Name _____ Date _____ Bell _____

Unit 1: Lesson 3- What are some types of investigations?

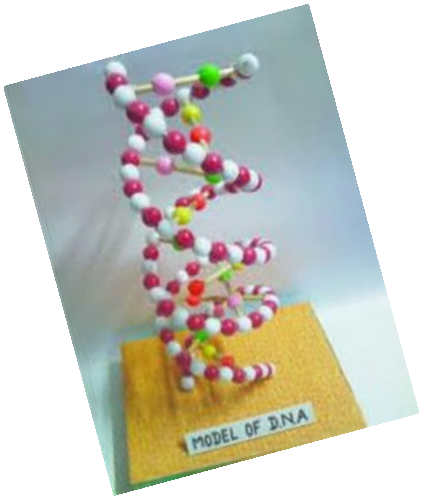
Vocabulary

1. Scientific Methods (page 24)-
   _____
   _____
   _____

2. Experiment (page 25 and 30)-
   _____
   _____
   _____

3. variable (page 31)-
   _____
   _____
   _____

4. Control (page 31)-
   _____
   _____
   _____



A Process for Science Page 24-25

1. What does every science investigation start with?
   _____
2. What kinds of things would a scientist observe and ask questions about?
   _____
   _____
   _____
3. What happens after the scientist asks a testable question?
   _____
4. What are scientific methods?
   _____
   _____
5. What are the three types of investigations a scientist can choose form to conduct their investigation?
   _____
   _____
   _____
6. What are experiments?
   _____
   _____
7. What are models used for?
   _____
   _____
8. What is observational testing?
   _____
   _____
9. Which type of investigation is likely to be used by a chemist who studies how a substance changes state?
   _____
   _____
   _____
10. What is the last step a scientist does in the process of the scientific method?
    _____
    _____
    _____
11. What conclusion would you draw if each day you put out sunflower seeds and millet seeds in a bird feeding station, and when you returned the sunflower seeds were gone and the millet remained?
    _____
    _____
    _____

Explosive Observations Page 26-27

12. What is observational testing?

    _____
    _____

13. Why would a scientist choose to do observational testing and not one of the other methods?

    _____
    _____

14. Why do scientist use observational testing for the geysers in Yellowstone National Park?

    _____
    _____

15. What is a prediction?

    _____
    _____

16. Why don't scientists perform experiments on Old Faithful?

    _____
    _____

17. Why do you think scientists use observational testing to study whale's behavior?

    _____
    _____

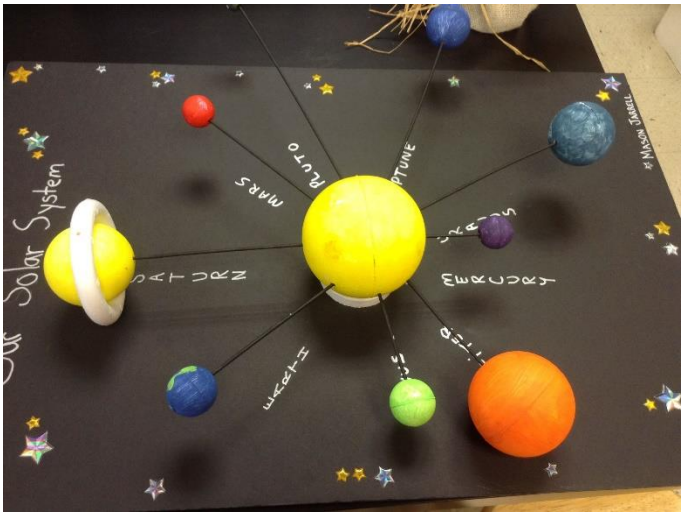
18. Which location would be best for conducting observational testing of whales: the shore, a boat, or a plane? Why?

    _____
    _____

19. What kinds of questions about whales can scientists answer using satellite transmitters?

    _____
    _____

Super Models Page 28-29



20. Why do scientists use models instead of conducting experiments or observational testing?

    _____
    _____

21. What are three types of models and an example of each one?

    _____
    _____
    _____

22. Why do scientists need to use models when investigating earthquakes?

    _____
    _____

23. What is an example of a physical model that is not found in these pages?

    _____
    _____

24. What questions could scientists answer with a computer model of the human body?

    _____
    _____

25. How would you draw a diagram to model how ocean animals get their food?

    _____
    _____

26. What models can you find in your school?

    _____
    _____

How to Excel in Experimentation
Page 30-31

27. How do scientists begin to plan an experiment?
_____

28. What does a scientist test in an experiment?
_____

29. What is a hypothesis?
_____
_____

30. After you write your hypothesis, what is the next step in conducting an experiment?
_____

31. When designing an experiment, how many setups do you need, and why?
_____
_____

32. How many variables do you change in an experiment?
_____

33. What is a control?
_____
_____

34. In an experiment freezing water mixed with different substances, what should your control be?
_____

35. Why is it important that only one variable is tested in an experiment?
_____
_____

36. What is always an important part of an experiment?
_____

How to Excel in Experimentation Continued Page 32-33

37. After you design your experiment, what do you do next?

_____
_____
_____

38. Why should you repeat your experiment several times?

_____
_____
_____

39. What should you do if you repeat the procedure and get different results?

_____
_____
_____

40. How does getting very similar results each time affect your confidence in your results?

_____
_____
_____

41. What should you do after you carry out your procedures?

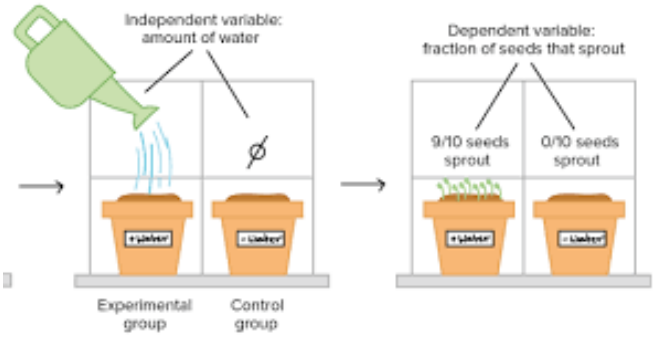
_____

42. How do scientists draw conclusions?

_____
_____
_____

43. What happens if your hypothesis is not supported?

_____
_____
_____



Data Displays Page 34-35

44. What do scientists do with all the data they collect from their investigations?
    _____
    _____

45. How do graphs, charts, and diagrams help scientists with the data they have collected?
    _____
    _____

46. What are four types of graphs and what are they used for?
    _____
    _____
    _____
    _____

47. If you want to display data on how many inches of rain your town receives each year, what display might you choose from? _____

48. How would you display data about the different kinds of pets owned by students in your class?
    _____

49. What other science questions can be answered with a diagram?
    _____
    _____