Imagine Schools
Summer Math Challenge

Kindergarten

Answer Key

When completing the problems we need to show all of our work and show all of our thinking. Compare your work to ours, especially if your answer is different than our answer. If the project listed is creative in its approach and each project created would be different, no answer is provided.

Project #1

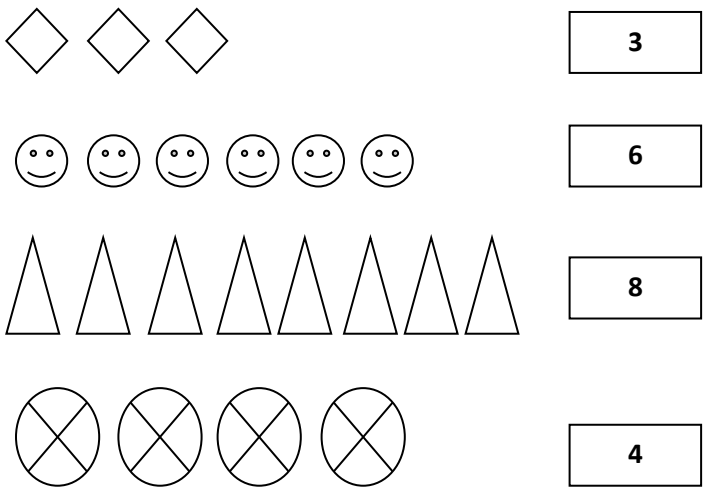
Domain: Counting and Cardinality (CC)
K.CC.1. Count to 100 by ones and by tens.
K.CC.3. Write numbers from 0-20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

Directions:
Fill in the missing numbers in the chart below.

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**

Next, make a collection of 20 of something you have around your house. It could be Cheerios, blocks, or hair clips! It is your choice!

Now, write the numeral in the box next the items below.
Example:



Project # 2

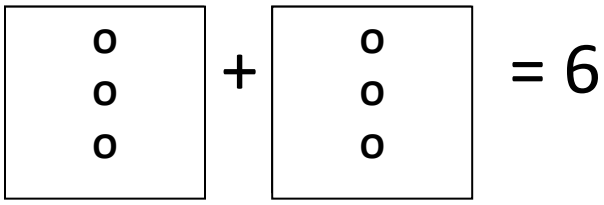
Domain: Operations & Algebraic Thinking (OA)

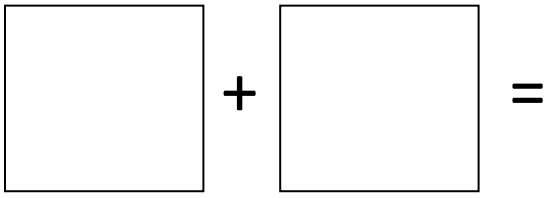
K.OA.1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps) acting out situations, verbal explanations, expressions, or equations.

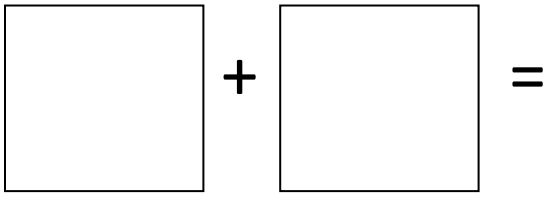
K.OA.2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

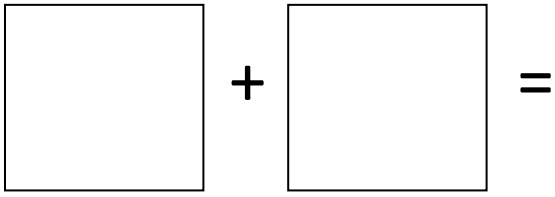
Directions: Find 10 beans or Cheerios put a certain number of cheerios in each box below and then combine them to find the answer. Draw pictures for the items you used after you are done.

Example:









Project # 3

Domain: Operations & Algebraic Thinking (OA)

K.OA.1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps) acting out situations, verbal explanations, expressions, or equations.

