RightStart™ Mathematics

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FIRST GRADE LESSONS

Second Edition

Activities for Learning, Inc.

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RightStart™ Mathematics Objectives for First Grade

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Numeration				
Can recognize quantities 1 to 10 without counting				
Can enter and recognize quantities to 100 on the abacus				
Knows even numbers and odd numbers				
Can identify even/odd numbers to 120				
Can count by 2s, 5s, 10s				
Place Value				
Knows 37 as 3-ten 7				
Knows traditional names: e.g., 18 as eighteen as well as 1-ten 8				
Can trade 10 ones for 1 ten	N/A			
Can trade 10 tens for 1 hundred	N/A			
Can trade 10 hundreds for 1 thousand	N/A			
Can write and read 4-digit numbers	N/A			
Addition				
Understands addition as combining parts to form a whole				
Knows number facts to 18	N/A	N/A		
Can add 2-digit numbers mentally	N/A			
Can add 4-digit numbers	N/A	N/A		
Subtraction				
Understands subtraction as missing addends	N/A	N/A		
Understands subtraction as partitioning	N/A	N/A		
Knows subtraction facts up to 10	N/A	N/A		
Problem Solving				
Can solve word problems				
Perseveres in solving problems				
Geometry				
Knows parallel and perpendicular lines				
Knows square is a special rectangle				
Knows lines of symmetry	N/A	N/A	N/A	
Composes shapes from existing shapes	N/A			
Knows names of special quadrilaterals	N/A	N/A	N/A	
Measurement				
Can measure to one half of a centimeter	N/A	N/A	N/A	
Can measure to one half of an inch	N/A	N/A	N/A	
Can measure around a shape	N/A	N/A	N/A	
Fractions				
Can partition into halves and fourths	N/A	N/A	N/A	
Knows that one fourth is also called a quarter	N/A	N/A	N/A	
Knows unit fractions up to tenths	N/A	N/A	N/A	
Time				
Knows days of the week and months of the year	N/A			
Can tell and write time in hours & half hours on analog & digital clocks	N/A	N/A		
Can tell time to five-minute intervals	N/A	N/A		
Money				
Knows name and value of penny, nickel, dime, and quarter	N/A	N/A	N/A	
Can determine the value of three coins	N/A	N/A	N/A	
Calculator				
Can add and subtract whole numbers	N/A	N/A	N/A	

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Lesson 20: The Commutative Property

OBJECTIVES:

1. To understand and apply the commutative property *(a + b = b + a)*

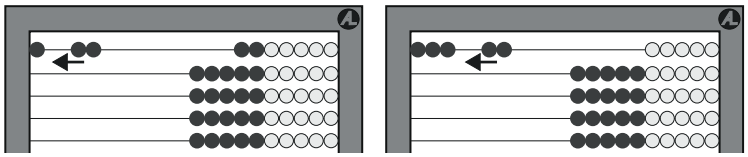
MATERIALS:

1. AL Abacuses
2. Dry erase boards
3. Worksheet 6, The Commutative Property

ACTIVITIES FOR TEACHING:

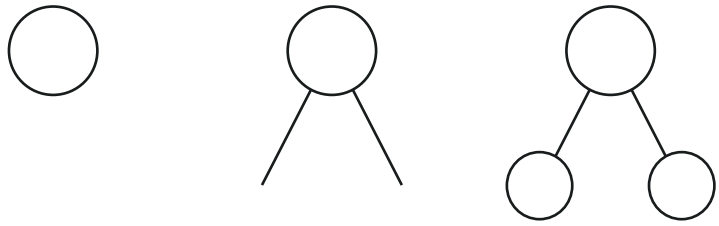
Warm-up. Ask the children to say the months of the year. Then play the Comes After game with the months. Ask: What month comes after April? [May] What month comes after August? [September] What month comes after January? [February]

Ask the children to enter 1 on their abacuses and to name the quantity. [1] Ask them to add another 2 and name the amount. [3] See figure below. Continue to 9. Ask: What was special about the numbers you said? [odd numbers]



Adding 2s to count by twos.

Drawing part-whole circle sets. Show the children how to draw part-whole circle sets as shown below. First, draw the large circle. Second, draw the two lines. Third, draw the small circles by starting at the end of the lines.

