UNIT 1 STUDY GUIDE LESSON 1-4

1) Which of the following is NOT a necessary component for a good scientific investigation?

a) It must be completed in a science lab
b) It must be able to be replicated by other scientists.
c) Results should be communicated to other scientist.
d) Have a large sample size

2) Put the following words in the correct order:

3) analysis of data -->4) conclusion -->2) experiment --> 1) hypothesis

3) Which statement **best** describes science?
A. Results in the science lab
B. Facts in your science book
C. **a study of natural events and conditions**
D. a complete explanation of everything that happens in the universe

4) What is empirical evidence ? **Empirical evidence is information acquired by observation or experimentation**

5) Which of the following activities is not considered scientific?

A. Recoding the weather for a week
B. Measuring changes in your pets growth
C. Classifying leafs by shapes and sizes
D. Skiing in a winter storm

6) Michael attempts to starts his car but nothing happens when he turns the key? If Michael were acting like a scientist what would his next step be. **Create some tests**

7) What do use when you make an observation? Hint it start with an S. **SENSES**

9) Which of the following 2 are not needed in a scientific investigation?

A) Observation

B) Conclusion or Explanation
C) Tests in a Laboratory
D) A newspaper report

10) Skip 10!!!!!!!!

11) Why is it important for an investigation to be replicated? **So someone else can prove what you discovered.**

12) What is your books definition of science. **The systematic study of the natural events and conditions.**

13) What is the books definition of a scientific theory? **Well supported explanation about the natural world.**

14) What could cause a theory to change? **New evidence from scientist.**

15) A theory explains _____**WHY**_____ something happens in nature?

16) A student measures the distance a paper airplane flies with 3 different wing shapes. The student observes the longer wing design resulted in the longest flight. What is the test variable? **Wing shapes**

17) Smitty drops a rock from a set height and measures the time it takes the rock to reach the ground. He uses this time and the distance of the fall to calculate the average speed of the rock. He tests four rocks of different masses. Which question is Smitty investigating?

A. What causes an object to accelerate?
B. How does mass affect the force exerted by an object?
C. How does the free-fall height affect the speed of a falling object?
D. **How does mass affect the speed of a falling object?**

18) Write the hypothesis to your science fair project. Make sure to put the hypothesis in an "if" "than" format.

19) In a scientific investigation which of the following comes first?

A) List the steps to be used for the procedure of the investigation.

B) Develop a testable question based on research or prior knowledge.

20) Identify the test variable in the following experiment.

Does the **amount of sugar** in a cupcake affect how large it will grow?

21) What is the books definition of experiment? **Organized procedure to study something under controlled conditions.**

22) What needs to happen before a something becomes a scientific theory? **Many scientist agree.**

23) Explain how the cryosphere and hydrosphere interact. **Water becomes ice and ice becomes water.**

24) What is a method of an experiment? **The steps of the experiment**

24) Explain how the biosphere and hydrosphere interact. **Humans drink water.**

25) If you were doing an experiment to measure how the wing shape effects how far a paper airplane flies what would be 2 constant variables. Pa**per type and where you throw it.**