K.OA.2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Directions: Use beans, Cheerios, or another item to play a subtraction game. In the ten-frame below put a certain number of items. (The items should be placed left to right beginning with the first row. One item per rectangle.) Then, tell your child to take a certain number of items away. Count the remaining number of items. After "acting out" each problem fill in the equation below. For example, if you put 8 beans in the square and your child took away 3, together you would write 8-3=5. Be sure to discuss what the – and = symbols mean in the number sentence.

1._____ - _____=_____

2._____ - _____=_____

3._____ - _____ =_____

4._____ - _____=_____

5._____ - _____=_____

Project #4

Domain: Operations & Algebraic Thinking (OA)

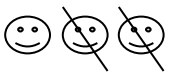
K.OA.1. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps) acting out situations, verbal explanations, expressions, or equations.

K.OA.2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

Directions: Work with your child to write a word problem below. The word problem should use single digit numbers and deal with addition and subtraction. Encourage your child to write the problem independently on lined paper. You can help them sound out words. Then find the answer to the word problem by drawing pictures, using objects, or using a number line.

Example: I had 3 pieces of candy. I gave two away. How many do I have left?

3-2=1



Project #5

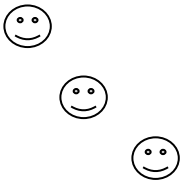
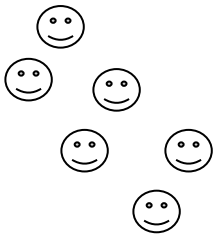
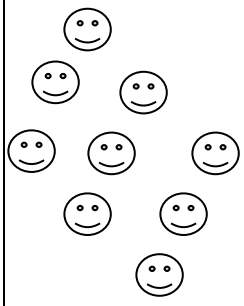
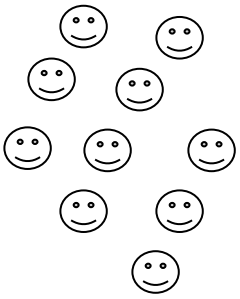
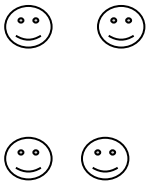
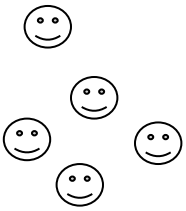
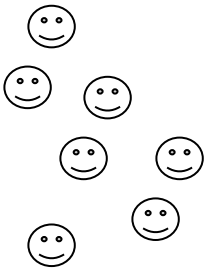
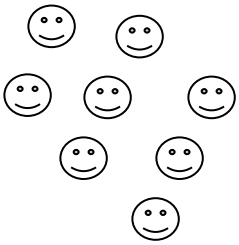
Domain: Counting and Cardinality (CC)

K.CC.1. Count to 100 by ones and by tens.

K.CC.3. Write numbers from 0-20. Represent a number of objects with a written numeral 0-20 (with representing a count of no objects).

K.CC.4. Understand the relationship between numbers and quantities; connect counting to cardinality.

Directions: Cut out the cards on the following page and turn them over so the white side faces up. Play a Number Memory game with your child. Take turns with your child turning over two cards per turn. If you get a match, for example, the number 2 and two smiley faces, then you get to keep it. Continue until all numbers are taken. This game is designed to help students connect the number of pictures with the written numeral (2, 3, etc.)

1		2		3
	3	4	5	6
7	8	9	10	
				
	0			

Project #6

Domain: Counting and Cardinality (CC)
K.CC.1. Count to 100 by ones and by tens.
K.CC.3. Write numbers from 0-20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

Directions: Practice skip counting with your student by 5s to 50. (5, 10, 15, 20, 25, 30, 35, 40, 45, 50).
Also, practice skip counting with your students by 10s to 50. (10, 20, 30, 40, 50).
Then, highlight or color all the numbers yellow in the hundreds chart that you say when you count by 5s.
Then, circle all the numbers on the hundreds chart that you say when you count by 10s.
Discuss why sometimes you use the same numbers when you count by 5s and 10s.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

