Imagine Schools
Summer Math Challenge

First Grade

Dear Parents,

This packet of math activities was made to help your child stay engaged and excited about math over the summer months.

All projects in the packet are designed to be completed with parent support. Please read the directions for each activity to your child and help your child get started. Some projects will require the child and parent to work together throughout the project. Other projects will allow the child to work independently after getting started. All projects in the challenge packet are based on the Common Core State Standards. To learn more about the Common Core State Standards visit: www.corestandards.org

We suggest doing one project a day. Take time to discuss and enjoy each project. Try to find ways to reinforce the concepts throughout your daily routine. For example, if the activity discusses money you may want your child to count out the change next time you are in the grocery store or at a restaurant.

Sincerely,
Imagine Schools National Academic & Character Team

Project #1

Domain: Number and Operations in Base Ten (NBT)

1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Directions:

- Fill in the Hundreds Chart below with the appropriate numbers.
- Next, use the hundreds chart to help you count to one hundred.
- Color all the numbers yellow that you would use to count by 2s to 100. (2, 4, 6, 8…)
- Color all the numbers green that you would use to count by 10s to 100. (10, 20…)
- Color all the numbers red that you would use to count by 5s to 100. (5, 10, 15…)

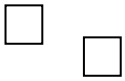
(You will color in the 10s more than once, feel free to color it three times.)

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
11									
21									

Project #2

Domain: Number and Operations in Base Ten (NBT)
1.NBT.1. Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
1.NBT.2. Understand that two digits of a two-digit number represent amounts of tens and ones.

You can represent the number **12** like this:

Tens	Ones
	

One long rectangle equals 10. A little square equals 1.

Now, try to show the number **36** in the same way:

Tens	Ones

Choose your own number and represent it below. Number: _____

Tens	Ones

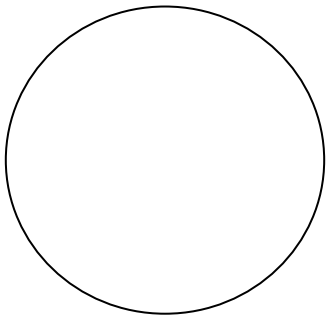
Project #3

Domain: Geometry (G)

1.G.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

Directions:

Divide the circle to the right into 4 equal parts (or 4 quarters).



Find something in your home that you can divide into equal parts. For example, you could cut a cupcake into two equal parts. Or, you could split a candy bar into two equal parts. Write a sentence below about what you chose and how you divided it into equal parts.

Project #4

Domain: Operations and Algebraic Thinking (OA)
1.OA.1. Use addition and subtraction within 20 to solve word problems…

Directions:
Write a word problem with numbers that add up to less than 20. Solve the problem below.

Example:
Word Problem: I had 15 gummy bears. My sister gave me 4 more. How many do I have now?

Answer: 15 + 4 = 19. I drew a picture to help me solve the problem.
□□□□□ □□□□□ □□□□□+ □□□□ = 19

Your Turn!

Word Problem:

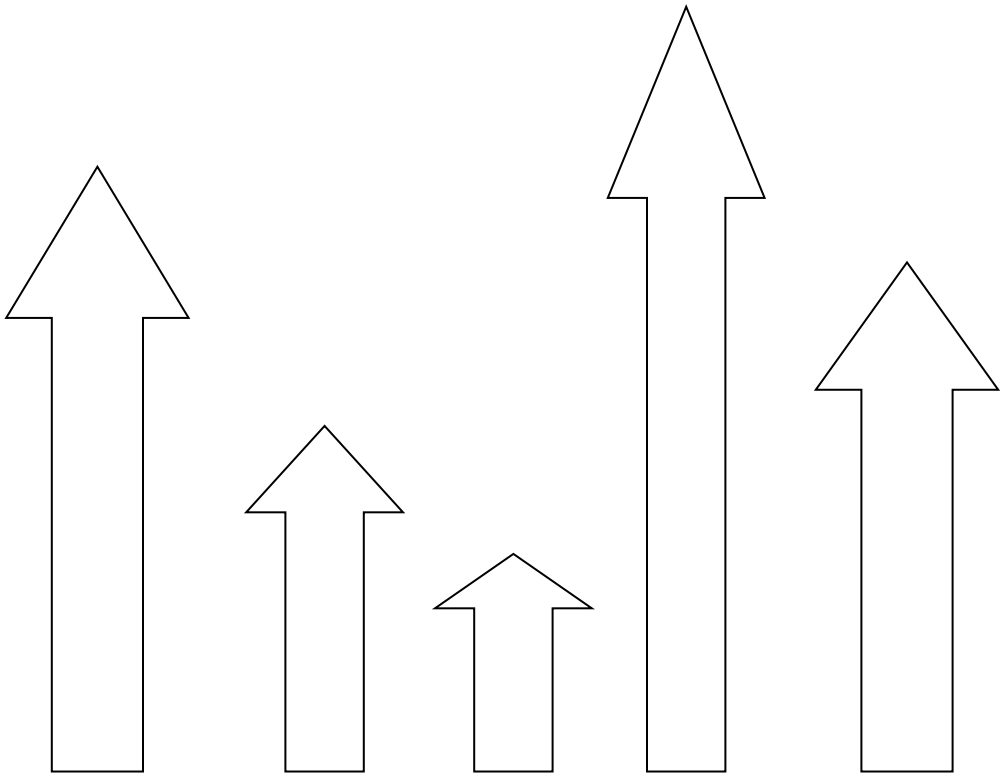
Answer:

