

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

1. Hypothesis: An if, then, B/C statement used to test your explanation of phenomenon.
2. Independent Variable: what you change in an experiment.
3. Dependent Variable: The results / what you measure
4. Control Group: Group used for comparison purposes (NO IV)
5. Experimental Group: Group containing IV (what you're testing).

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

6. Cigarette smoking increases the risk of lung cancer.

Hypothesis: if you smoke cigarettes, then you have a higher chance of contracting lung cancer because cigarettes contain carcinogens that cause cancer.
 Independent Variable: smoking cigarettes Dependent Variable: lung cancer
 Control Group: NO smoking Experimental Group: smoking cigarettes

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.

7. List 2 hypotheses John and his crew may have come up with for the recent shark attacks.
 - a. if more people are in the water by the resort, then more shark attacks will happen because there are more opportunities.
 - b. if resorts keep popping up, then there will be more →
8. What materials will John need to perform this experiment (How will they spend the \$40,000)?

recording equipment, instruments to measure water conditions.

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

a. Control Group: Lower trafficked beach

b. Experimental Group: Resort Beach

c. Dependent Variable: Amount of shark attacks

d. Independent Variable: Amount of people

10. What type of data do you think John will collect (What will be the results of the experiment)? Amount of people involved in a shark attack at a resort.
11. What conclusions will John be able to make from the results of the experiment?

whether or not human activity influences shark attack frequency.