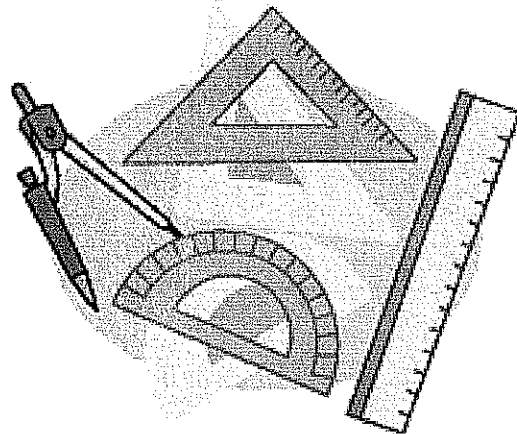
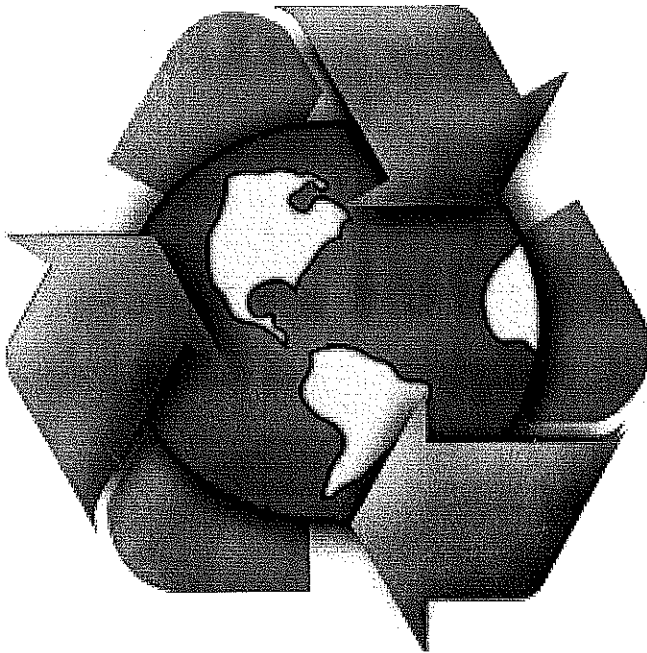


**Math & Science Summer**  
**Projects**  
**for incoming GMS**  
**7<sup>th</sup> Graders**

**Projects #'s 1-3 are MANDATORY and students can choose 1 from #'s 4&5.**

**Summer projects are due on August**  
**17th, 2015.**



**\*\*\* YOU MUST SHOW ALL WORK \*\*\***

## Project #1

Directions:

- 1) Construct and create a unique model of something that includes two different three-dimensional shapes of your own using a cereal box, soup cans, *or* other household recyclable items. Your construction should include *at least two* different shapes combined.

*Example: My construction might include two soup cans taped on top of a cereal box.*

- 2) Use the formulas below to calculate the surface area and volume for each of your composite shape creations.

Surface Area - The number of square units covering a 2 or 3D shape.

Formulas: SA of a rectangular prism =  $2(lw + lh + wh)$   
SA of a cylinder =  $2\pi r^2 + 2\pi rh$

Volume - The number of cubic units that fill a 3D shape. Volume can also be referred to as capacity.

Formula: Volume of a rectangular prism =  $lwh$   
Volume of a cylinder =  $\pi r^2 h$

- 3) Bring the model and calculations into school on the first week!

Project #2

# Awesome Averages

## Summer Math Project Option~ Measures of Central Tendency

**Overview:** Select a city of your choice. For that city, record high OR low temperatures for a 10 day period. Find the mean, median, mode and range of the data. Display your results by creating a line graph for the 10 day period.

Let's get started by thinking about what mean, median, mode and range MEAN! ☺

Mean	Median	Mode	Range
-Find the average by calculating the sum of your 10 numbers and divide by 10.	-Arrange the numbers in order from least to greatest. Find the number in the middle.	-Determine the number that occurs the most.	-Find the difference between the highest and the lowest number.



Record your Data Here!

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

Continue on to the next page→

Ready...Set.... Calculate!! Show your work and round to the nearest tenth if necessary.

Mean	Median	Mode	Range

### Analyze the Data

1. Which measure of central tendency is the best indicator of the temperature of your city? Explain.

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2. Predict what the average temperature for the next 10 days would be. Explain your prediction using data from your study.

