

Name: _____ Class: _____ Date: _____

/20

Inquiry Skills & Graphing Graded Inquiry Skills Review

(USE YOUR ESI PACKET TO COMPLETE THIS!)

Experiment Information:

A town has been having a problem with erosion along the side of some of their roads that has caused the roads to become clogged with mud and dirt. Most of the roads in the areas with the problems have silt as the normal type of dirt next to the road. They hire some geologists (scientists that study the Earth) to see if they can find a type of dirt that will absorb water in less time than the silt and stop the erosion.

The group of geologists set up an experiment with four different types of dirt in cups. The first has sand in it, the second has gravel, the third has potting soil and the fourth has silt. The geologist pours 30 ml of water onto the material in each cup. Each cup contains 500 ml of the dirt. She finds that the sand takes 3 seconds to absorb the water, the gravel takes 1 second to absorb the water, the potting soil takes 5 seconds to absorb the water and the silt takes 15 seconds to absorb the water.

Use the experiment information to answer the following questions.

1. Problem/ Testable Question (3 points)

a. Independent variable (IV): type of dirt

b. Dependent variable (DV): time of absorption

c. Write a testable question for the experiment in the proper format: How does the type of dirt affect the time of absorption?

2. Write a hypothesis for the experiment in the proper format (you do not need a “because”) (2 points)

If the water goes through the gravel, then it will take the least amount of time.

3. List 2 things the scientists should keep constant. (2 points)

amount of water

amount of dirt

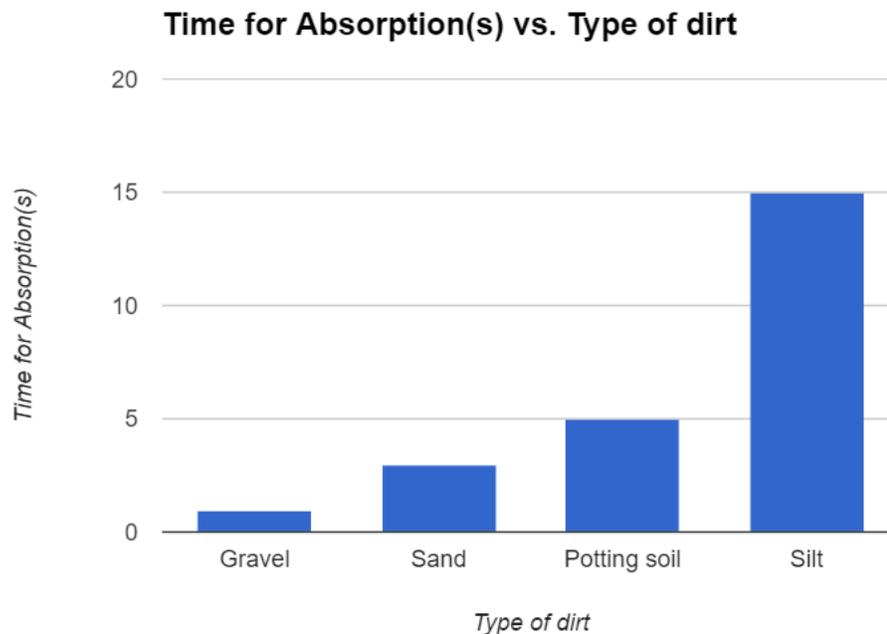
4. Test group(s): gravel, sand, potting soil (1 point)

5. Control group: silt (1 point)

Time for Absorption vs Type of Dirt

| Type of dirt | Time for Absorption(s) |
|--------------|------------------------|
| Gravel | 1 |
| Sand | 3 |
| Potting soil | 5 |
| Silt | 15 |

6. What type of graph will you make? bar
 Why? IV is qualitative (1 point)
7. Make a complete graph of the data. (6 points)



8. Write a complete conclusion for the experiment. Make sure to include all 4 things that must be done to write a good conclusion. (4 points)

This experiment was conducted to determine how the type of dirt affects the time for water to be absorbed. The hypothesis, if gravel was used, then it would take the least amount of time for the water to be absorbed, was accepted. It was accepted because it only took 1 second for the gravel to absorb the water, which was less than the next closest, sand, which that took 3 seconds to absorb. Both were still faster than the silt, which took 15 seconds, which is currently causing the problem. The water was absorbed more quickly in gravel and sand, because the individual particles are bigger, so there are more spaces between each piece of dirt.