

Name _____ Period _____

Parts of an Experiment

In the following experiments, identify the control group, independent variable, dependent variable, and as many constants as you can.

Experiment #1 – Megan wants to see if playing her favorite music to plants will affect their growth. She buys 20 tomato plants from Wal-Mart. She waters and fertilizes all 20 plants. Megan places 10 plants along a windowsill in a quiet room. She puts the other 10 plants along a window sill in the next room with continuously playing music. Both of these rooms are facing south and both are kept at a temperature of 72° Fahrenheit. Every day she equally waters the plants. She also records the growth of every plant.

Control Group _____

Independent Variable _____

Dependent Variable _____

Constants _____

Experiment #2 – Ryan wants to see if storing his batteries in the refrigerator will make them last longer. He goes to Target and buys four batteries of the same brand that have the same “Best if used by” date. Ryan keeps two batteries in his desk drawer for 12 months and puts the other two batteries in the refrigerator for 12 months. He then puts the batteries from the desk drawer into his Dad’s antique portable CD player and plays his Lady Gaga CD continuously until the batteries die. Ryan records the length of playing time. Ryan then uses the batteries from the refrigerator. He plays the same CD at the same volume until those batteries die. He then compares the length of playing time.

Control Group _____

Independent Variable _____

Dependent Variable _____

Constants _____

Name _____ Period _____

Density

Density is the ratio of the mass of the substance to the volume of the substance at a given temperature (Density = mass/volume). Substances with a lower density will float on substances with higher densities.

1. A gold-colored ring has a mass of 18.9 grams and a volume of 1.12 mL. Is the ring pure gold? (The density of gold is 19.3 g/mL)
2. Pumice is volcanic rock that contains many trapped air bubbles. A 225 gram sample occupies 236.6 mL. What is the density of pumice?
3. What volume would a 0.871 gram sample of air occupy if the density of air is 1.29 g/L?
4. A cup of sugar has a volume of 237 mL. What is the mass of the cup of sugar if the density is 1.59 g/mL?
5. A crumpet recipe calls for 175 grams of flour. According to Julia Child's, the density of flour is 0.620 g/mL. How many mL of flour are needed for this recipe?
6. From their density values, decide whether each of the following substances will sink or float when placed in seawater, which has a density of 1.03 g/mL.
Gasoline – 0.66 g/mL
Asphalt – 1.2 g/mL
Mercury – 13.6 g/mL
Cork – 0.26 g/mL
Distilled water – 1.00 g/mL
Rubbing alcohol – 0.78 g/mL
7. A sample of lead is found to have a mass of 32.6 g. A graduated cylinder contains 2.8 mL of water. The water displacement method allows you to find the volume of a solid sample. When you drop the solid into the water it will displace the amount of water that is equal to the volume of the solid. After the lead sample is added to the cylinder, the water level reads 5.7 mL. Calculate the density of the lead sample.
8. A piece of magnesium is in the shape of a rectangle and has a height of 2.62 cm, a width of 1.34 cm and a length of 5.22 cm. What is the volume of the magnesium?
9. If the magnesium sample from #8 has a mass of 32.6 g, what is its density?