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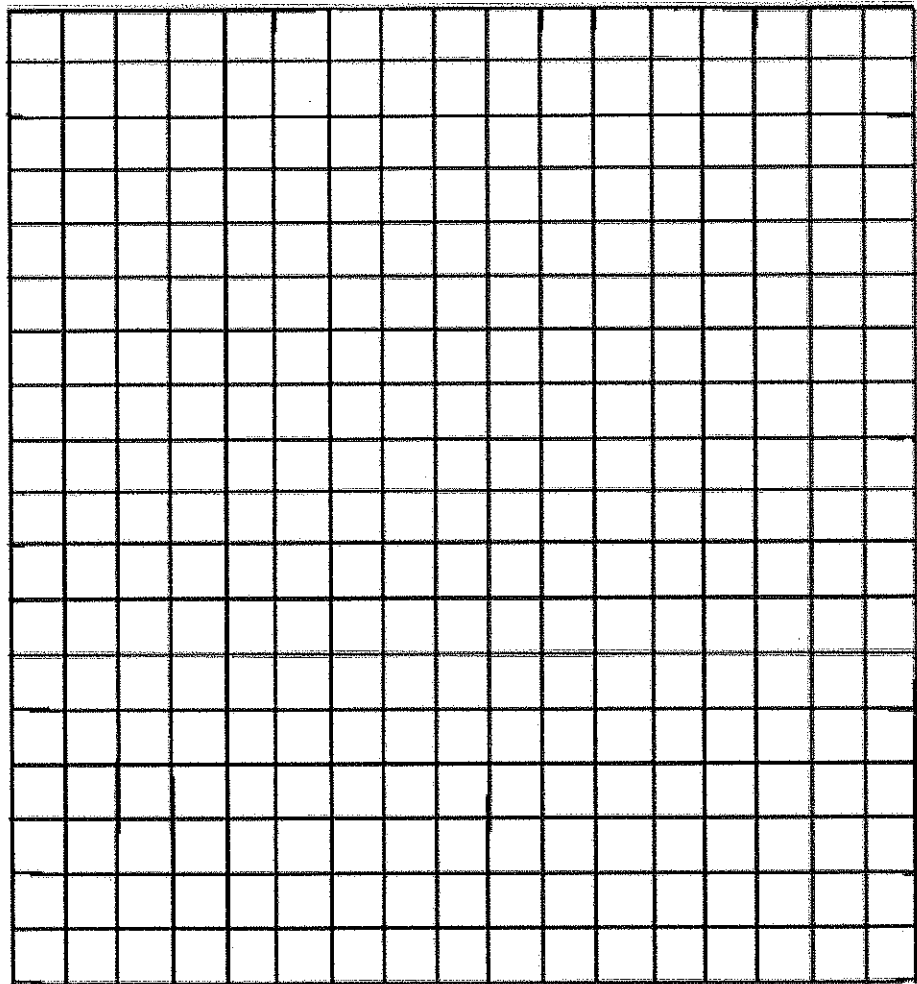
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Keep on going→

Use this page to create a line graph to display your data.

**Helpful Tips:**

- \*Create a title for your graph
- \*Use a ruler
- \*Set up and x and y axis
- \*Label each axis
- \*Set up a scale
- \*Plot your points!



## ***Project #3***

Directions:

- 1) Using a sheet on graph paper and a ruler, draw an example of each type of angle: acute, obtuse, right, straight, complementary, supplementary, and vertical.
- 2) Label each of your angles.
- 3) Then, find an example of each in the real world (i.e., in your home, neighborhood, or natural environment, at the grocery store, baseball field, in your car, etc.).
- 4) Take a picture of each example and print it out and paste it on a piece of paper. Label each picture with the correct label.