Project #5

Domain: Measurement and Data (MD)

1.MD.1. Order three objects by length; compare the lengths of two objects indirectly by using a third object.

Directions: Cut out the arrows below and arrange them in order from shortest to tallest.



Project #6

Domain: Operations and Algebraic Thinking (OA)

1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 =? -3, 6 + 6 =?.

Directions: Create a change diagram using the model below.

Start	Change	End
10	+5	15
6	-3	3
4		8
12		6

Project #7

Domain: Geometry (G)

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

Directions: Complete the chart below.

Name of Shape	Draw the Shape	Number of Sides	Number of Corners	The name of something in your home that has this shape
Square		4	4	Napkin
Triangle				
Rectangle				
Circle				
Cube				
Cylinder				

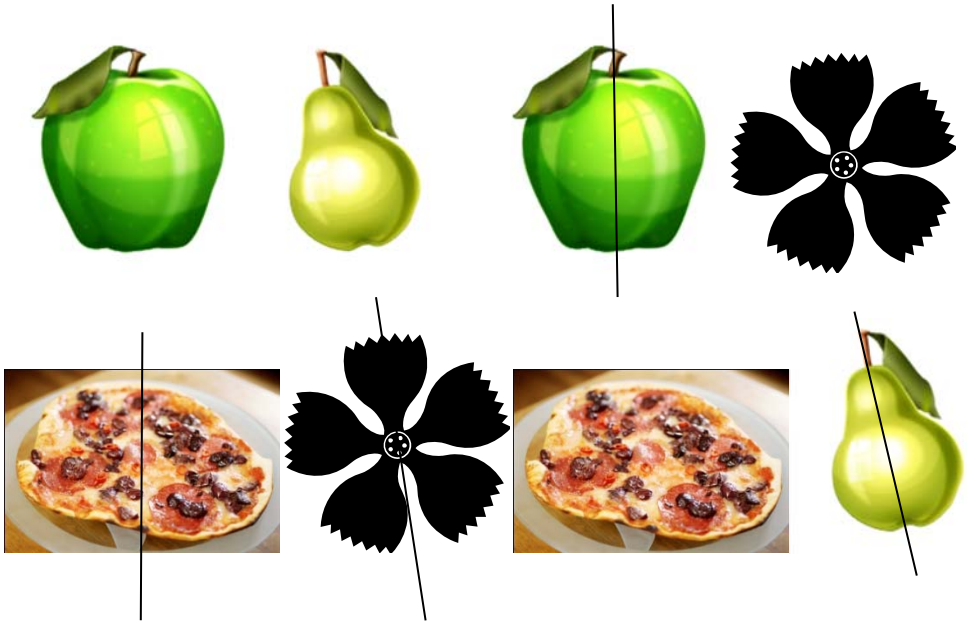
Project #8

Domain: Geometry (G)

1.G.3. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

Directions: Cut out the pictures on the bottom of this page and glue them into the correct section of the table below.

