



EXPEDITIONARY  
LEARNING

# **Grade 4: Module 3A: Unit 2: Lesson 13**

## **Connecting Key Vocabulary and End of Unit 2 Assessment, Part II: Reading and Answering Questions about Experiments**



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Long-Term Targets Addressed (Based on NYSP12 ELA CCLS)	
<p>I can explain the main points in a scientific text, using specific details in the text. (RI.4.3)</p> <p>I can describe the organizational structure in an informational text (chronology). (RI.4.5)</p> <p>I can determine the meaning of academic words or phrases in an informational text. (RI.4.4)</p> <p>I can determine the meaning of content words or phrases in an informational text. (RI.4.4)</p> <p>I can write informative/explanatory texts that convey ideas and information clearly. (W.4.2)</p>	
Supporting Learning Targets	Ongoing Assessment
<ul style="list-style-type: none"><li>• I can explain what happens before, during, and after a scientific experiment.</li><li>• I can document what I observe during a scientific experiment.</li><li>• I can construct a conclusion statement that describes what I learned about wedges.</li></ul>	<ul style="list-style-type: none"><li>• End of Unit 2 Assessment, Part II: Reading and Answering Questions about Experiments</li></ul>



Agenda	Teaching Notes
<ol style="list-style-type: none"><li>Opening<ol style="list-style-type: none"><li>Reviewing Learning Targets (5 minutes)</li></ol></li><li>Work Time<ol style="list-style-type: none"><li>Reviewing the Scientific Method: Concentric Circles (10 minutes)</li><li>End of Unit Assessment, Part II: Answering Questions about Experiments (35 minutes)</li></ol></li><li>Closing and Assessment<ol style="list-style-type: none"><li>Tracking My Progress (10 minutes)</li></ol></li><li>Homework<ol style="list-style-type: none"><li>Make some observations and record a list of types of work that you see on your way home or at home that you think could be made easier with a simple machine.</li><li>Continue reading in your independent reading book for this unit at home.</li></ol></li></ol>	<ul style="list-style-type: none"><li>In Part II of the End of Unit 2 Assessment, students read and answer questions about an experiment, then conduct and write about the results of an experiment.</li><li>In advance: Prepare materials for students to conduct the experiment (<i>Simple Machines: Forces in Action</i>, page 14). If materials are limited, consider having students conduct the experiment with a partner or in small groups and then asking them to answer questions individually.</li><li>Consider what your classroom expectations are for conducting this experiment during the assessment, as many students will likely be reading or writing while others conduct the experiment.</li><li>Before distributing the text <i>Simple Machines: Forces in Action</i> to students, use a large sticky note or strip of paper to cover up the “How Does It Work?” box on the top half of page 15.</li><li>Post: Learning targets.</li></ul>



Lesson Vocabulary	Materials
scientific process, hypothesis, observations, conclusion (review from previous lessons)	<ul style="list-style-type: none"><li>• Equity sticks</li><li>• Scientific Method anchor chart (from Lesson 2)</li><li>• End of Unit 2 Assessment, Part II: Reading and Answering Questions about Experiments (one per student)</li><li>• <i>Simple Machines: Forces in Action</i> pages 14–15 (with top of page 15 covered) (book; one per student)</li><li>• Tracking My Progress, End of Unit 2, Part II recording form (one per student)</li><li>• End of Unit 2 Assessment, Part II: Reading and Answering Questions about Experiments (answers, for teacher reference)</li><li>• 2-Point Rubric: Writing from Sources/Short Response (for teacher reference)</li></ul>

Opening	Meeting Students' Needs
<p><b>A. Reviewing Learning Targets (5 minutes)</b></p> <ul style="list-style-type: none"><li>• Post and review the following learning targets: “I can explain what happens before, during, and after a scientific experiment,” “I can document what I observe during a scientific experiment,” and “I can construct a conclusion statement that describes what I learned about wedges using scientific vocabulary.” Tell students today they get to show what they know about reading, conducting, and writing about experiments and they will do this with the wedge.</li><li>• Have students Think-Pair-Share on the following prompt:<ul style="list-style-type: none"><li>* Based on your experience reading, conducting, and writing about experiments, what do these targets mean? Give evidence from the experiments we have conducted on simple machines so far.</li></ul></li><li>• Ask pairs to share their specific examples with the class. Listen for students to say things like: “When we experimented with the inclined plane, we observed _____ and wrote this in our notes,” or “In our experiment with the pulley, we read _____.”</li></ul>	



