

Date: _____

Your Name: _____



**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

Released Science Inquiry Task

Sand Movers

2010

Grade 4

Student Answer Booklet

SCIENCE

Organizing and Presenting Your Data

Directions: You will work on your own to

- copy your data.
- use your results.

Answer questions 1 through 8 as completely as you can. You may use the Word Bank below during this session.

Word Bank

Erosion	a process that moves earth materials from one place to another
Fair test	an investigation that tests the effects of one thing at a time
Median	<i>median</i> is the middle number in a sequence from lowest to highest Example: Trial 1 has 12, Trial 2 has 10, and Trial 3 has 15. The order of these numbers from lowest to highest is 10, 12, 15. The median (or the middle number) in this set is 12.
Model	a smaller version of something that happens in nature
Plan	a list of steps to follow to do an investigation
Prediction	what you think will happen based on prior knowledge and experience
Sand dune	a hill of sand made by the wind
Trial	each time you do the steps of the investigation
Variable	something that affects the results of an investigation

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Make sure that you copy your data from pages 8 and 10 in your Inquiry Booklet to the data table below. You investigated sand only and sand with sticks. Students in another class investigated sand with a fence. Their data is also recorded in the table below.

Data Table
Median Change in Height

Investigations	Median Change in Height (mm)
Sand Only	
Sand with Sticks (dune grass)	
Sand with a Fence	3

Copy your prediction from page 5 in your Inquiry Booklet to the box below.

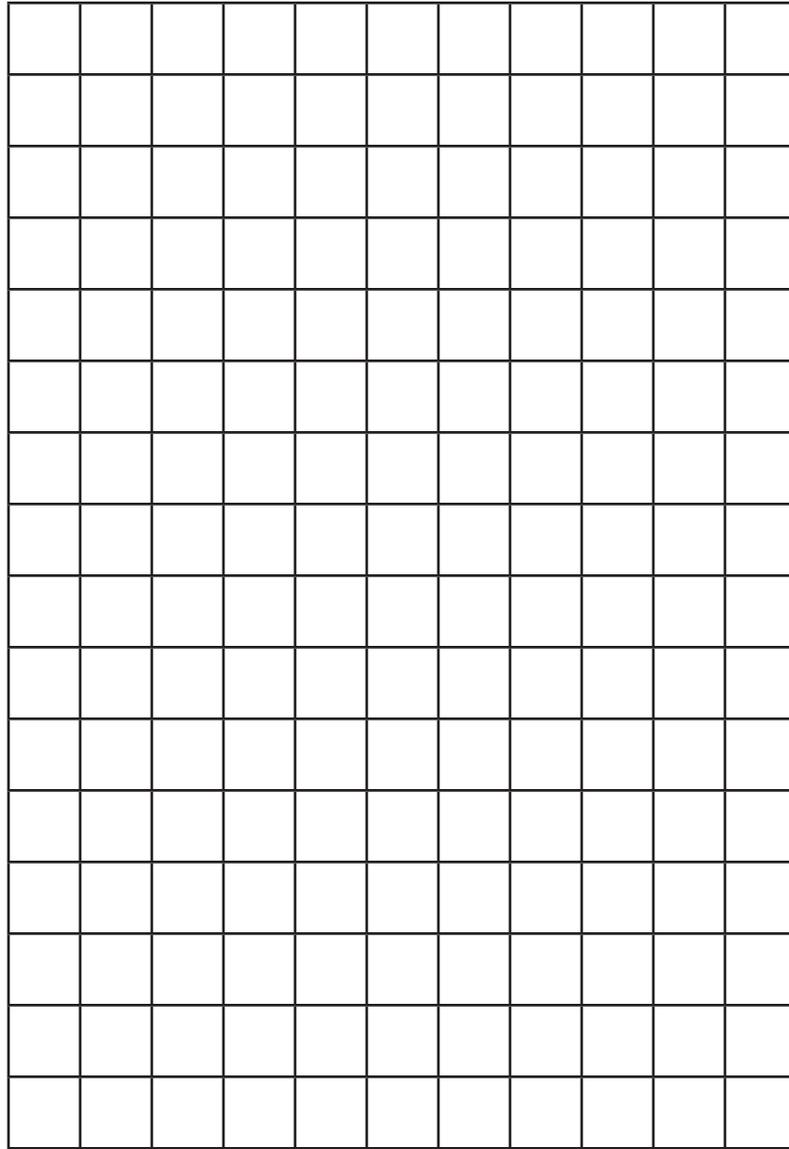
<p>I predict _____</p> <p>_____</p> <p>_____</p> <p>because _____</p> <p>_____</p> <p>_____</p> <p>_____</p>
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1. Use the data collected for each of the three investigations—**Sand Only**, **Sand with Sticks**, and **Sand with a Fence**—to make a bar graph of the median change in height.

Title: _____

Median Change in Height of Sand (mm)



Investigations

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Directions: Use data from your investigations to answer questions 2 through 8.

Analyzing and Using Your Results

2. Read your prediction on page 2. Check the box for the statement that **best** describes your data.

The data **supported** my prediction.

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

I know this because

3. Look at your graph on page 3 and think about your data.

Describe how your data for **Sand with Sticks** is different from your data for **Sand Only**. Use the data to support your answer.

