

Date: _____

Your Name: _____



**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

Released Science Inquiry Task

Toy Skateboard Roll

2014

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 your investigation to construct a bar graph and to answer questions.

Word Bank

Median	the middle number in a list of numbers arranged from smallest to largest Example: The median for 2 cm, 4 cm, and 5 cm is 4 cm.
Model	a testable idea used to learn about the natural world
Ramp	a sloped surface connecting a higher place to a lower place

Copy the data from your investigation into Data Table 3 below. You can find your data tables on pages 5 and 6 in your Inquiry Booklet.

Data Table 3: Distance of Toy Skateboard's Roll (cm)

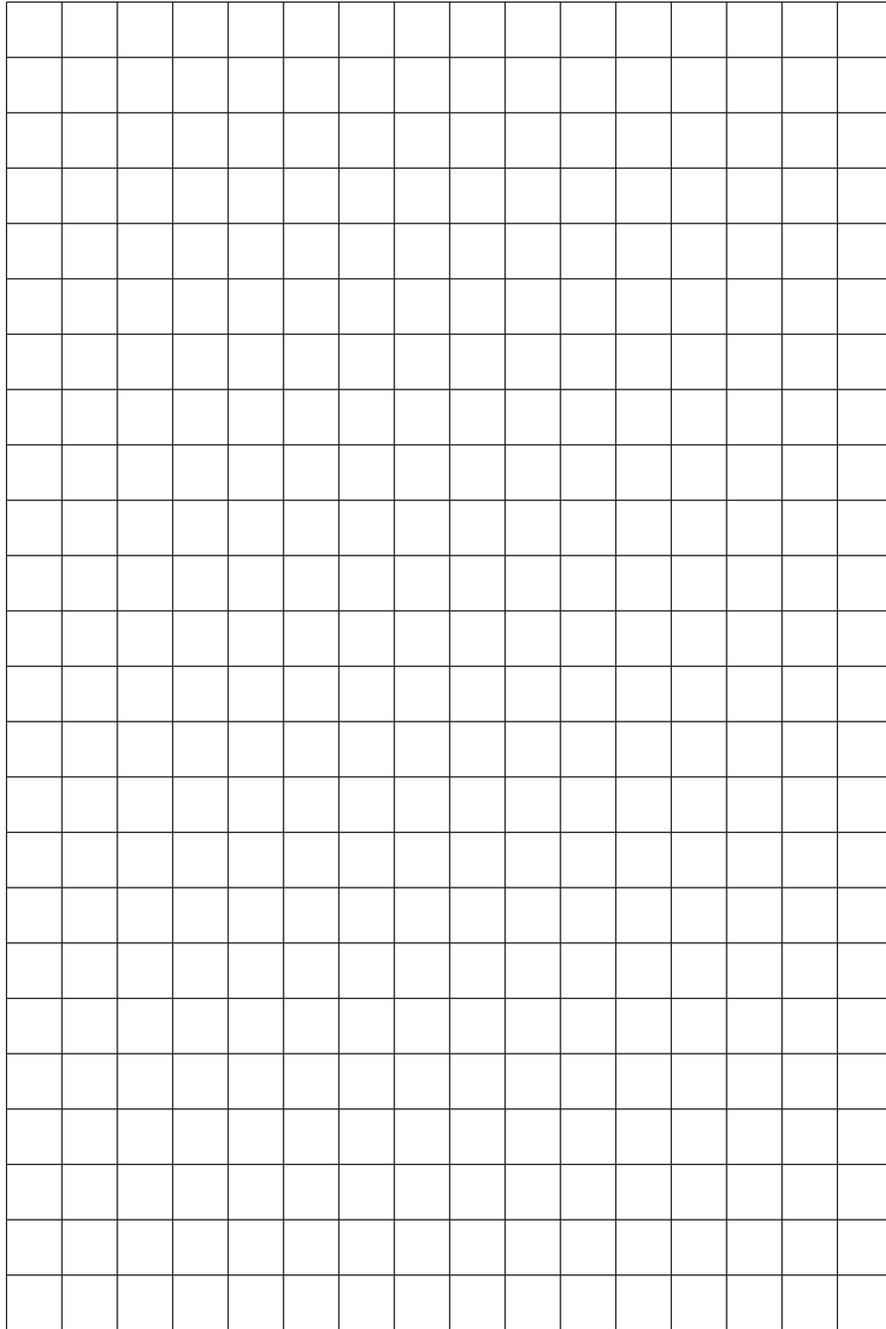
Ramp Height	Median
1 block	
2 blocks	

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1. Use the data you recorded in Data Table 3 on page 10 to make a bar graph that shows the **median** distances the toy skateboard rolled at ramp heights of **1 block** and **2 blocks**. Label and title your graph.

