Scientific Investigation Pre-test

Practice Identifying Parts of the Scientific Method

Directions: The following is an experimental scenario. Read the experiment and then identify the components of the scientific method by completing the graphic organizer provided.

Experimental Scenario # 1

A student investigated whether ants dig more tunnels in the light or in the dark. She thought that ants used the filtered light that penetrated the upper layers of earth and would dig more tunnels during the daytime. Ten ant colonies were set up in commercial ant farms with the same number and type of ants per ant farm. The same amount of food was given to each colony, and the colonies were in the same temperature. Five of the colonies were exposed to normal room light and five were covered with black construction paper so they did not receive light. Every other day for three weeks the length of the tunnels was measured in millimeter using a string and a ruler. Averages for the light and dark groups for each measured were then computed. The averages are listed in the following chart.

Length of Tunnels (mm) Constructed by Ants in Different Light Conditions

Day	Light	Dark
1	5	7
3	10	15
5	20	25
7	26	32
9	32	47
11	50	62
13	61	93
15	66	110
17	90	115
19	95	120
21	103	136

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Experimental Scenario #_____ Name_____

Problem: _____

_____?

Hypotheses: _____

_____

Independent Variable: _____

_____

Dependent Variable: _____

_____

Is there a control? _____ If so…what is it? _____
_____

Constants:

_____ _____
_____ _____

Sources of Experimental Error:

_____ _____
_____ _____

Based on the data, what type of graph would be appropriate? Circle your answer(s).

Line graph Bar graph Circle graph

Graph the data.