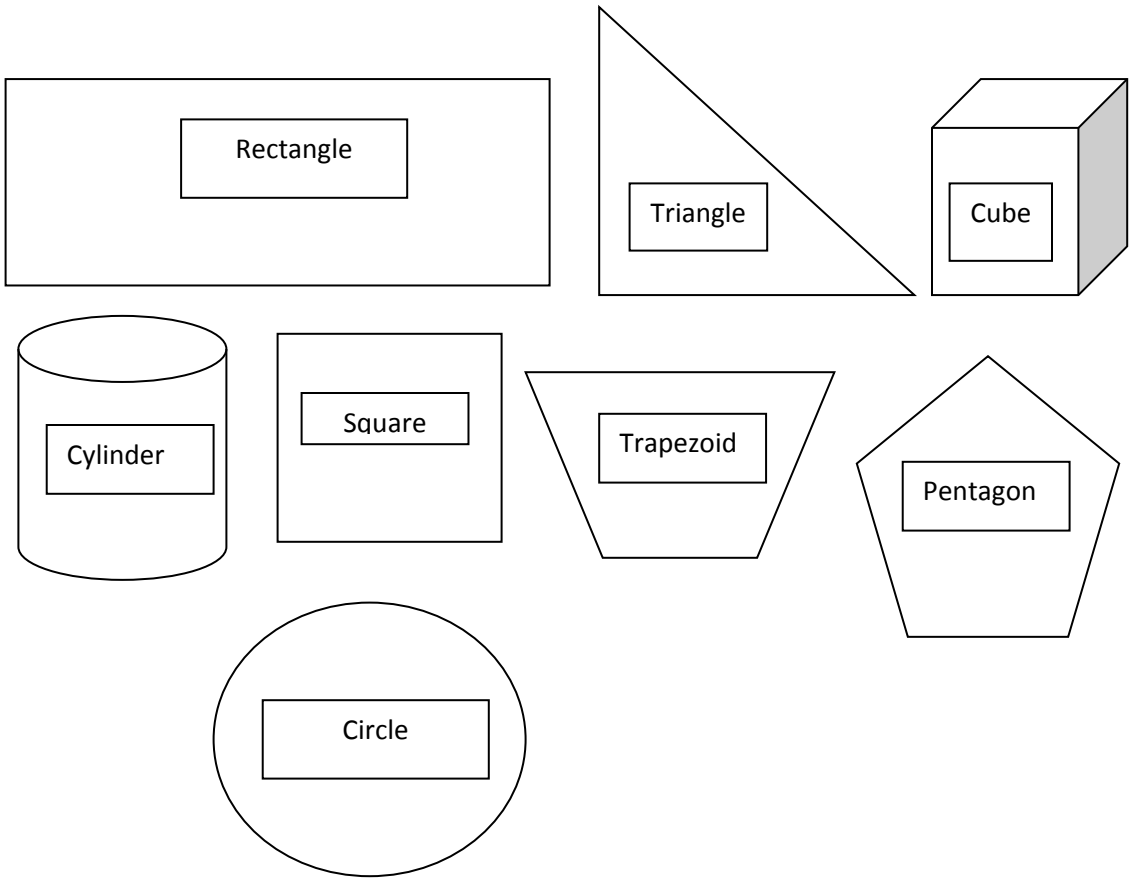
Project #7

Domain: Geometry (G)

G1.2. Correctly name shapes regardless of their orientations or overall size.

Directions:

- Assist your child in cutting out the shapes below.
- Then, cut out the labels below with the names of each shape and glue them onto each shape.
- Then, read the name of each shape together.
- Ask your child to read the name of each shape independently.
- Ask your child to sort the shapes into 2 groups, one group has 4 or less sides and one group that has 5 or more sides.
- Find items in your homes that are rectangles, triangles, circles, cubes, cylinders, etc.