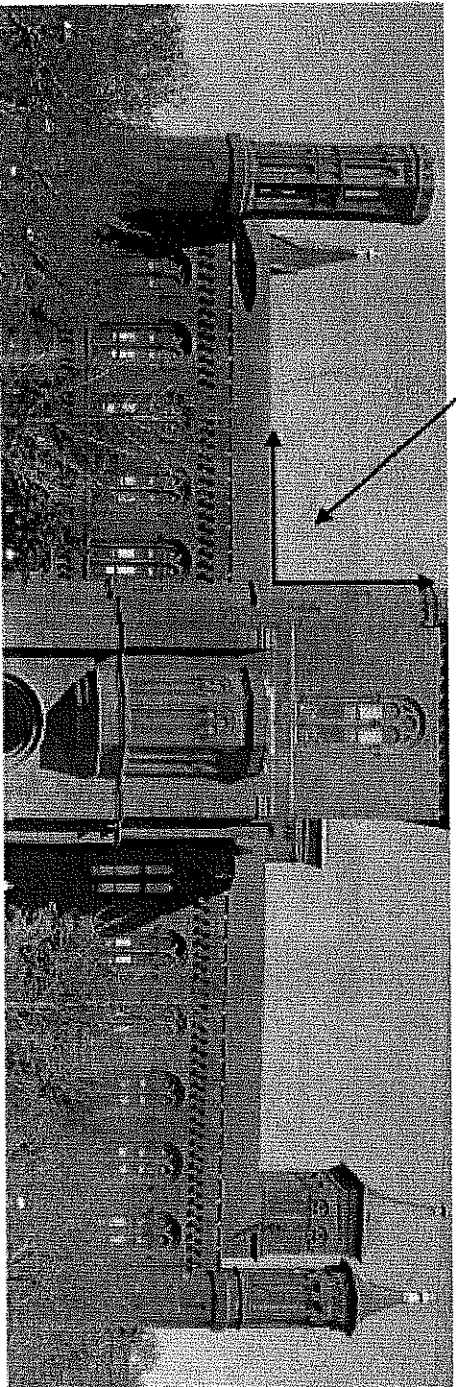
**\*If you do not have a camera, draw a sketch of each example you find in the real world and label as using the appropriate geometric terms.**

Example:

Right angle

**\*YOU MAY ALSO USE MAGAZINES, ADVERTISEMENTS, ETC. INSTEAD OF PICTURES\***

**\*IF YOU HAVE A PROTRACTOR AT HOME MEASURE & RECORD YOUR ANGLES\***



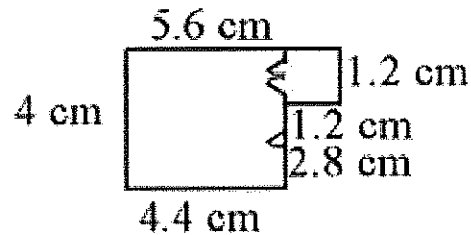
## Project #4

Directions:

Part 1:

1. Read the problem below then study the scale drawing.

Kiera showed her best friend a scale drawing of a new game room her father is going to build for her and her brothers and sisters.



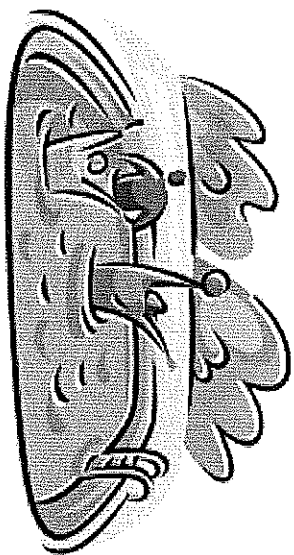
2. Solve: If each 2 cm on the scale drawing equals 5 ft, what are the actual dimensions of Kiera's room?
3. How much carpet needs to be purchased to cover the entire floor?

Part 2:

1. Design your own game room using Kiera's scale drawing as an example.
2. Using graph paper, determine the scale and be sure to write it in the top right corner of your paper.  
Example: (1 cm = 3 ft).
3. Then, create a scale drawing of the game room you have designed. Include game areas, furniture, and more to give the best visual representation possible.
4. Calculate the area of the floor that is showing versus the area of the floor under the furniture.

\*Be sure to use a ruler to create straight lines and accurate measures.

## Project #5



Your friend Andrea has a rectangular pool that is 30 feet long, 18 feet wide, and 6 feet deep. She is looking to build a 4 foot wide deck around the exterior of the pool, which will also require a fence to be built around it, and has asked you to help her complete the following tasks:

- a.) How many feet of fencing does she need to purchase in order to enclose the area of around the deck?
- b.) How many square feet of wood would she need to purchase in order to build the deck?
- c.) What is the total cost of the deck if the supplies cost approximately \$6.00/ft and there is an 8.5% sales tax?
- d.) Andrea wants to fill her pool with water, how much water will she need?