

Biology 1
Experimental Design Worksheet

Name _____
Date _____
Hour _____

Definitions: Define the following words and concepts related to the scientific method.

1. Hypothesis: _____
2. Independent Variable: _____
3. Dependent Variable: _____
4. Control Group: _____
5. Experimental Groups: _____
6. Constants: _____
7. Trials: _____
8. Variables: _____

Practice: Write a hypothesis for each of the statements and identify the variables, control group, and experimental group.

1. Cigarette smoking increases the risk of lung cancer.

Hypothesis: If _____, then _____

Independent Variable: _____ Dependent Variable: _____

Control Group: _____ Experimental Group: _____

2. Eating breakfast increases performance in school.

Hypothesis: If _____, then _____

Independent Variable: _____ Dependent Variable: _____

Control Group: _____ Experimental Group: _____

3. Hummingbirds are attracted to the color red.

Hypothesis: If _____, then _____

Independent Variable: _____ Dependent Variable: _____

Control Group: _____ Experimental Group: _____

4. Bats locate food using sound waves.

Hypothesis: If _____, then _____

Independent Variable: _____ Dependent Variable: _____

Control Group: _____ Experimental Group: _____

5. Letting your phone battery drain fully before charging makes it last longer.

Hypothesis: If _____, then _____

Independent Variable: _____ Dependent Variable: _____

Control Group: _____ Experimental Group: _____

6. Students who study perform better in school.

Hypothesis: If _____, then _____

Independent Variable: _____ Dependent Variable: _____

Control Group: _____ Experimental Group: _____

Situations: Read the situation below and design an experiment.

John Smith has been hired by the city of Virginia Beach to investigate the recent shark attacks off the resort's coast. He has a budget of \$40,000, a 25 foot boat, and three graduate student assistants to help him. A helicopter has also been donated by a local television station, should he need one.

* * *

1. List 2 hypotheses John and his crew may have come up with for the recent shark attacks.

a. If _____, then _____

b. If _____, then _____

2. What materials will John need to perform this experiment (How will they spend the \$40,000?).

3. Where should they perform the experiment (Hint: Where do sharks like to live)? _____