Richeson 7th and 8th grade directions

Week of 3-13-20

All work can be located on Mr. Richeson's google classroom or the District website

Activity 1 - Metric Conversions Review

1. Review the Metric System Conversion Notes
2. Complete the Metric Mania Worksheet
3. Complete Metric Conversions (A) and (B)

Activity 2 - Graphing Review

1. Locate a pack of Smarties candy.
   a. If you don't have Smarties, get any other stackable household food or item. Legos that are the same shape, sweet tarts, buttons, or bottle caps. You will need 12 total items of random colors, no more than 6 different colors.
2. Use the directions page to follow the directions.
3. Record the data on the Smarties Graphing Student Sheet.

Submitting work… Take a picture, scan or whatever you can do to send it to the google classroom. If you are not hooked up to google classroom, send it to my email at tonyr@banks.k12.or.us

Please be patient for responses and use formal communication when emailing me.
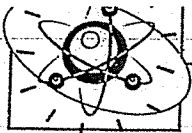
Smarties Graphs (Understanding Graphs)

In the three investigations that follow, you will collect data and construct different types of graphs to determine how graphs communicate the results of an experiment. In procedure B, you will work with a circle graph, a third type of graph scientists sometimes use.

MATERIALS: student pages (pp. 13–14), a package of Smarties per student, a ruler, a protractor, colored pencils (optional), and a calculator

Procedure A: Smarties Colors

Type of Data: Descriptive data that compares, communicated by a bar graph

1. Open your package of Smarties and sort them according to color.
2. Record the color and the number of each color in data table A (p. 13).
3. Label and complete a graph to communicate the data. Colored pencils may be used if desired.
4. Answer the conclusion questions for this set (p. 13).

Procedure B: Smarties Percents

Type of Data: Percentages of 100, communicated by a circle graph

1. Transfer the data regarding color from table A to table B (p. 13).
2. Count the total number of Smarties in your package and record it in table B.
3. Find the percent of each color of Smarties by using the following formula:
   (Number of one color ÷ total number of Smarties) x 100. Round to nearest whole number.
4. Find the size of each part of the circle to show your data using this formula:
   360 x % of color* = degrees of circle. Round to nearest whole number.

   Hint: 360 x .15 is the same as 360 x 15%.
   Be sure to hit the percent key after entering the number of a color.
5. Use a protractor to measure the angles for each section of the circle.
6. Create a circle graph. Label the sections with percentage and color, or use colored pencils to communicate the color of each section.
7. Answer the conclusion questions for this set (p. 13).

Procedure C: Smarties Lengths

Type of Data: Continuous data, communicated by a line graph

1. Place two Smarties end to end to start a line.
2. Measure the length of the line and record your measurement in data table C (p. 14).
3. Repeat steps 1 and 2 using 4, 6, 8, 10, and 12 Smarties. Record each measurement in the data table.
4. Construct and label a line graph to communicate this continuous data.
5. Enjoy your Smarties as you answer the conclusion questions (p. 14).

Smarties is a registered trademark of Ce De Candy Inc.

Metric Conversion (A)

Convert each measurement to the unit indicated.

4430 cm to km   3112 cm to km

8446 m to km   7535 mL to L

5681 mg to kg   5445 mm to km

6124 g to kg   0.02 cm to mm

8.006 km to mm   1927 mL to L

6.495 km to mm   14 mg to kg

2.396 m to mm   2173 mm to cm

2.444 kg to mg   443 cm to km

7.741 g to mg   9415 mm to km

1889 cm to m   2.005 kg to g

Metric Conversion (B)

Convert each measurement to the unit indicated.

