Name_____

Date_____ **Pd**____

UNIT 1 CP WORKSHEET 4 - Scientific Method

If you would like a review of the definitions of independent, dependent & control variables, visit this website - http://www.cool-science-projects.com/independent-and-dependent-variables.html.

1. You want to test a new drug that supposedly prevents sneezing in people allergic to grass. What is the dependent variable?

2. You want to see if playing music makes plants grow taller. What is the independent variable in this experiment?

3. An entomologist (bug scientist) wants to determine if temperature changes how many times a cricket chirps. What is the dependent variable?

4. You want to measure the effect of different amounts of oxygen on the rate of yeast growth. What is the dependent variable?

5. You think that a certain part of your brain is important in memory. To test this, you will remove this part of the brain from rats and see if they remember how to get through the maze. What is the independent variable in this experiment?

6. Orchids were studied to determine if the amount of humidity affected the flowering of these plants. Which of these was the independent variable in this study?

Questions #7-10 refer to this experiment: Suzie Q wants to know how different colors of light effect the growth of plants. She believes that plants can survive the best in white light. She buys 5 ferns of the same species, which are all approximately the same age and height. She places one in white light, one in blue light, one in green light, one in red light and one in the closet. All of the ferns are planted in Miracle-Grow and given 20 mL of water once a day for 2 weeks. After the two weeks, Suzie observes the plants and makes measurements.

7. What measurements could Suzy make to determine how different colors of light affect the growth of plants?

8. What is the independent variable?

9. What is the dependent variable?

10. What are the control variables?

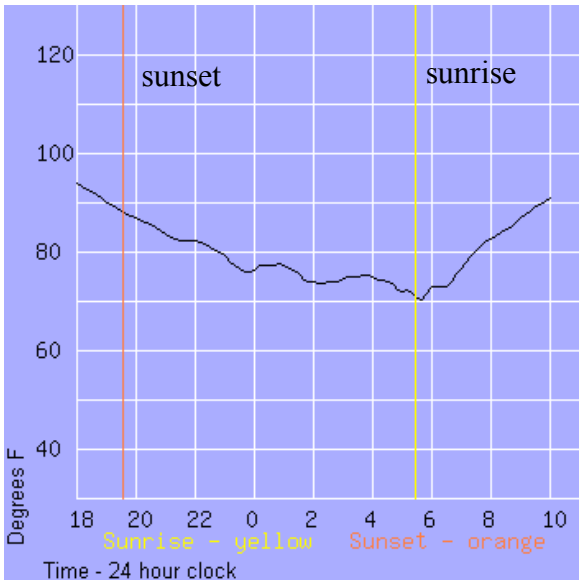
For questions #11-13, refer to the graph below from Ajo Arizona Weather:

11. On this graph, what is the independent variable?

12. On this graph, what is the dependent variable?

13. From the graph, make a hypothesis about the relation ship between temperature and time of day . Explain your reasoning.

Temperature vs Time of Day



14. Describe an experiment to further test your hypothesis.

For questions #15-16, refer to the following: SpongeBob loves to garden and wants to grow lots of pink flowers for his pal Sandy. He bought a special Flower Power fertilizer to see if will help plants produce more flowers. He plants two plants of the same size in separate containers with the same amount of potting soil. He places one plant in a sunny window and waters it every day with fertilized water. He places the other plant on a shelf in a closet and waters it with plain water every other day.

15. What did SpongeBob do wrong in this experiment? Explain.

16. How could SpongeBob improve his experiment?