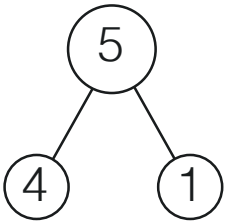


Drawing the large circle. **Drawing the lines.** **Drawing the small circles.**

Commutative property with part-whole circle sets. Ask the children to draw two part-whole circle sets. Ask them to write parts 4 and 6 in one set and parts 6 and 4 in the other as shown on the top of the next page. Ask the children to find the whole for both. [10]

EXPLANATIONS:

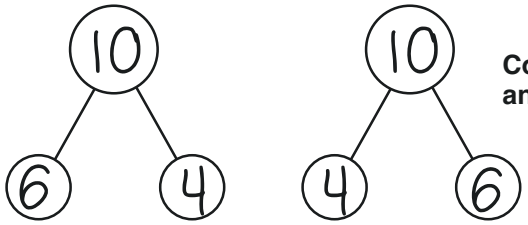
Part-whole circle sets are a visual tool that help children understand partitioning. The whole is written in the larger circle and the parts, in the smaller circles. Research shows children using them do better in solving story problems.



Some children discover the commutative property on their own, but others need experiences to realize and apply it.

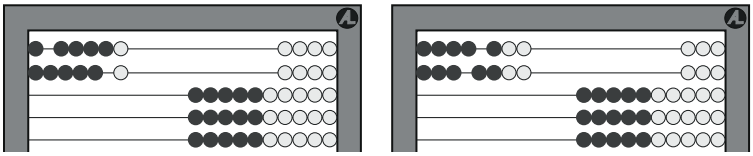
Do not teach the term *commutative* at this point. The children must thoroughly understand the concept before the word is introduced.

ACTIVITIES FOR TEACHING:



Comparing 6 + 4 and 4 + 6.

Commutative property with the abacus. Ask them to enter 5 + 1 on the first wire of their abacuses and 1 + 5 on the second wire. Tell them to write the sums in the whole-circles and to write the equations. See the left figure below.



1 + 5 = 6
5 + 1 = 6

4 + 3 = 7
3 + 4 = 7

Repeat for 4 + 3 and 3 + 4. See the right figures above. Ask them to notice how the equations are the same and how they are different. [same parts, different order] Encourage them to try their own numbers and discuss their conclusions.

Worksheet 6. This worksheet provides more practice in applying the commutative property. Using abacuses helps the children "see" the concept.

4 + 5 = **9**	7 + 2 = **9**
5 + 4 = **9**	2 + 7 = **9**
6 + 3 = **9**	3 + 5 = **8**
3 + 6 = **9**	5 + 3 = **8**
4 + 3 = **7**	7 + 1 = **8**
3 + 4 = **7**	1 + 7 = **8**
8 + 1 = **9**	3 + 7 = **10**
1 + 8 = **9**	7 + 3 = **10**

In conclusion. Write on a dry erase board 40 + 30 = 70 and 30 + 40 = 70. Ask the children: What do you notice about the equations? [The answers are the same.]

EXPLANATIONS:

The commutative property is sometimes referred to as the commutative law. Property, meaning attribute or quality, is the preferred term.

1.OA.3

Name: _____ Date: _____

4	+	5	=	
5	+	4	=	

6	+	3	=	
3	+	6	=	

4	+	3	=	
3	+	4	=	

8	+	1	=	
1	+	8	=	

7	+	2	=	
2	+	7	=	

3	+	5	=	
5	+	3	=	

7	+	1	=	
1	+	7	=	

3	+	7	=	
7	+	3	=	

Lesson 61: Adding Several Numbers

OBJECTIVES:

1. To practice adding several numbers
2. To find 2, 3, or 4 numbers that total 15

MATERIALS:

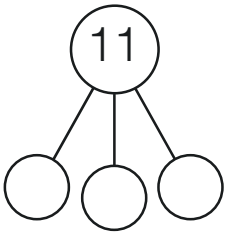
1. Dry erase boards
2. Worksheet 21, Adding Several Numbers
3. *Math Card Games* book, A53

ACTIVITIES FOR TEACHING:

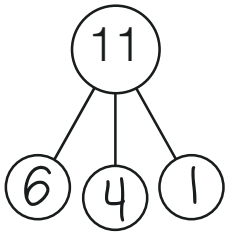
Warm-up. Ask: How can you add three numbers? [First add any two numbers, then add the last number.]

Ask the children to solve the following problem using a part-whole circle set:

> John has 11 apples and 3 friends to share the apples with. How could John split the apples among the 3 friends?