5.406 m to cm   1.636 km to mm

7969 m to km   4.931 km to m

5.048 g to mg   3942 mm to cm

0.501 L to mL   1993 m to km

1686 m to km   2206 mg to g

8.661 kg to g   2759 cm to m

4020 mm to m   7946 mL to L

4942 mm to m   9.104 cm to mm

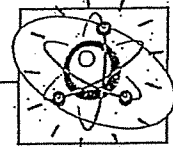4.006 km to m   4.461 m to cm

343 cm to m   1.97 km to cm

Table A — Smarties colors

No. of Smarties						
Color						

Graph A

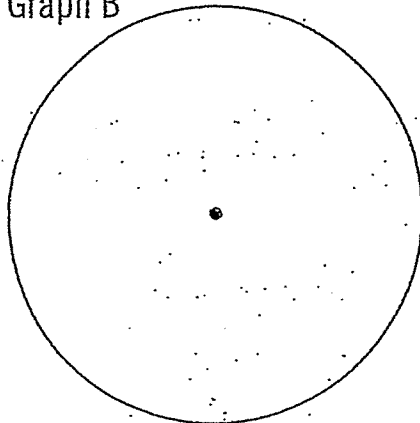|					

Conclusions

1. What type of data is communicated with a bar graph?_____

2. What is the independent variable shown on the graph? _____

   Where is it labeled? _____

3. What is the dependent variable? _____

   Where is it labeled? _____

Table B — Smarties percents

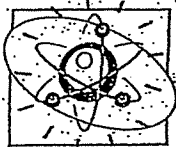| Color and how many						
Total number						
Percent of each color						
Angle degree of circle graph						

Graph B

Conclusions

1. What type of data is communicated with a circle graph?

   _____

2. Which of the two graphs used for color do you think communicates the data best? _____
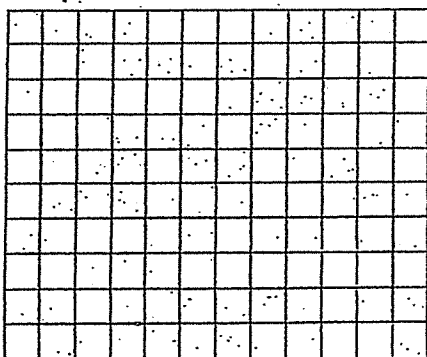
   _____