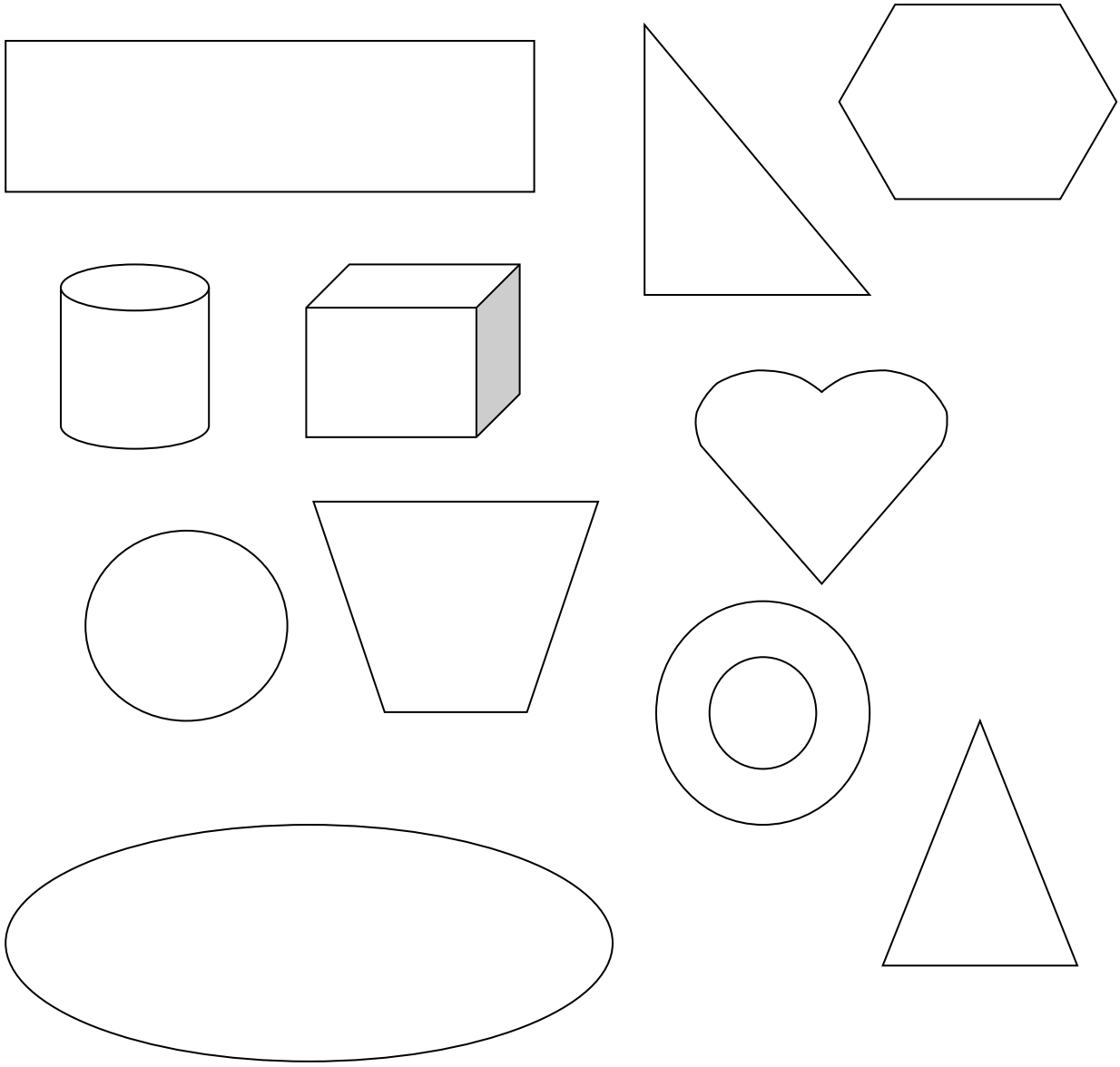


Circle	Cylinder	Pentagon	Trapezoid
Square	Rectangle	Triangle	Cube

Project #8

Domain: Geometry (G)
K.G.2. Correctly name shapes regardless of their orientations or overall size.

Directions: Ask your child to cut out the shapes below and design something new with them. Your child can glue them together to create a face, a house, or whatever they would like! They may color the shapes first if they wish. When your child is finished building their design ask them for the name of each shape and why they used the shape the way they did.