Whole	Parts of a Whole (1/2)

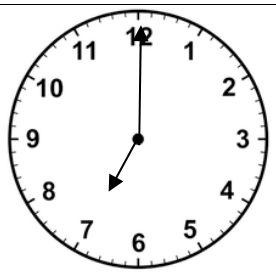
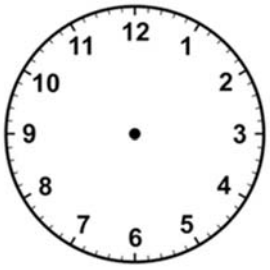
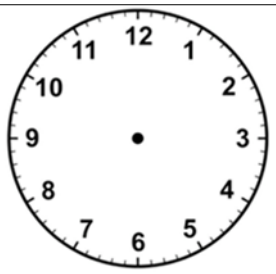
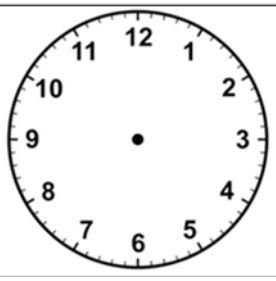


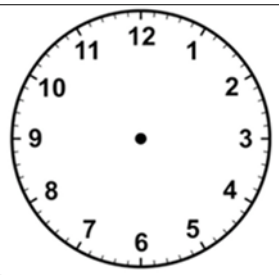
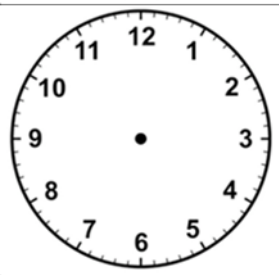
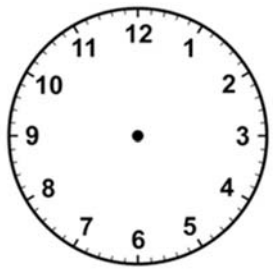
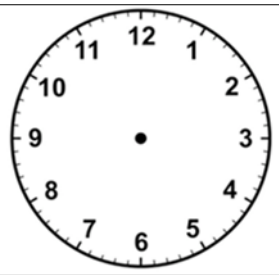
Project #9

Domain: Measurement and Data (MD)

1. MD.3. Tell and write time in hours and half-hours using analog and digital clocks.

Directions: Assist your child in creating a schedule of a typical week day. Help your child round to the nearest half-hour.

Activity	Draw Time on the Clock	Write the Time
Example: Wake Up		7:00
		
		
		

Project #10

Domain: Operations and Algebraic Thinking (OA)
1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Directions: Solve the following word problems. Show your work. Write the number sentence you used to solve the problem.

Marisa had 18 cars after her Grandma gave her 5 for her birthday. How many cars did she have before her birthday?

Brian lost 6 toy airplanes at the playground. Before he went to the playground he had 15 airplanes. How many airplanes does he have now that he has lost some?

Project #11

Domain: Operations and Algebraic Thinking (OA)

1.OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6=6, 7=8-1, 5+2=2+5, 4+1=5+2.*

Directions: Write **True** or **False** next to each equation.

_____ 8 = 8

_____ 16 = 8 + 8

_____ 14 = 6 + 7

_____ 6 + 1 = 1 + 6

_____ 2 + 2 = 1 + 3

_____ 12 + 1 = 10 + 3

Project # 12

Domain: Measurement and Data (MD)
1.MD.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.

Directions: Use a ruler AND toothpicks or paperclips to measure the length of the following items. Before you measure, estimate (make a good guess) of how long you think the object might be. You can pick your own items to measure for the last six rows in the table.

Object	**Estimate how many inches long you think it might be**	**Measurement with a Ruler**	**Estimate how many toothpicks and/or paper clips long**	**Measurement with Toothpicks and/or Paper clips**
Desk	15 inches	18 inches	10 toothpicks long	About 8 toothpicks long
Water bottle				

Project #13

Domain: Number and Operations in Base Ten (NBT)

1.NBT.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that adding two-digit numbers, one adds tens and ones, ones and ones; and sometimes it is necessary to decompose a ten.