   Why? _____

   _____

Table C   Smarties lengths

Line length (cm)						
Number of Smarties	2	4	6	8	10	12

Graph C

Conclusions

1. What type of data is communicated with a line graph?

   _____

2. What is the dependent variable for this set of data?

   _____

3. What is the independent variable for this set of data?

   _____

4. What would the length of three Smarties be?
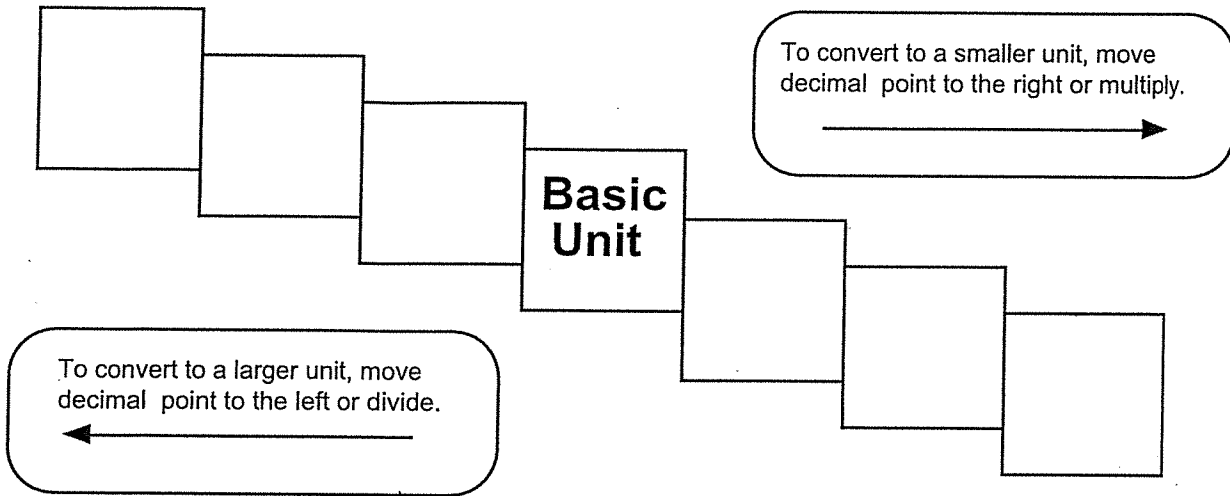
   _____ 14 Smarties? _____

Questions to Consider

1. Which type of graph is easiest for you to understand? _____
   Why?_____

2. What information can a graph communicate? _____

3. On which axis is the independent variable found? _____
   The dependent variable? _____

4. What should the title on a graph communicate? _____

5. List three other examples of descriptive data that could be collected during an experiment.

6. List three other examples of continuous data that could be collected during an experiment.

7. Extension: Find a graph from a local newspaper. Glue it to a separate sheet of paper. Explain what the graph is communicating.

0-7696-3429-X Science Fair Projects:

Metric Mania
Conversion Practice

Name_____

To convert to a smaller unit, move decimal point to the right or multiply.

⟶

Basic Unit

To convert to a larger unit, move decimal point to the left or divide.

⟵

Try these conversions, using the ladder method.

1000 mg = _____ g

1 L = _____ mL

160 cm = _____ mm

14 km = _____ m

109 g = _____ kg

250 m = _____ km

Compare using <, >, or =.

56 cm ◯ 6 m

7 g ◯ 698 mg

Metric Mania

Name_____

Conversion Challenge

Write the correct abbreviation for each metric unit.

1) Kilogram _____   4) Milliliter _____   7) Kilometer _____

2) Meter _____   5) Millimeter _____   8) Centimeter _____

3) Gram _____   6) Liter _____   9) Milligram _____

Try these conversions, using the ladder method.

1) 2000 mg = _____ g   6) 5 L = _____ mL   11) 16 cm = _____ mm

2) 104 km = _____ m   7) 198 g = _____ kg   12) 2500 m = _____ km

3) 480 cm = _____ m   8) 75 mL = _____ L   13) 65 g = _____ mg

4) 5.6 kg = _____ g   9) 50 cm = _____ m   14) 6.3 cm = _____ mm

5) 8 mm = _____ cm   10) 5.6 m = _____ cm   15) 120 mg = _____ g

Compare using <, >, or =.

16) 63 cm ◯ 6 m   17) 5 g ◯ 508 mg   18) 1,500 mL ◯ 1.5 L

19) 536 cm ◯ 53.6 dm   20) 43 mg ◯ 5 g   21) 3.6 m ◯ 36 cm

Metric System

- The <u>International</u> System - (SI Units)
  - 3 names for the same system
  - Provides a global standard for consistent measurement and <u>communication</u> in science
  - Uses multiples of <u>ten</u>
    - instead of different intervals like the Standard System
- Length
  - The distance between 2 points
  - SI unit = <u>meter</u> (m)
- Volume
  - Amount of space an object takes up
  - SI unit = <u>cubic meter</u> (m^3)
  - Regular shapes, length x width x height
  - Irregular shapes, volume by immersion
- Mass
  - Amount of matter in an object
  - SI unit = <u>Kilogram</u> (kg)
- Weight
  - Measurement of force
  - SI unit = <u>newton</u> (N)
- Temperature
  - Measure of kinetic energy of particles of matter
  - SI unit = <u>Kelvin</u> (K)
- Time
  - Interval between two events
  - SI unit = <u>seconds</u> (s)

SI units

Measurement	Name	Abbreviation
length	meter	m
volume	cubic meter	m^3
mass	kilogram	kg
weight	newton	N
temperature	kelvin	K
time	seconds	s

Metric Conversion Chart

Kilo - 1000 units

Hecto - 100 units

Deka - 10 units

Basic Unit

Deci - 0.1 units

Centi - 0.01 units

Milli - 0.001 units

To convert to a smaller unit, move decimal point to the right or multiply.

To convert to a larger unit, move decimal point to the left or divide.