Scientific Design Worksheet
Biology

Name _____

Date _____ Hour_____

Directions: 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. iBook batteries last for 5 hours.

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)?_____

4. Pick one of the two hypotheses and determine the following:

    a. Control Group: _____

    b. Experimental Group: _____

    c. Dependent Variable: _____

    d. Independent Variable: _____

5. What type of data do you think John will collect (What will be the results of the experiment?)?

_____

_____

6. What conclusions will John be able to make from the results of the experiment?

_____

_____

_____

_____