Title: _____

Median Distance (cm)



Ramp Height

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Analyzing and Using Your Results

Copy your prediction and explanation from page 2 in your Inquiry Booklet on the lines below.

I predict

because

2. Check the box next to the statement that best describes whether your data supported your prediction.

- Yes, the data **supported** my prediction.
- No, the data **did not support** my prediction.

Use evidence from your investigation to explain why your data and observations did or did not support your prediction.

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3. Explain why it was important to perform three trials in each part of this investigation. Support your reasoning with evidence (data and observations) from your investigation.

4. You built a model of Hillary's skateboard ramp to test your prediction.

Check the box next to the statement that identifies whether the model was useful for testing the prediction you made.

- The model **was** useful to test the prediction that I made.
- The model **was not** useful to test the prediction that I made.

Give **two** reasons using a model to test your prediction **was** or **was not** more useful than doing the investigation with a real skateboard and ramp would have been.

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- 5.** Hillary and Andrew want to get more data to help answer their research question. Identify a different investigation that changes Hillary and Andrew's model to help Hillary roll farther on her skateboard. Explain why the results of the new investigation will help Hillary roll farther.

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Designing New Investigations

In questions 6 through 8, you will be asked about a new investigation Hillary and Andrew want to do. You will need to look back at evidence from your investigation to help you answer these questions.

Hillary and Andrew wondered if using a longer ramp would cause their skateboards to roll farther. They decided to use their model to test their idea.

- 6.** Write a **new** research question that could be answered by Hillary and Andrew's ramp length investigation.

Identify one result from your ramp height investigation that helped you write the new research question.

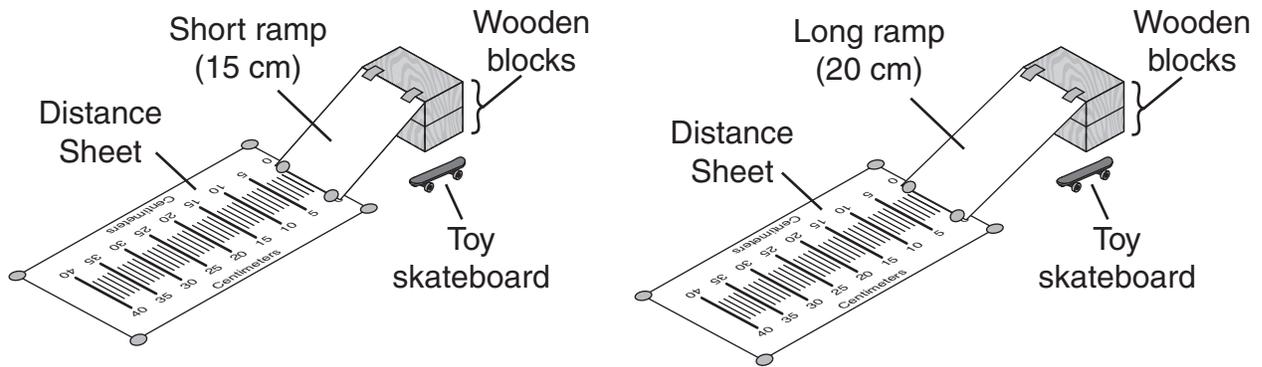
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Hillary and Andrew decided to test the following prediction.

Hillary and Andrew’s Prediction: The skateboard will roll farther when the ramp is longer.

Hillary and Andrew set up their model again, this time with a longer ramp. They decided to use two blocks for the ramp height. The diagram below shows their setup for the ramp length investigation.

Ramp Length Investigation Setup



Hillary and Andrew need to collect similar information from the ramp height investigation and ramp length investigation. They measured the old (short) ramp and the new (long) ramp. The short ramp was 15 cm and the long ramp was 20 cm. They did three trials with the short ramp and three trials with the long ramp.

- 7.** Create a data table that Hillary and Andrew could use to collect and record their data from the ramp length investigation.

My data table:

Ramp Length Investigation Data Distance Skateboard Rolls (cm)

				Median

Explain why the data Hillary and Andrew would collect in your data table would allow them to test their prediction.

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Hillary and Andrew designed a real skateboard ramp that worked too well. They found that they rolled too far and almost rolled out into the street on their skateboards. They realized they had to make a change to the ramp to make the setup safer.

8. Identify one way to change **the real skateboard ramp** that would make the setup safer. Explain why the change would make the new setup safer.

