Nature of Science Unit Study Guide

Use all of your note packets up to this point to complete the study guide.

Nature of Science Notes
1. Put the following steps in order, please number 1-6.
   ______ Hypothesis
   ______ Draw Conclusion
   ______ Experiment
   ______ Ask a Question
   ______ Analyze data
   ______ Collect Observations
2. List if each of the following data is qualitative or quantitative:
   a. ____________ Large
   b. ____________ Black
   c. ____________ 0.5 grams
   d. ____________ 37.9 ounces
3. List the three must haves of a hypothesis.
4. What is the difference between an opinion and a theory?
5. What is the purpose of an experiment?

Designing and Conducting an Experiment
6. Define the following terms, include what axis you would find them on:
   a. Independent Variable:
   b. Dependent Variable:
7. Define the following terms:
   a. Constant:
   b. Variable:
8. What was the temperature in New York City on day 5?

9. What was the temperature difference in New York City between day 6 and day 3?

10. What type of graph is this?
11. What is the dependent variable?

12. What is the independent variable?

13. What type of graph is this?

14. What percent of sugar is in chocolate cake?

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Read the following problem and answer questions #15, #16 and #17.
Jenny wants to know if the type of soil used will affect how tall a pea plant will grow. She uses 6 pea plans and grows them in 3 types of soil. Each plant is given ¼ cup of water every other day. She measures the height of the plants every day.

15. What is the dependent variable?

16. What is the independent variable?

17. What is the constant?
Scientific Instruments and Measurement / Models

18. What is instrument A used to measure?

19. What is instrument A called?

20. What is instrument B used for?

21. What is instrument B called?

22. What is instrument C used for?

23. What is instrument C called?

24. What is instrument D used for?

25. What is instrument D called?

26. What instrument is used to measure distance?

27. What are the 3 temperature scales?

28. What are centimeters used to measure?

29. What is a spring scale used to measure?

30. What 3 things can be used to measure volume?

31. What are milliliters and liters used to measure?
Problem Solving and Identifying Change

32. A beaker contains 200mL of water. A golf ball is placed in the beaker and the water rises to 275mL. What is the volume of the golf ball?

33. What are miles per hour and kilometers per hour used to measure?

Systems

34. List and describe the 6 steps of the water cycle?

35. What type of pattern are the circular structures in the illustration an example of?
   a. Annual
   b. Monthly
   c. Daily
   d. Hourly