

Mid-term Review Unit 1 – Scientific Method

1. List the steps of the scientific method in order.

2. Define the term scientific theory.

3. Define the term scientific law.

4. Describe the term variable as it pertains to an experiment.

5. Why do scientists test only one variable at a time?

6. Compare and contrast the terms dependent and independent variables.

7. On a graph, which axis would contain the dependent variable? The independent variable?

8. List the three main branches of science and give a sub-branch of each.

a.

b.

c.

9. Read the experiments below and identify the parts of the experiment.

Name: _____

Experiments:
Identifying Variables and Groups

In each of the examples, identify the independent variable and dependent variable as well as which participants make up the experimental group and which make up the control group.

Remember:

Independent Variable = What the investigator manipulates; the particular treatment or condition the investigator is most interested in the effects of

Dependent Variable = What is measured or observed; the "data" collected in the experiment

Experimental Group = Those participants exposed to the independent variable

Control Group = Those participants treated just like the experimental group EXCEPT they are not exposed to the independent variable; the group with which the experimental group can be compared

1) Of 100 individuals with moderate depression, 50 receive 8 weeks of a new cognitive-behavioral therapy, while the other 50 are placed on a waiting list for 8 weeks. At the end of the 8 weeks all 100 are given psychological tests to assess their level of depression.

Independent Variable: _____ Dependent Variable: _____

Experimental Group: _____ Control Group: _____

2) A biopsychologist is studying the effects of anabolic steroids on the aggressive behavior of female rats. 24 female rats receive daily injections of a placebo (fake drug), while 24 others receive daily injections of the steroid. Round-the-clock videotapes of the communal cages of all rats allow all aggressive encounters to be counted and timed.

Independent Variable: _____ Dependent Variable: _____

Experimental Group: _____ Control Group: _____

3) An industrial psychologist is interested in whether lowering the temperature in a packing room will increase productivity (number of products packed). Workers in two equivalent packing rooms participate in the study. One room is maintained at 65 degrees, the other room is left at the usual company temperature of 76 degrees.

Independent Variable: _____ Dependent Variable: _____

Experimental Group: _____ Control Group: _____

Chapter 1**STUDY GUIDE****• Solving Problems**

In the blank, write the letter of the term or phrase that best completes each statement.

- _____ 1. The first step in any problem-solving strategy is to _____.
a. collect information about the problem b. identify the problem
- _____ 2. The method used by scientists for solving problems is known as the _____.
a. control b. scientific method
- _____ 3. A prediction about a problem that can be tested is a _____.
a. hypothesis b. conclusion
- _____ 4. A _____ is a standard for comparison in an experiment.
a. variable b. control
- _____ 5. An explanation backed by results obtained from repeated tests or experiments is a _____.
a. theory b. variable
- _____ 6. A process that uses certain skills to solve problems is called _____.
a. theory b. critical thinking
- _____ 7. A _____ is a changeable factor in an experiment.
a. variable b. control
- _____ 8. The best experiments test only one _____ at a time.
a. variable b. control
- _____ 9. If a conclusion does not support a hypothesis, the _____.
a. experiment did not work properly b. hypothesis should be revised
- _____ 10. If a hypothesis is supported by new data gathered over a period of time, it may become a _____.
a. control b. theory
- _____ 11. Making lists, drawing graphs, making a model, and eliminating possibilities are all _____ for solving problems.
a. strategies b. variables
- _____ 12. If a hypothesis has been backed by results from repeated tests or experiments, it becomes a _____.
a. variable b. theory