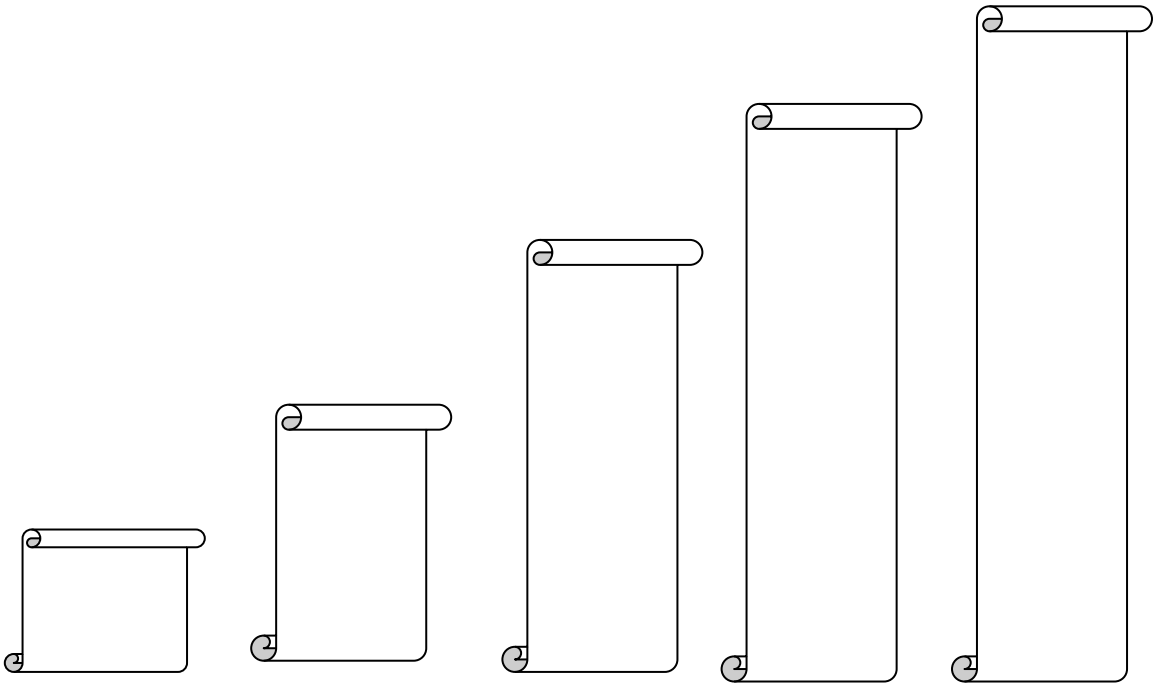


Project #9

Domain: Measurement and Data (MD)

K.MD.1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

Directions: Cut out the scrolls below and arrange them from shortest to tallest.



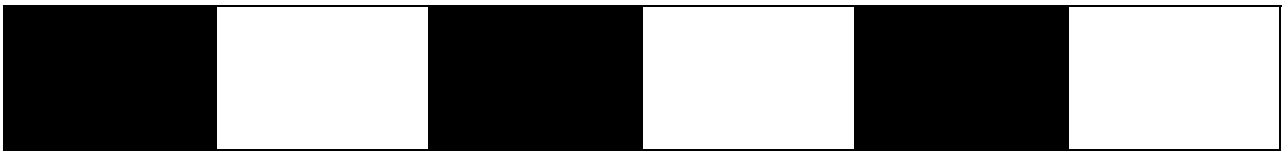
Project #10

Domain: Measurement and Data (MD)

K.MD.1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

Directions: Have your child to cut out the measuring bar at the bottom of the page. Then, encourage them to measure 5 objects in your home and record below how many "rectangles" long for each object.

