice with at home. Have your student sort the cards into piles of “facts I know” and “facts I need to work on”.

**Homework discussions**

Support your student in completing their homework. Talk about the homework together. Ask your student how they are thinking about the problems and have him/her share the strategies he/she is using. It is important for students to understand the math they are doing and to be able to communicate their thinking orally and in writing.