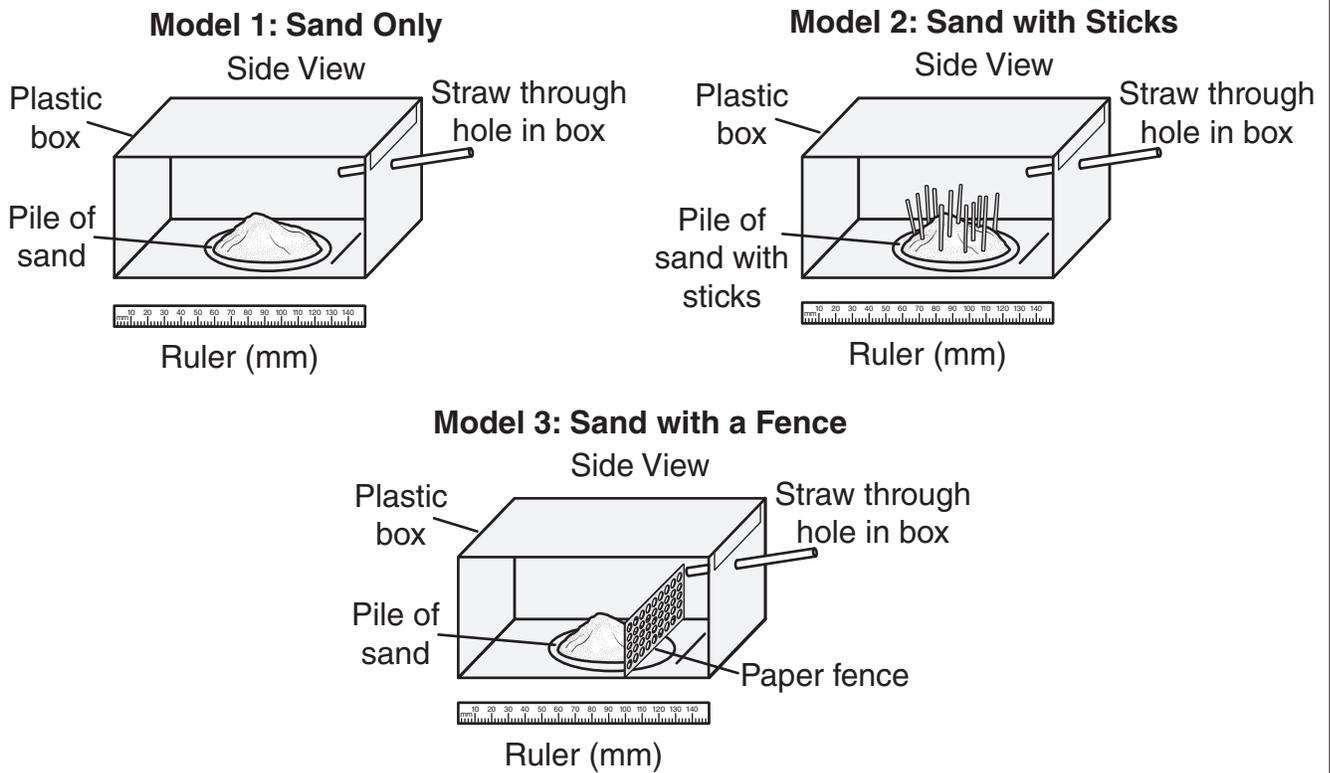
SCIENCE

4. Explain why the results for **Sand Only** are helpful for understanding the results for **Sand with Sticks** and **Sand with a Fence**.

Read the definition below from the Word Bank on page 1.

Model: a smaller version of something that happens in nature

These three models were used in these investigations.



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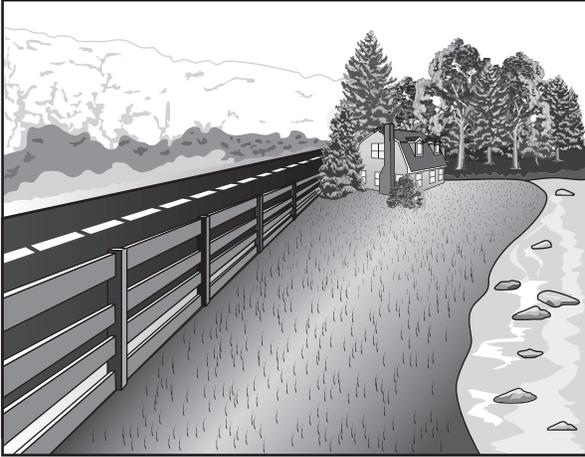
- 5.** Explain why the models used in these investigations can be used to study how wind changes sand dunes. Use your data and observations to support your answer.

Applying What You've Learned

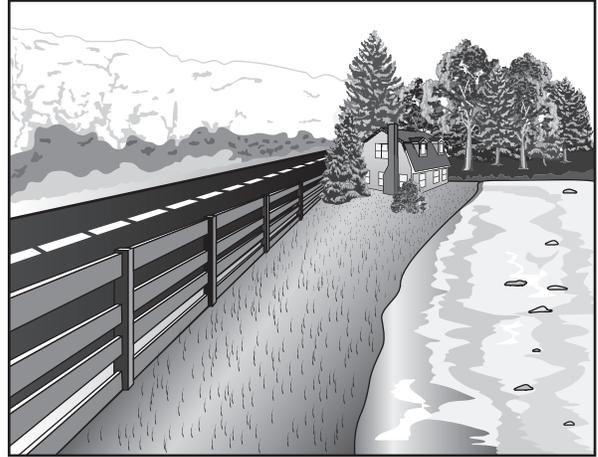
- 6.** Explain what people could do to keep the dunes at the beach in place. Use your data to explain why this would work.

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Janelle visits her grandmother at her house on the Black River every summer. This summer she observed that the edge of the water was closer to the fence than it was last summer. The pictures below show the river and the fence last summer and this summer.



Last Summer



This Summer

Janelle looked at the pictures and noticed that the river was wearing away her grandmother's yard. She wanted to do something to stop the river from wearing away the yard so she piled logs along the riverbank.

- 7.** What information does Janelle need to gather to see if piling logs stopped the river from wearing away the yard?