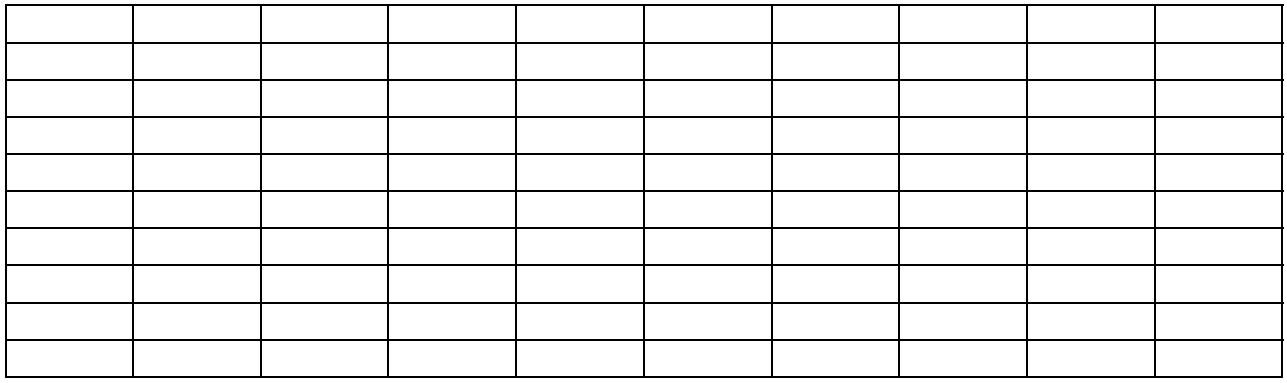
Directions: Color in the hundreds frame below to represent your answer to each addition problem.

Example: 10 + 26 = 36

Challenge Question: How much more would you need to get to 100? (Answer 54)

Show the equation 15 + 6 =_____using the hundreds frame below.

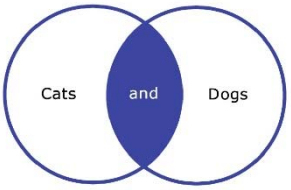
Challenge Question: How much more would you need to get to 100?



Show the equation 23 + 7 =____ on the hundreds frame below.

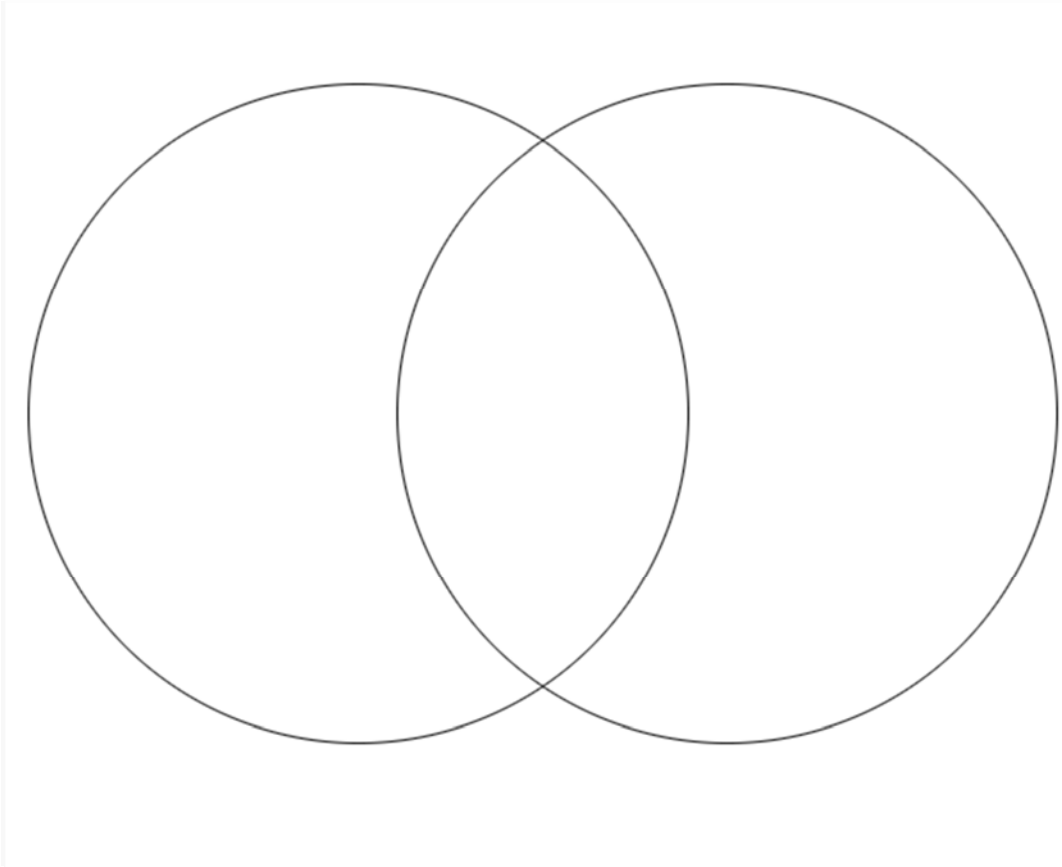
Challenge Question: How much more would you need to get to 100?