The part-whole circle set with three parts.



One way to partition 11 into 3 parts.

Ask the children: 9 and what equals 15? [6] 7 and what equals 15? [8] 5 and what equals 15? [10] 8 and what equals 15? [7] 6 and what equals 15? [9]

Ask: What kind of number do you always get when you add two even numbers? [even number]

Ask the children to give the ways to make 11; 3 and what? [8] 4 and what? [7] 10 and what? [1] 9 and what? [2]

EXPLANATIONS:

ACTIVITIES FOR TEACHING:

Worksheet 21. Give the children the worksheet. Remind them they can add the numbers in any order. The problems and solutions are below:

3 + 2 + 1 = **6**
5 + 2 + 2 = **9**
4 + 3 + 2 = **9**
1 + 2 + 7 = **10**
2 + 3 + 6 = **11**
3 + 5 + 5 = **13**
2 + 7 + 8 = **17**
10 + 2 + 3 = **15**
6 + 5 + 6 = **17**
2 + 9 + 9 = **20**

Preparation for Rows and Columns game. Write the following numbers:

9 4 1 5

and ask the children which numbers they could use to make 15. [9, 1, 5] Ask several children how they found the numbers. They may see the 9 and 1 making 10 and with the 5 making 15.

Repeat for

4 4 9 7

This sum [4, 4, 7] can be seen with the 4 and 4 giving 8, which added to 7 is 15.

Repeat for

3 3 6 9

This time there are two solutions. [3, 3, 9 or 6, 9] Since the object of this new game will be to collect the most cards, the first solution is preferred.

Rows and Columns game. Play the Rows and Columns game from the *Math Card Games* book, A53.

In conclusion. Ask: What is 1 + 2 + 3 + 4 + 5? [15]

EXPLANATIONS:

There are many different ways to find the numbers. Children listening to each other can learn some of them. Encourage listening by asking the children to discuss which ways are easiest, or fastest.

1.OA.6

Name: _____

Date: _____

3 + 2 + 1 = ___
5 + 2 + 2 = ___
4 + 3 + 2 = ___
1 + 2 + 7 = ___
2 + 3 + 6 = ___

3 + 5 + 5 = ___
2 + 7 + 8 = ___
10 + 2 + 3 = ___
6 + 5 + 6 = ___
2 + 9 + 9 = ___

Lesson 93: Finding the Difference

OBJECTIVES:

1. To learn the term *difference*
2. To solve compare problems

MATERIALS:

1. Sums Practice 4
2. Geared clocks
3. Large AL Abacus
4. AL Abacuses
5. *Math Card Games* book, S13

ACTIVITIES FOR TEACHING:

Warm-up. Ask the children to do the next two problems on Sums Practice 4 without their abacuses:

1398	3149
+ 1406	+ 7788
2804	**10937**

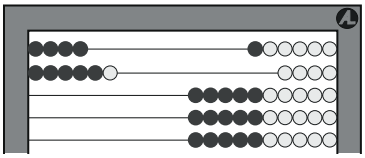
Ask: How could you use the Taking Part From Ten strategy for finding 14 – 7? [Take 4 from the 4 and 3 from the ten to get 7.] How could you use this strategy for finding 17 – 7? [Take 7 from the 7 to get ten.]

Ask: How could you use the Taking All From Ten strategy for finding 12 – 7? [Take 7 from 10 and adding 3 + 2 = 5.] How could you use this strategy for finding 13 – 6? [4 + 3 = 7]

Set the hands of the geared clock to 4:15 and ask the children to say the time. [4:15] Ask them to set their clocks for various times and state those times.

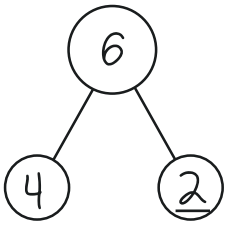
Finding differences on the abacus. Enter 4 and 6 on the top two wires of the large abacus. See the left figure below. Ask the children: What is the *difference* in quantity between the 4 and 6? [2]

Ask: Did you add 4 and 6 to find the difference? [no] What did you do? [subtract] Ask them to put the numbers in a part-whole circle set. See the right figure below. Explain that the larger number goes in the whole-circle. The smaller number and difference go in the part-circles. Ask a child to write the equations.



Find the difference between 4 and 6.

