Independent Variables, Dependent Variables and Constants Worksheet

Directions: Identify the independent variable, dependent variable, constants, and control groups in the following studies.

1. Mr. Smith wanted to see if the color of light shined on a plant had an effect on the number of leaves it had. He gathered a 2 groups of the same species of plants, gave them the same amount of water, and did the test for the same amount of time. On one group of plants he used white light. On the second group he changed the light color to red. Identify:

   Independent variable:

   Dependent variable:

   Constants:

   Control group (What would Mr. Smith use as a control group?):

   Experimental group (what would Mr. Smith use as a experimental group?)

2. You are managing a large feed lot of cattle. A pharmaceutical company wants you to try a new antibiotic to treat shipping fever in newly arrived cattle. You are currently not using any antibiotic to treat shipping fever in your cattle. The company claims that it is more effective and will save you money using this antibiotic. You will use the same feed, water and conditions of the cattle. You will measure the temperature of the cattle’s fevers to see whether or not the new antibiotic works on treating shipping fever.

   Independent variable:

   Dependent variable:

   Constants:

   Control group:

   Experimental group

3. A shopping mall wanted to determine whether the more expensive “Tough Stuff” floor wax was better than the cheaper “Steel Seal” floor wax at protecting its floor tiles against scratches. One liter of each brand of floor wax was applied to test sections of the main hall of the mall. The test sections were all the same size and were covered with the same kind of tiles. After 3 weeks, the number of scratches in each of the test sections was counted to observe the wax’s effectiveness.

   Independent variable:

   Dependent variable:

   Constants:

   Control group:

   Experimental group:
Directions: Identify the independent variable, dependent variable, constants, and control groups in the following studies. Each question is worth 1 point. Total of 5 pts.

2. Mr. Smith wanted to see if the color of light shined on a plant had an effect on the number of leaves it had. He gathered a 2 groups of the same species of plants, gave them the same amount of water, and did the test for the same amount of time. On one group of plants he used white light. On the second group he changed the light color to red. Identify:

Independent variable: the red light
Dependent variable: the effect on the number of leaves
Give 3 Constants: same species of plants, same amount of water, same time
Control group (What would Mr. Smith use as a control group?): Group with white light
Experimental group (what would Mr. Smith use as a experimental group?): Group with red light

2. You are managing a large feed lot of cattle. A pharmaceutical company wants you to try a new antibiotic to treat shipping fever in newly arrived cattle. You are currently not using any antibiotic to treat shipping fever in your cattle. The company claims that it is more effective and will save you money using this antibiotic. You will use the same feed, water and conditions of the cattle. You will measure the temperature of the cattle’s fevers to see whether or not the new antibiotic works on treating shipping fever.

Independent variable: the new antibiotic
Dependent variable: the results of the antibiotic
Constants: same feed, water and conditions of cattle
Control group: Cattle without antibiotic
Experimental group: cattle with antibiotic

3. A shopping mall wanted to determine whether the more expensive “Tough Stuff” floor wax was better than the cheaper “Steel Seal” floor wax at protecting its floor tiles against scratches. One liter of each brand of floor wax was applied to test sections of the main hall of the mall. The test sections were all the same size and were covered with the same kind of tiles. After 3 weeks, the number of scratches in each of the test sections was counted to observe the wax’s effectiveness.

Independent variable: Tough Stuff floor wax
Dependent variable: The number of scratches in each test section
Constants: same size are applied, same area of main hall, same amount of wax
Control group: Steel Seal Floor wax
Experimental group: Tough Stuff floor wax