Project # 14



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

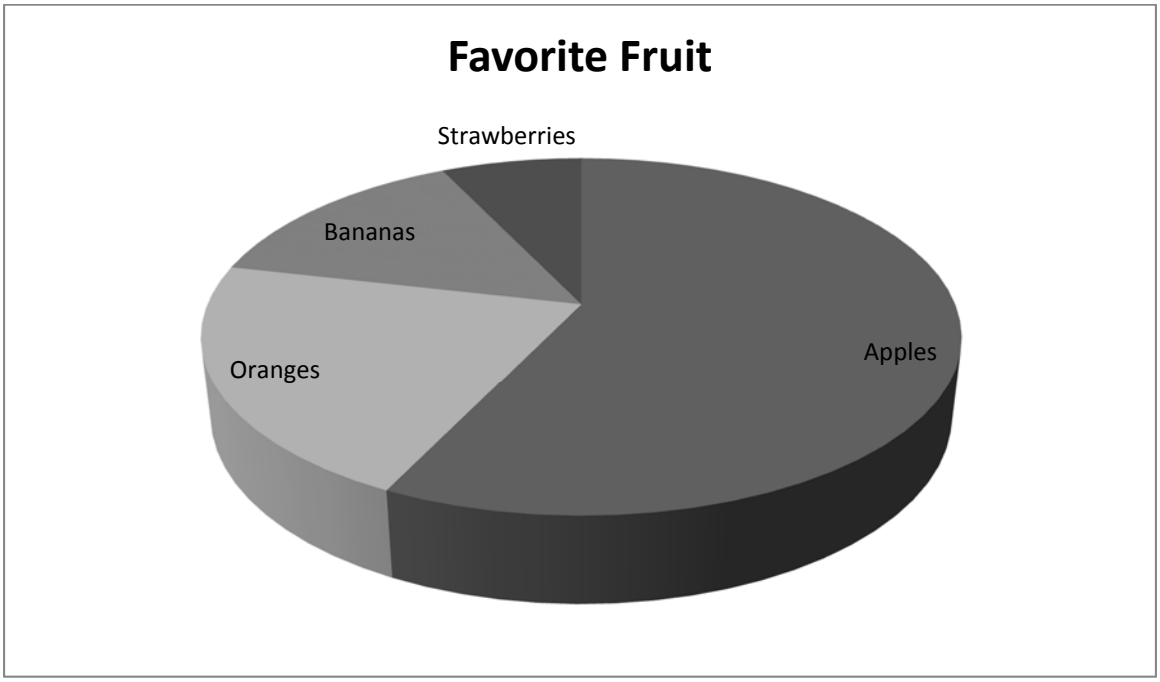
Directions: Create a Venn Diagram on a topic of your choice. Remember to give your Venn Diagram a title and label each section.



Project # 15

Domain: Measurement and Data (MD)

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



Directions: Your class voted on their favorite fruit. Then, your class made the pie graph above. Answer the following questions based on the graph:

1) Which did your class like more: apples or oranges? How do you know?

2) Which kind of fruit was liked the least? How do you know?

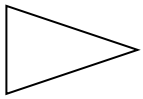
3) **Challenge:** Poll your family (or 10 people) to find out their favorite fruit, and create a graph to represent results.

Project # 16

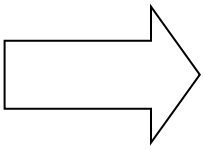
Domain: Geometry (G)

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: Draw a turn of the shape below. See the following example:

Shape:  Turn: 

Draw a turn of the following shape:



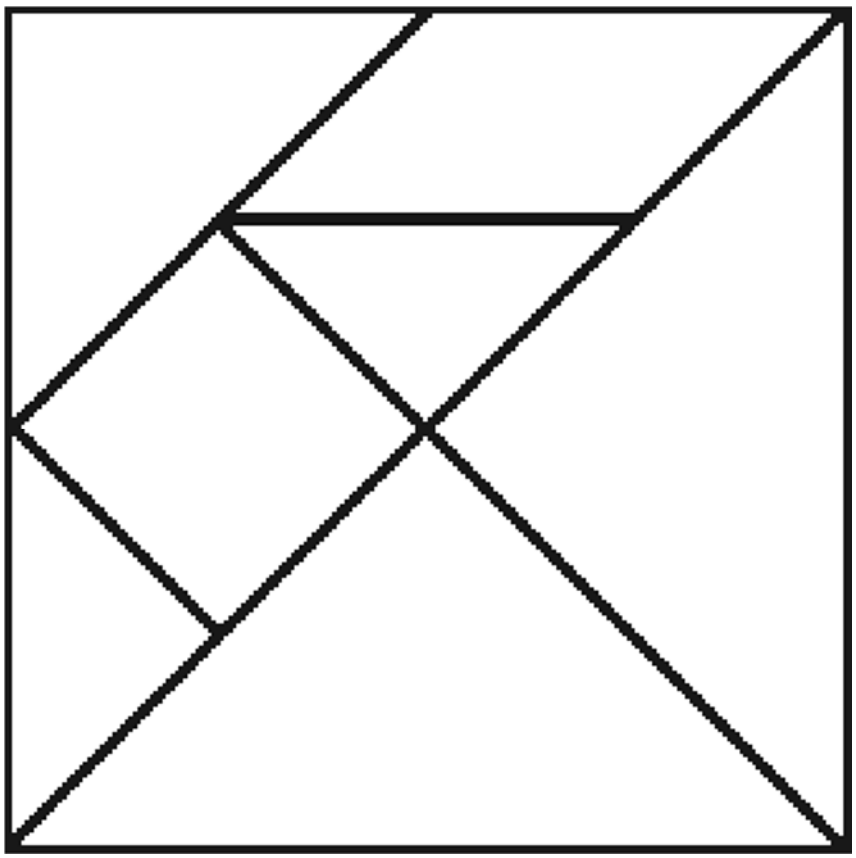
Draw your own shape and then draw a turn of it.

Project # 17

Domain: Geometry (G)

1.G.2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

Directions: Cut out the tan grams below along the black lines. When you are finished cutting you should have 6 shapes: 2 Large Triangles, 1 medium sized triangle, 2 small triangles, one square, and one parallelogram. Use the tan grams to build new shapes.



Extension

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

Project # 18

Domain: Number and Operations in Base Ten (NBT)
2.NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds 0 tens and 6 ones.

Directions: Demonstrate the word and symbol that represents a number value using the process demonstrated below.

Number: 792

Hundreds	Tens	Ones
7	9	2

Think: 7 hundreds + 9 tens + 2 ones
Write: 700 + 90 + 2
Say: seven hundred ninety-two

Now you try:

Number: 531

Hundreds	Tens	Ones

Think: _____
Write: _____
Say: _____

Choose your own number!
Number: _____

Hundreds	Tens	Ones

Think: _____
Write: _____
Say: _____

Project #19

Domain: Measurement and Data (MD)
2.MD.8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and cents symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?
Directions: Review the following chant with your child about coins. Read the chant to your child, then read it with them while helping them point to each word as you say it. Give your child one penny, one nickel, one dime, and one quarter. Ask them to identify each coin. Then, fill in the chart below.
Extension: If there is ever an opportunity for your child to help you count change, allow them to do so.

Penny, Penny

Penny, penny, easily spent -
Copper brown and worth one cent.

Nickel, Nickel, thick and fat.
It's worth 5 cents – I know that.

Dime, dime, little and thin.
I remember – you're worth 10.

Quarter, quarter, big and bold.
It's worth 25 – I am told!

Picture of Coin	Name	Worth
	**Penny**	**1 cent**
		

Helpful Websites

Visit one of the websites below and learn about one of the games. Play the game together for 10-20 minutes. Give your child time to play the game independently. Then, check to ensure your child is playing the game correctly and has mastered the concept.

Geometry (Tessellation):
http://www.pbs.org/parents/education/math/games/first-second-grade/tessellation/

Finding Equal Numbers (Algebra):
http://pbskids.org/cyberchase/math-games/poddle-weigh-in/

Addition Stories:
http://www.iboard.co.uk/activity/721

Various Math Games:
http://pbskids.org/catinthehat/games/math-safari.html