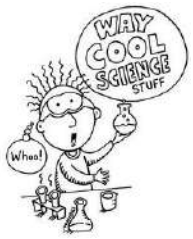
WLHS / Biology Name_____Date_____Per_____

The Science of Biology – Section 1.1-1.2 Reading Guide



1.1 What is Science? (pages 4-9)

1) a. TRUE or FALSE (circle one). Science is a collection of unchanging beliefs about the world.

b. Explain your answer: _____\

_____

2) Describe 3 ways science is different from other human endeavors.

a.

b.

c.

3) What is the goal of science?

4) Because things are constantly changing around us, explain why this doesn't mean that science has failed.

5) Describe the difference between an observation and an inference.

6) Suppose you made the observation that bees seem to prefer a yellow flower that produces abundant amounts of pollen and nectar over a purple flower that produces less pollen and nectar. List two separate hypotheses that you might make about bees and flowers.

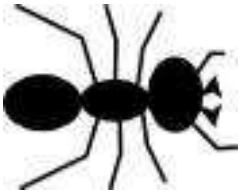
- HYPOTHESIS #1:_____
- HYPOTHESIS #2:_____

8) Explain the following terms / components of scientific methods:

- CONTROLLED EXPERIMENT:_____
- CONTROL GROUP:_____
- INDEPENDENT VARIABLE:_____
- DEPENDENT VARIABLE:_____
- DATA:_____

8) Why should a scientist only test a single variable at a time?

9) Describe a controlled experiment you could perform to determine whether ants are more attracted to butter or to honey. You may wish to draw a simple sketch of your experimental set up.



1.2 Science in Context (pages 10-15)

1) List 3 attitudes that scientists tend to lead them to conduct a scientific experiment.

2) a. What is peer review? _____

b. Why is peer review important to the scientific community? _____

_____

3) Distinguish between the scientific terms: THEORY and LAW. (HINT: Use Build Vocabulary on pg 13)

- **THEORY**:_____
- **LAW**:_____

4) Do theories ever change or become modified?_____If so, why?_____

_____

5) a. Define **BIAS**: _____

b. A study shows that a new pesticide is safe for use on food crops. The researcher who conducted the study works for the pesticide company. What potential biases may have affected the study?

6) What are some limitations in science?