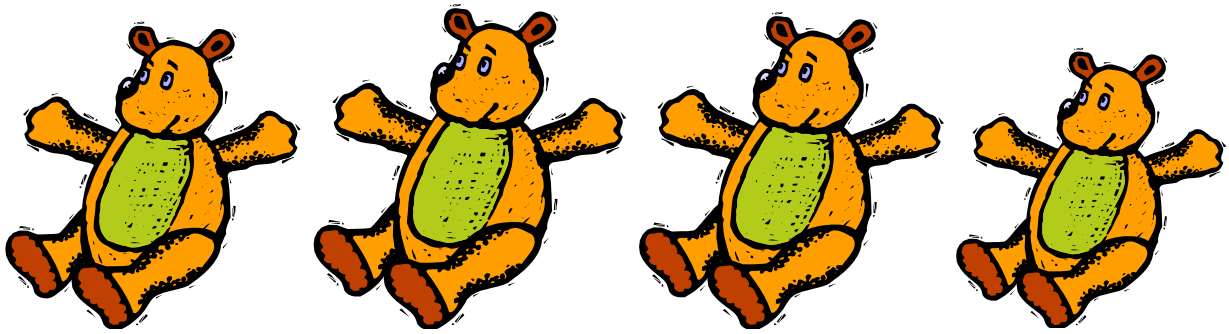
Object Name	Number of Rectangles Long



Project #11

Domain: Counting and Cardinality (CC)
K.CC.4. Understand the relationship between numbers and quantities; connect counting to cardinality.

Directions: Ask your child to point to the first, second, third, and fourth bear in the line below. Then, instruct them to cut out the labels below and paste them next to the bear in that position. Extension: Ask your child to line up some of their toys in a line of four. Then, ask them to point to the first, second, third, and fourth toy in the line.



first ***1st***	***second*** ***2nd***	***third*** ***3rd***	***fourth*** ***4th***

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third **3rd**	**fourth** **4th**	**first** **1st**	**second** **2nd**

Project #12

Domain: Geometry (G)

K.G.1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.

Directions: Answer the questions based on the shapes pictured. Keep in mind that some questions have more than one correct answer.

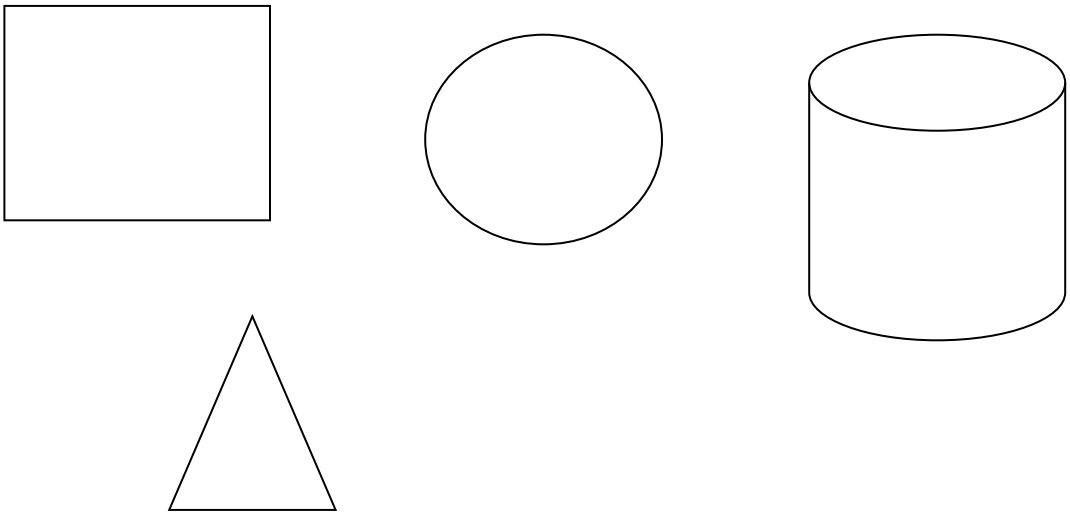
1. Which shape is **below** the rectangle?
   Triangle

2. Which shape is **next to** the circle?
   Triangle or Cylinder

3. Which shape is **in front of** the cylinder?
   Circle

4. Which shape is **above** the triangle?
   Rectangle/Circle/Cylinder

5. Which shape is **behind** the circle?
   Cylinder



Project # 13

Domain: Operations and Algebraic Thinking (OA)
K.OA.1. Fluently add and subtract within 5.

Directions: Answer the addition problems below.

- 5 + 0 = **5**
- 3 + 2 = **5**
- 1 + 4 = **5**
- 4 + 1 = **5**
- 2 + 3 = **5**
- 0 + 5 = **5**

Discuss the following question with your child and help them write a one sentence answer. Feel free to "act out" the addition problems with Cheerios, toys, or any other household items.