Work Time	Meeting Students' Needs
<p><b>A. Reviewing the Scientific Method: Concentric Circles (10 minutes)</b></p> <ul style="list-style-type: none"><li>• Tell students they are going to review the scientific method by discussing questions in Concentric Circles, much like they did with the guiding question in Lesson 1.</li><li>• Ask the students to find a partner and number off 1 and 2 (if there is an odd number of students, triads are fine). Direct all 1s to form an inner circle (shoulder-to-shoulder) facing out. Then direct the 2s to stand in front of their partners.</li><li>• Remind them of the Concentric Circles protocol directions from Lesson 1. Ask the students to discuss the following question: “Why do scientists conduct experiments?”</li><li>• Give students 2 minutes to share. Then use <b>equity sticks</b> to cold call a few pairs and have them share their thinking.</li><li>• Have the outside circle move two people to the left to discuss the remaining questions. Have students move as you present them with each new question.<ul style="list-style-type: none"><li>* “What is a hypothesis?”</li><li>* “Why is careful observation and recording important in an experiment?”</li><li>* “What makes a good experiment conclusion?”</li></ul></li><li>• As the students are discussing the topic, circulate and listen for students to reference information on the Scientific Method anchor chart.</li><li>• Have students gather together as a whole group. Post the <b>Scientific Method anchor chart</b>. Review the steps with students. Ask them to think about these steps as they complete their assessment.</li></ul>	<ul style="list-style-type: none"><li>• Using sentence frames can help ELLs articulate their learning. Using the word “because” in the sentence frame helps all students support their thinking with evidence.</li><li>• When using the Concentric Circles protocol in a class with an odd number of students, consider creating triads to support students who struggle with verbalizing their thinking.</li></ul>



Work Time (continued)	Meeting Students' Needs
<p><b>B. End of Unit 2 Assessment, Part II: Reading and Answering Questions about Experiments (35 minutes)</b> <i>Note: Students need to keep the top of page 15 in Simple Machines: Forces in Action covered while they are answering Questions 1 through 9 of this assessment.</i></p> <ul style="list-style-type: none"><li>• Have students prepare to take the assessment by clearing their table/desk. Distribute the <b>End of Unit 2 Assessment, Part II: Reading and Answering Questions about Experiments</b>. Review the directions at the top of the assessment and point out where students should stop and conduct the experiment.</li><li>• Explain to students where to perform the experiment when they are ready. Be sure to share the expectations for this portion of the assessment, as some students will likely still be reading and answering questions when others begin the experiment. If students are to share or take turns with materials, let them know expectations for this as well.</li><li>• Once students are clear on the directions for the assessment distribute the text <b><i>Simple Machines: Forces in Action</i> pages 14 and 15</b>. Remind students to keep the top of page 15 covered until they have answered Questions 1 through 9.</li><li>• Let students begin. Circulate to support them as they transition to conducting the experiment and writing about the results.</li></ul>	<ul style="list-style-type: none"><li>• Allow ELLs additional time to complete their assessment. They will receive extra time on the New York State assessment.</li></ul>



Closing and Assessment	Meeting Students' Needs
<p><b>A. Tracking My Progress (10 minutes)</b></p> <ul style="list-style-type: none"><li>• Ask students to complete the <b>Tracking My Progress, End of Unit 2, Part II recording form</b>. Collect students' assessments and Tracking My Progress sheets. Compare students' reflections on the learning targets to their performance on this assessment to inform future instruction.</li><li>• If students finish early, have them continue their independent reading from this module.</li><li>• Congratulate students for working so hard to learn to read scientific text independently. Note their growing knowledge about simple machines; they will get to apply this as writers during Unit 3.</li></ul>	<ul style="list-style-type: none"><li>• For students who struggle with language, consider giving them a list of key academic and scientific words they might use in their reflections.</li></ul>
Homework	Meeting Students' Needs
<ul style="list-style-type: none"><li>• Make some observations and record a list of types of work that you see on your way home or at home that you think could be made easier with a simple machine.</li><li>• Continue reading in your independent reading book for this unit at home.</li></ul>	



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# Grade 4: Module 3A: Unit 2: Lesson 13

## Supporting Materials



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End of Unit 2 Assessment, Part II:  
Reading and Answering Questions about Experiments

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Directions:**

1. Read page 14 in *Simple Machines: Forces in Action*.
2. Answer Questions 1 through 7 about the text. Then stop.
3. Conduct the experiment and record your observations for Question 8.
4. Write your conclusion for Question 9.
5. Uncover the “How Does It Work?” box of the text and answer Questions 10 and 11.