$6 - 4 = \underline{2}$ or
$4 + \underline{2} = 6$

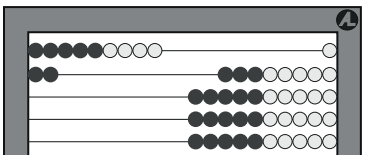


Larger number on top; smaller number and difference in part-circles.

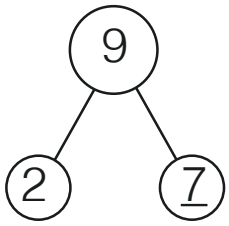
EXPLANATIONS:

ACTIVITIES FOR TEACHING:

Repeat for difference between 9 and 2. See figures below.



Find the difference between 9 and 2.



The difference is 7.

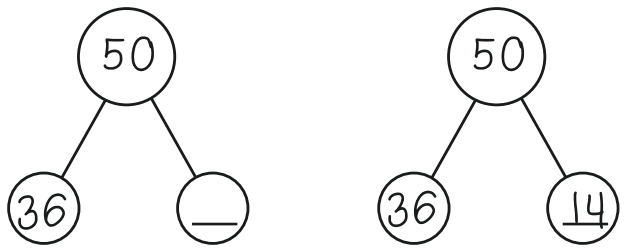
9 − 2 = 7 or
2 + 7 = 9

Problem. Read the following problem to the children:

> Mikayla has a book with 36 pages and Nathan has a book with 50 pages. Whose book has more pages and how many more? [Nathan, 14 more pages]

Draw a part-whole circle set and ask: Which number goes in the whole-circle? [50] What number goes in a part-circle? [36] See the left figure below. Ask: Whose book has more pages? [Nathan] How many more? [14] Ask a child to write the equation.

50 − 36 = 14 or 36 + 14 = 50



The part-whole circle set for a compare problem.

Harder Difference War game. Play the Harder Difference War game from the *Math Card Games* book, S13.

Children needing an easier game could play Difference War, S12.

In conclusion. Ask the children: When you add, what do you call the answer? [sum] When you subtract, what do you call the answer? [difference]

EXPLANATIONS:

1.OA.1, 1.OA.6

Lesson 104: Measuring with Centimeters

OBJECTIVES:

1. To measure in centimeters
2. To collect information and categorize it
3. To learn the term *data*

MATERIALS:

1. Sums Practice 6
2. Worksheet 46, Measuring with Centimeters
3. Centimeter cubes
4. One set of tangrams per child

ACTIVITIES FOR TEACHING:

Warm-up. Ask the children to do the last two problems on Sums Practice 6. The solutions are:

7129	4233
+ 1516	+ 726
8645	**4959**

Ask: What is another word for quarter? [a fourth] What are the two names for one half of a half? [one fourth, a quarter] How many quarters in a whole? [4] How many quarters in a half? [2]

Ask: Which is more, one half or two quarters? [same] Which is less, one half or three quarters? [one half]

Ask the children to solve the following problem.

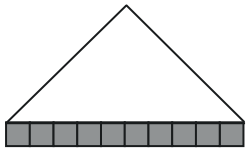
> There are 15 butterflies flying by the flowers. In the group, 6 butterflies are yellow. How many of the butterflies are not yellow? [9 butterflies]

Ask the children to mentally add 47 + 32, [77, 79] 47 + 22, [67, 69] 100 + 87, [180, 187] and 67 + 67. [127]

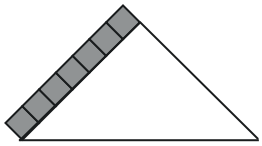
Tangrams lengths. Distribute the tangrams to the children. Ask: Are all edges of your tangram pieces the same length? [no] Explain: In this lesson you are going to find out how many different lengths the edges of the tangram pieces have. You will also find out which length is the most common and which is the least common.

Worksheet 46. Distribute the worksheet and the centimeter cubes to the children. Show them a centimeter cube and explain that the distance along an edge is 1 centimeter.

Ask them to measure the longest side of the large triangle in centimeters. Demonstrate as shown below in the left figure. Ask: How many centimeters long is it? [10 cm]



Longest side is 10 cm.



Shorter side is 7 cm.