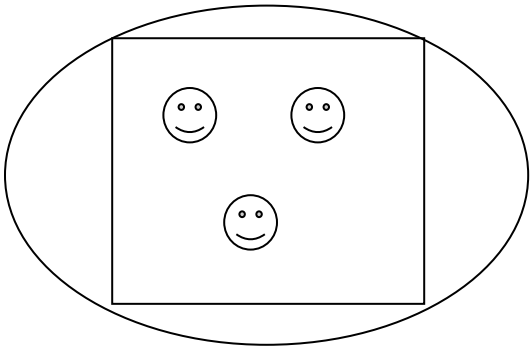
What is the difference between **1 + 4** and **4 + 1**?

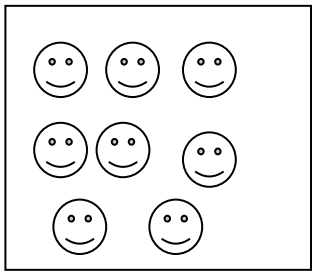
They both equal five. The only difference is the order of the numbers in the number sentence (equation).

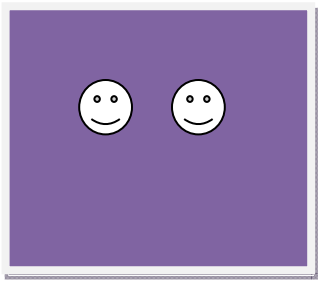
Project # 14

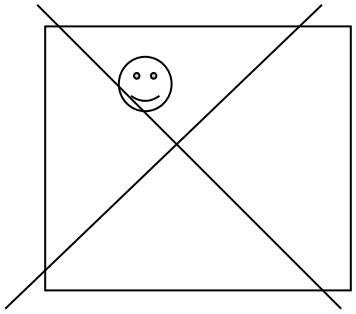
Domain: Counting and Cardinality (CC)
K.CC.6. Indentify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.

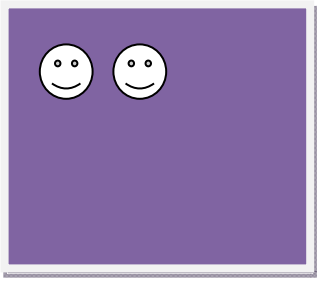
Directions: Instruct your child to circle the square that has the most smiley faces. Put an X over the square that has the fewest smiley faces. If there are two squares that have the same number of smiley faces color both squares purple.











