

Date: _____

Your Name: _____



**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

Released Science Inquiry Task

Soil and Water

2011

Grade 4

Student Answer Booklet

SCIENCE

Organizing and Presenting Your Data

Directions: You will work on your own for this part of the inquiry task. You will use the results of the investigation to answer the questions.

You may use the Word Bank below to help you answer the questions.

Word Bank

Median	the middle value in a list of ordered measurements Example: The median for 2 cm, 4 cm, and 5 cm is 4 cm.
Particle	a small piece that makes up a material
Particle Size	the size of most of the pieces in a material Example: the size of most of the pieces in a kind of soil
Prediction	what you think will happen in an investigation
Trial	each time a test is repeated

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Understanding and Organizing Your Data

1. In your investigation, you measured how much water came out of three kinds of soil. Then you found the amount of water held by each soil.

Identify **one** thing that you kept the same for each test in the investigation.

Identify **one** thing that you changed for each test in the investigation.

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Copy the data from your Inquiry Booklet into your Student Answer Booklet:

Copy the data from the Soil Data Table on page 6 in your Inquiry Booklet into the appropriate columns in Data Table 1 below.

Data Table 1: Amount of Water that Each Soil Held

	Soil with Small Particles	Soil with Medium Particles	Soil with Large Particles
Amount of water that soil held	_____ mL	_____ mL	_____ mL

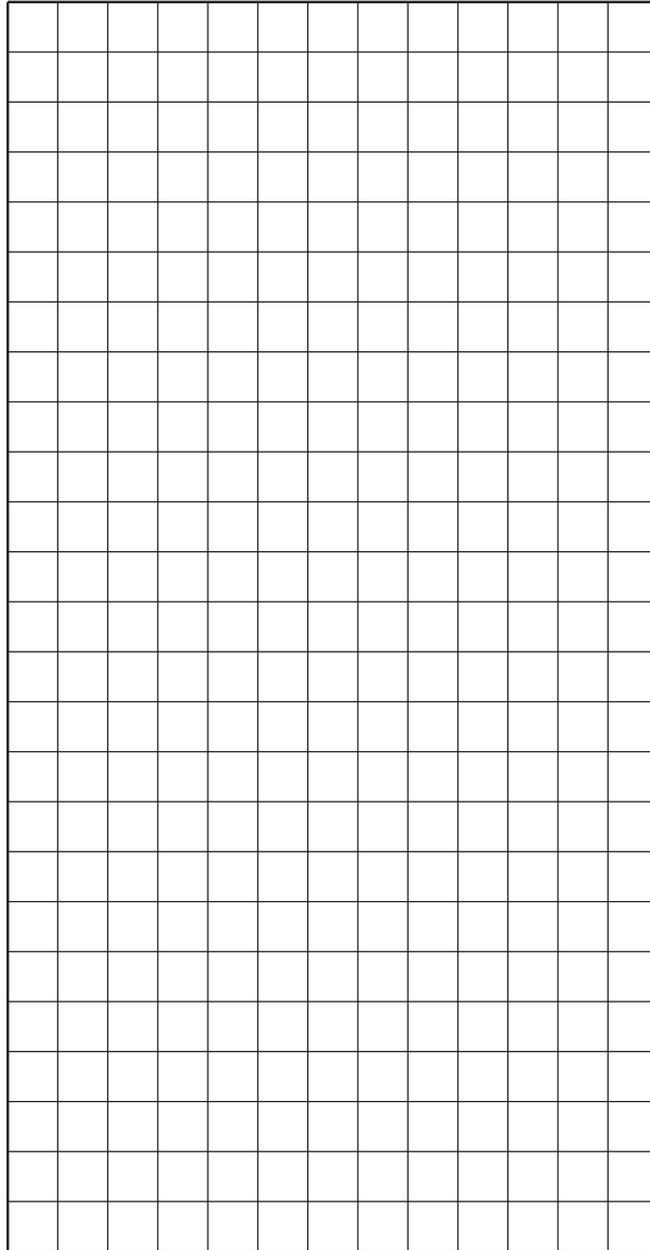
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2. Use the information in Data Table 1 to make a bar graph that compares the amount of water held by the three kinds of soil.

Use the grid below to make your bar graph.

Title: _____

Amount of Water Soil Held (mL)



Soil with
Small
Particles

Soil with
Medium
Particles

Soil with
Large
Particles

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Analyzing and Using Your Results

You investigated the following research question:

How does increasing soil particle size affect the amount of water soil holds?

3. Describe the pattern in your graph.

Explain how increasing soil particle size affects the amount of water soil holds.

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Copy your prediction from page 3 in your Inquiry Booklet into the box below.

I predict

because

4. Check the box next to the statement that **best** describes your data. Be sure to include specific data from your graph to support your reason.

- The data **supported** my prediction.
- The data **did not support** my prediction.

I know this because

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Making Conclusions

Remember, the students in the story did a similar investigation to the one you did. They followed a similar procedure and used the same kinds of soil and experimental setup. However, in the story, the students did three trials for each soil and then determined the median amount of water each soil held. In your investigation, you did only one trial for each soil.

The investigation results for students in the story are shown below in Data Table 2: Investigation Results in the Story.

Complete the table below with the amount of water soil held from your results in Data Table 1 on page 3.

Data Table 2: Investigation Results in the Story

Trial	Amount of Water Soil Held		
	Small Particles	Medium Particles	Large Particles
1	10 mL	15 mL	12 mL
2	18 mL	14 mL	12 mL
3	19 mL	25 mL	9 mL
Median	18 mL	15 mL	12 mL
Amount of Water Soil Held (from Data Table 1)	_____ mL	_____ mL	_____ mL

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- 7.** Some students in this story had difficulty measuring the amount of water they needed for their investigation. Explain how this could affect their results. Use information from your investigation to support your answer.

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Applying What You've Learned

After the students in the story completed the investigation, they chose plants to grow for their project. The pictures below show the tags for the plants they chose.

Cactus



- Needs full sun and well-drained soil
- Can survive being dried out if not watered very often
- Will die if watered too often

Fern



- Needs shade or only morning sun
- Grows best in loose, damp soil

- 8.** Using the median results in Data Table 2, identify the soil that would be best for growing the cactus. Explain your reasoning. Include data from Data Table 2 on page 7 in your explanation.

Using the median results in Data Table 2, identify the soil from the investigation that would be best for growing the fern. Explain your reasoning. Include data from Data Table 2 on page 7 in your explanation.