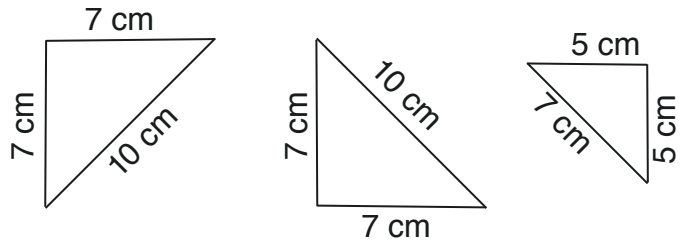
EXPLANATIONS:

According to Clements & Sarama, researchers found that children are often confused when asked to measure with various non-standard units. Only, after they are familiar with the concept of measurement, will they be able to understand the need for standard measurements.

ACTIVITIES FOR TEACHING:

Next ask them to measure the side of the large triangle. [7 cm] Repeat for the other side. [7 cm] See the right figure on the previous page.

Point the first figure from the worksheet so the children can see. Ask them what each side measured; write it on the corresponding side of the figure. Tell them that we write cm for centimeter. See the left figure below.

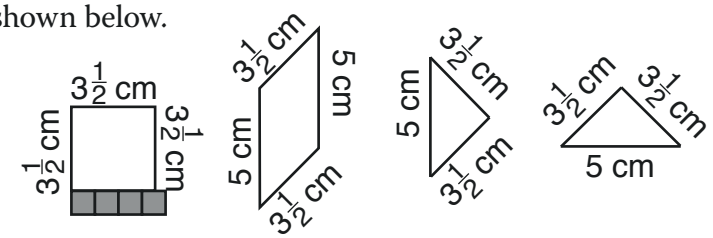


The lengths of the sides of the first 3 tangram pieces.

Tell the children their worksheets show all the tangrams pieces. Tell them to measure the sides using the centimeter cubes and write the lengths for the first three triangles on their worksheets. See figures above.

Measuring the square. Tell the children to measure a side of the square. Ask: Does it measure 3 cm? [too little] Does it measure 4 cm? [too much] Tell them: The side measures 3 and a part of a another centimeter. What part is it? [one half] Tell them: We say it is 3 and one half centimeters. Show them how to write $3\frac{1}{2}$ cm.

Do the same thing with the last three pieces. Answers are shown below.



The lengths of the sides of the last 4 tangram pieces.

Worksheet Question 2. Explain to the children that they have a lot of information, called *data*; now they can organize it in the chart. First, they are to count the number of sides having 10 cm and write it below the box saying 10 cm. Next they are to find the number of sides that are 7 cm long and write it below the 7 cm. Do the same thing with the last two lengths. The solutions are:

10	7	5	$3\frac{1}{2}$
2	**5**	**6**	**10**

Worksheet Question 3. Here they are to tell what they learned about the lengths.

In conclusion. Ask: Are you surprised there are only four different lengths?

EXPLANATIONS:

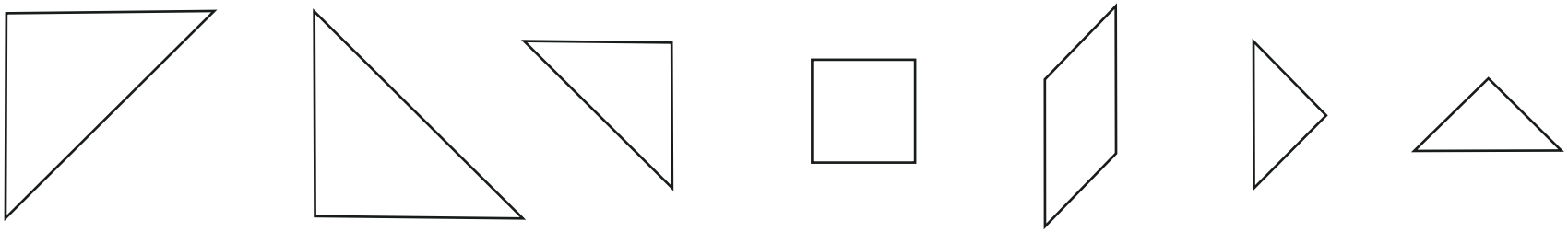
Some children will realize that shapes may be identical and measuring them again is unnecessary. Other children will want to measure everything, which is necessary for them.

Although fractions are not common within the metric system, they are permissible.

1.MD.1, 1.MD.2, 1.MD.4

Name: _____ Date: _____

1. Measure the side of each tangram piece in centimeters and write it along the edge.



2. Write the total number of sides with each measurement.

10 cm	7 cm	5 cm	$3\frac{1}{2}$ cm

3. Write about your findings.

_____

_____

_____

_____