Name _____ Period _____

Metric Conversions

1. 2,000 m = _____ km

2. 9,000 mL = _____ L

3. 6 L = _____ mL

4. 6 cm = _____ mm

5. 1,000 m = _____ km

6. 50 mm = _____ cm

7. 4 L = _____ mL

8. 10,000 g = _____ kg

9. 10,000 m = _____ km

10. 4,000 g = _____ kg

11. 9 km = _____ m

12. 3 kg = _____ g

13. 90 mm = _____ cm

14. 4 km = _____ m

15. 2,000 g = _____ kg

16. 400 cm = _____ m

17. 3 km = _____ m

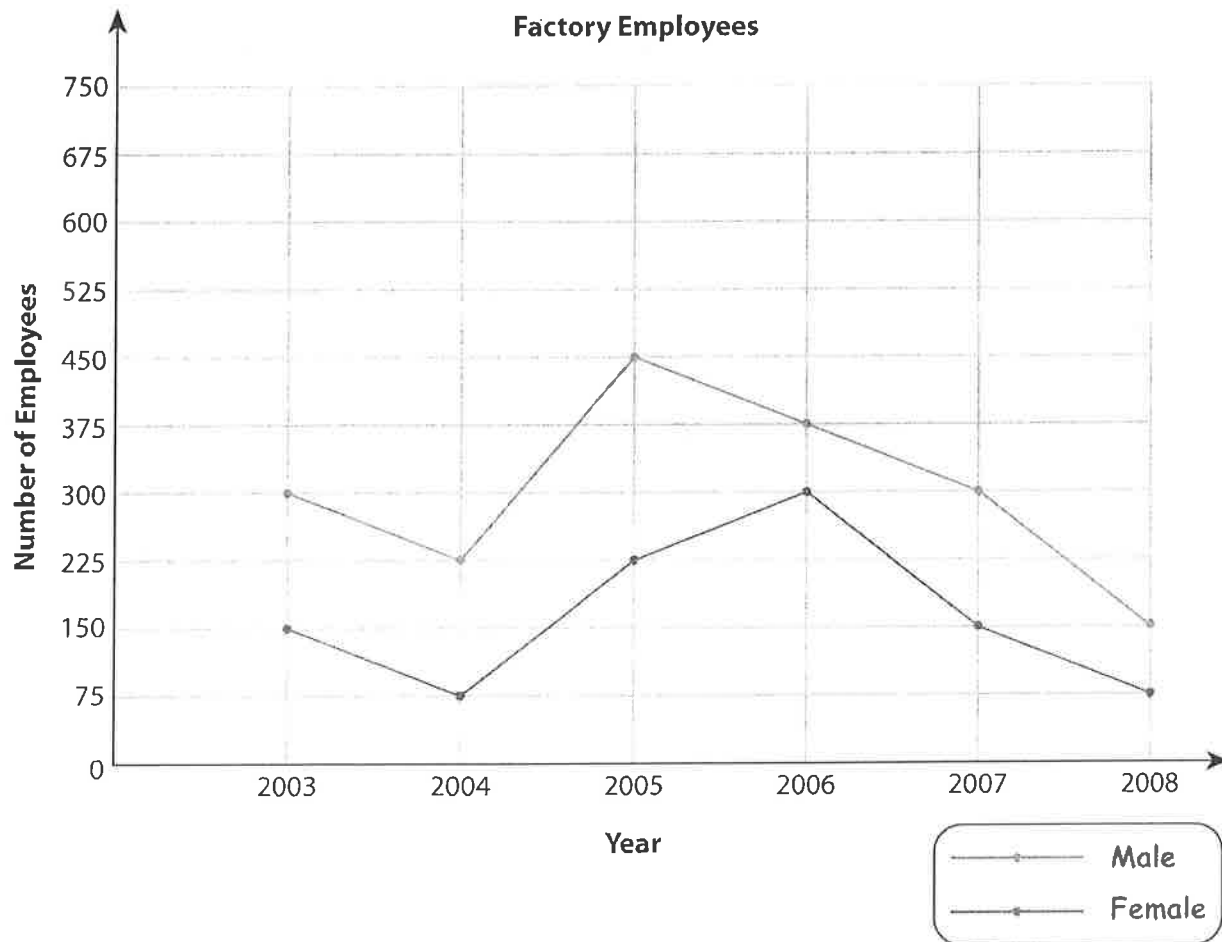
18. 2 cm = _____ mm

19. 9,000 g = _____ kg

20. 8,000 mL = _____ L

Double Line Graph - Factory Employees

A production company has both male and female staff working in the assembly unit. The graph shows the number of male and female employees in the company from 2003 to 2008. Read the graph and answer the questions.



- 1) Which year had the most number of female employees? _____
- 2) How many employees worked in the year 2003? _____
- 3) Which year had 225 male and female employees altogether? _____
- 4) What is the difference on the number of male and female employees during the year 2004? _____
- 5) Were the number of male employees more compared to the female employees in the year 2005? Yes or No. _____

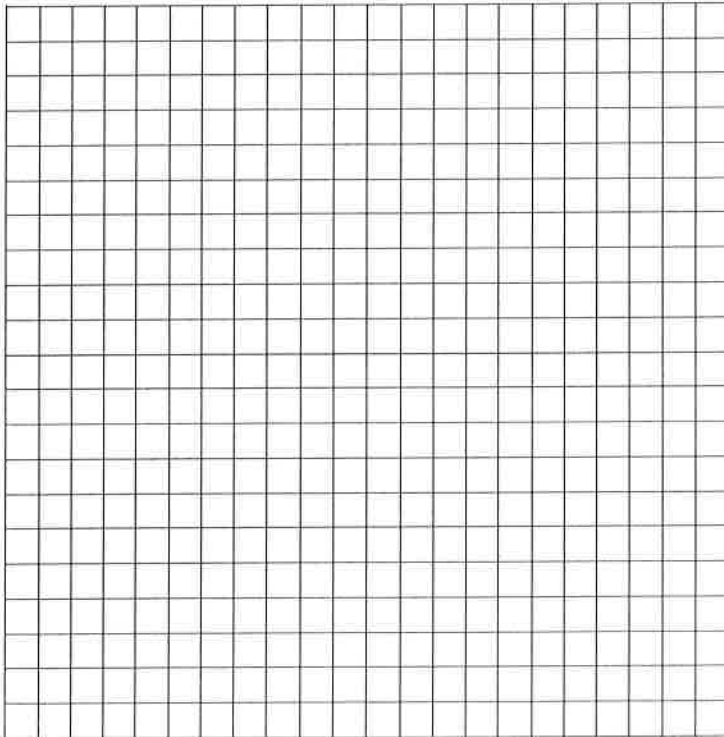
Name _____ Period _____

Creating a Line Graph

Using the information provided in the table, create a line graph showing how temperature changes over time.

Be sure to:

- Give the graph an appropriate title
- Label the axes
- Clearly number the axes
- Clearly plot each point and draw a line connecting them



Time	Temperature
1	54
2	61
3	72
4	85
5	99
6	106
7	118
8	109
9	100
10	95
11	87
12	82
13	76
14	74