Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd: \_\_\_ Ast#: \_\_\_\_\_

**Science Knowledge Study Guide**

Physical Science Advanced

***Provide a short response to the following prompts.***

1. Describe how scientific knowledge is affected by new evidence (if the new evidence does NOT support the current understanding).
2. What is scientific knowledge built from? (list 3 things)
3. Why is it important that we use phrases such as “the results suggest…” or “the evidence supports…” rather than using words such as “prove” or “proof”?
4. Under what circumstances will a scientific theory become a law? Explain.
5. Why are scientific theories rarely discarded (completely abandoned), even when new evidence doesn’t fit within the current theory?
6. What represents the BEST explanation that science can offer?
7. Compare the purpose of a scientific theory to the purpose of a scientific law.
8. Why do scientists often rely on models?
9. Identify some limitations of scientific models.
10. What are the characteristics of science? In what ways is science limited?

***Respond to each of the following statements by marking “T” if it is true or “F” if it is false. If it is False, find a way to rewrite the statement so that it is true.***

1. \_\_\_ A scientific theory is an idea that has not yet been supported with enough evidence to become a law.
2. \_\_\_ Scientists often use models as a way to study and communicate complex ideas.
3. \_\_\_ The tentative nature of scientific knowledge is considered a weakness of science.
4. \_\_\_ Scientists prefer to use phrases such as “the results support…” rather than to say they have “proven” an explanation correct.
5. \_\_\_ Science can solve any problem or answer any question.
6. \_\_\_ Science can only provide tentative answers or explanations.
7. \_\_\_ If a hypothesis is tested and shown to be inaccurate, scientists view this as a success.
8. \_\_\_ Science is only concerned with understanding how the natural world works.
9. \_\_\_ If a scientific explanation is shown to be inaccurate, it may be modified (changed).
10. \_\_\_ A scientific law represents the best explanation science has to offer based on what we currently know.
11. \_\_\_ Scientific explanations are indisputable (not open for debate), so scientific knowledge rarely changes.
12. \_\_\_ A scientific theory is an educated guess that a scientist has about a scientific explanation.
13. \_\_\_ Scientists use confirmation to increase the reliability of their evidence.
14. \_\_\_ Scientific knowledge is built from continuous testing, debate, and confirmation of scientific explanations.
15. \_\_\_ The law of gravity explains why objects always fall toward the center of the Earth.