

## **Administration Procedures for 8<sup>th</sup> Grade Science Assessment TALKS**

### **Time line:**

First month of school Pre-test.

Post-test at the end of school, but prior to teacher evaluations.

### **Administrative Directions:**

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

TALKS = Title, Axis, Labels, Keys, Spacing

## 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 Pre-test 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

<u>Day</u>	<u>Light</u>	<u>Dark</u>
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

## Scientific Investigation Pre-test

Experimental Scenario # \_\_\_\_\_ Name \_\_\_\_\_

List all materials needed to do this experiment: \_\_\_\_\_

Problem: \_\_\_\_\_

\_\_\_\_\_ ?

Hypotheses: \_\_\_\_\_

\_\_\_\_\_

Write a statement of support or non-support of hypothesis: \_\_\_\_\_

\_\_\_\_\_

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

## 8<sup>th</sup> Grade Process Skills Rubric

	3	2	1	0
<b>Experimental Design</b>				
Problem	Clearly stated as a question that is answered with the given experiment.	Not Clearly stated as a question but answered with the given experiment.	Not clearly stated or answered with the given experiment.	No problem is stated.
Hypothesis	Written as an "if...then" statement <b>and</b> it is a possible solution to the problem.	Written as an "if...then" statement but is not a solution to the problem <b>or</b> not written as an "if-then" statement but is a possible solution to the problem.	Not written as an "if...then" statement and it is a guess.	No Hypothesis is stated.
Variables	Both Independent and Dependent variables are accurately identified and precise.	Both Independent and Dependent variables are identified accurately but not precisely. <i>(Ex: listing "how the plant grows" for DV instead of "daily plant growth in cm")</i>	Either Independent or Dependent variable is incorrectly identified.	Both Independent and Dependent variables are incorrect or none are listed.
Constants	4 or more are correctly listed.	3 are correctly listed.	1-2 are correctly listed.	None are listed.
	3	2	1	0
<b>Data Presentation</b>				
Data Presentation	Chart and appropriate graph of data is present, drawn/labeled correctly and clearly demonstrates the findings.	Chart and appropriate graph of data is present, drawn correctly. One item incorrectly labeled.	Chart and graph of data is present but drawn incorrectly <b>or</b> two or three items are labeled incorrectly.	Chart or appropriate graph of data is missing or incomplete. Items included labeled incorrectly.