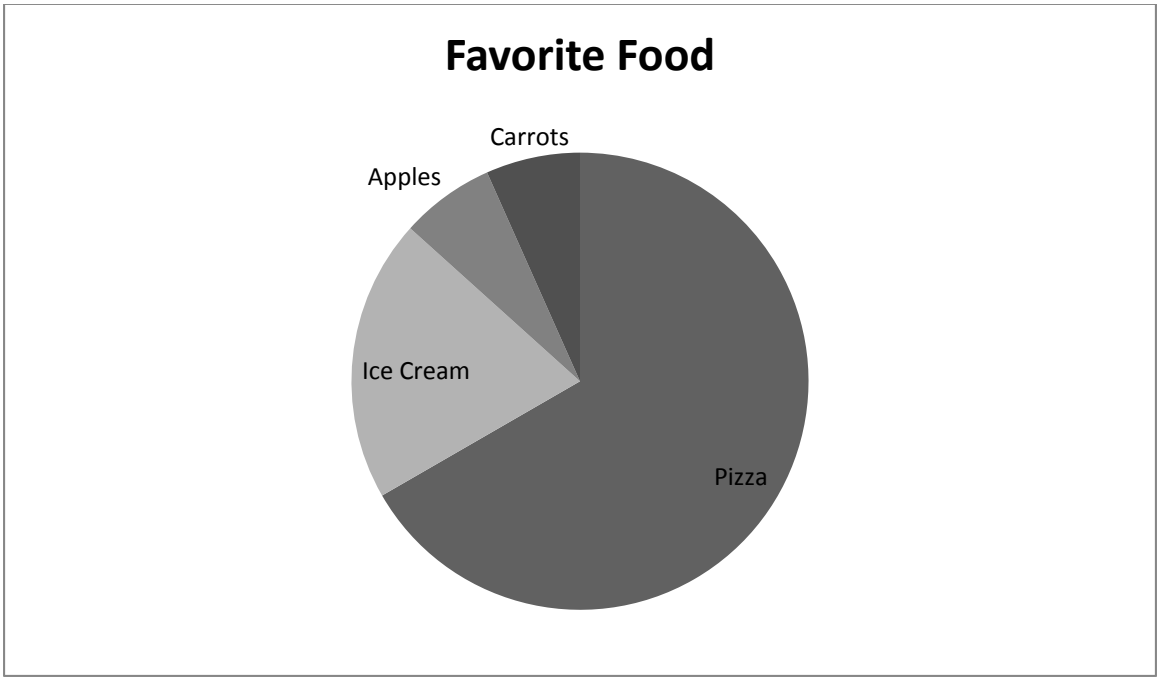
Extensions

The following activities are based on standards your child will learn in first grade. They may be challenging for your child.

Project # 15

Domain: Measurement & Data (MD)

1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about total number of data points, how many in each category, and how many more or less are in one category than another.



Directions: The graph above shows the favorite food of everyone in a class. Answer the following questions:

- Which food did students like the most? How do you know?
  - *Pizza. Most of the circle graph is students who like pizza.*
- Which food did students like the least? How do you know?
  - *Carrots or apples. These sections are the smallest in size on the graph.*

Project # 16

Domain: Numbers and Operations in Base Ten (NBT)
1.NBT.2. Understand that the two digits of a two-digit number represent amounts of tens and ones.

Directions: Instruct your child to color in the hundreds frame below to show a two digit number.

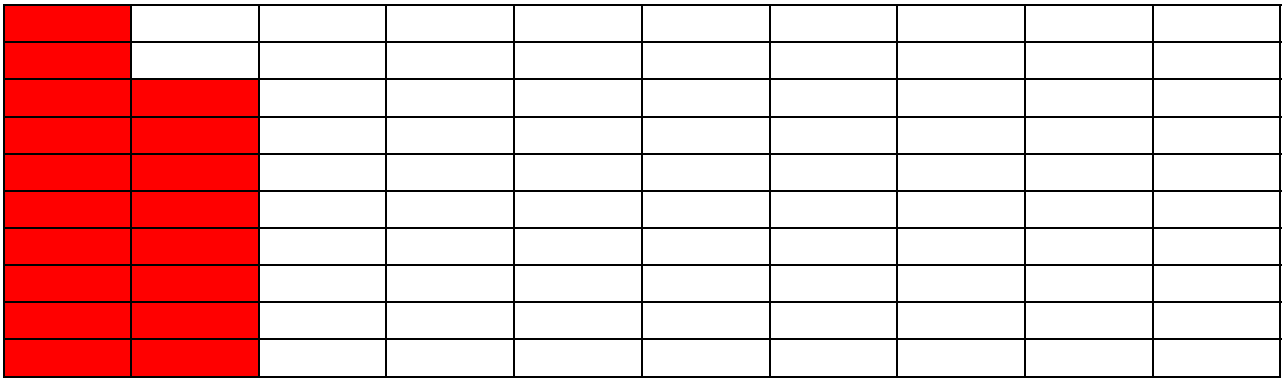
Example: 36
How many groups of 10 are in 36? (Answer 3)
Challenge Question: How much more would you need to get to 100? (Answer 54)

Show the number 51 using the hundreds frame below.
How many group of ten are in 51? **5**
Challenge Question: How much more would you need to get to 100? **49**

Show the number 18 using the hundreds frame below.

How many groups of 10 are in 18? **1**

Challenge Question: How much more would you need to get to 100? **82**



Project #17

Domain: Geometry (G)

1.G.1. Distinguish between defining attributes (e.g., triangles are close and three-sides) versus non-defining attributes (e.g., color orientation, overall size); build and draw shapes to possess defining attributes.

Directions:

Part 1: Color the shapes below using the following directions:

- Color 3 circles blue.
- Color 2 circles red.
- Color 3 squares blue.
- Color 2 squares red.

Part 2: Cut out the shapes below. Then sort the objects any way you chose. (DO NOT TELL YOUR CHILD HOW TO SORT THE OBJECTS.) After your student has sorted the shapes, ask your students if there is another way to sort them.