1. What is the best description of this text?
  - A. It compares and contrasts different wedges.
  - B. It presents a problem that can be solved using a wedge.
  - C. It explains how a wedge affects work.
  - D. It gives ordered steps for a procedure using different wedges.
2. Which of the following is NOT a characteristic of this text?
  - A. diagrams
  - B. dialogue
  - C. numbered steps
  - D. bulleted list
3. What is the purpose of the yellow box at the top of page 14?

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End of Unit 2 Assessment, Part II:  
Reading and Answering Questions about Experiments

4. The diagram at the bottom of page 14 helps the reader to visualize which step in the experiment?

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5. How many times is the reader asked to record measurements?

- A. twice
- B. five times
- C. three times
- D. once

6. In Step 4, the reader is asked to:

- A. Record the distance.
- B. Use the skinny wedge.
- C. Use the fat wedge.
- D. Use a ruler.

7. Reread the text and write your **hypothesis**: What do you think is going to happen? Use evidence from the text to support your prediction.

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**STOP HERE: Conduct the experiment now. Then answer the remaining questions.**



End of Unit 2 Assessment, Part II:  
Reading and Answering Questions about Experiments

Use vocabulary from this word bank to help you answer the questions below.

effort	force
experiment	wedge
simple machine	work

8. **Observations:** As you conduct this experiment, what do you see happening?

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9. **Conclusion:** Describe what you have learned about the wedge and how it works.

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End of Unit 2 Assessment, Part II:  
Reading and Answering Questions about Experiments

**\*Uncover the top of page 15 in the text and read the “How Does It Work?” section. Then answer the following questions.**

10. Which explanation of how a wedge affects a force is supported by the text?
- A. Pushing down on a wedge increases the force.
  - B. Pushing down on a wedge does not affect the force.
  - C. Pushing down on a wedge changes the direction of the force to sideways.
  - D. Pushing down on a wedge changes the direction of the force upwards.
11. According to the text, how is the distance between the blocks affected by using the thin versus the thick wedges?
- A. Thick wedges take more effort than thin wedges, but move the blocks a greater distance.
  - B. Thin and thick wedges both move the blocks an equal distance.
  - C. Thick wedges do not move the blocks.
  - D. Thick wedges don't work as well as thin wedges.



Tracking My Progress, End of Unit 2, Part II

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Learning target:** I can explain what happens before, during, and after a scientific experiment.

1. The target in my own words is:

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2. How am I doing? Circle one.

**I need more help to learn this**



**I understand some of this**



**I am on my way!**



3. The evidence to support my self-assessment is:

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Tracking My Progress, End of Unit 2, Part II

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Learning target:** I can document what I observe during a scientific experiment.

1. The target in my own words is:

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2. How am I doing? Circle one.

**I need more help to learn this**



**I understand some of this**



**I am on my way!**



3. The evidence to support my self-assessment is:

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Tracking My Progress, End of Unit 2 Assessment, Part II

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Learning target:** I can construct a conclusion statement that describes what I learned about wedges.

1. The target in my own words is:

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2. How am I doing? Circle one.

**I need more help to learn this**



**I understand some of this**



**I am on my way!**



3. The evidence to support my self-assessment is:

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**End of Unit 2 Assessment, Part II:**  
Reading and Answering Questions about Experiments  
(Answers, for Teacher Reference)

**Standards assessed:**

Questions 1, 2, 3, and 4 (RI.4.5); Questions 5, 6, 10, and 11 (RI.4.3); Questions 7, 8, and 9 (W.4.2).

**Directions:**

1. Read page 14 in *Simple Machines: Forces in Action*.
2. Answer Questions 1 through 7 about the text. Then stop.
3. Conduct the experiment and record your observations for Question 8.
4. Write your conclusion for Question 9.
5. Uncover the “How Does It Work?” box of the text and answer the remaining Questions 10 and 11.

1. What is the best description of this text?
  - A. It compares and contrasts different wedges.
  - B. It presents a problem that can be solved using a wedge.
  - C. It explains how a wedge affects work.
  - D. **It gives ordered steps for a procedure using different wedges.**
2. Which of the following is NOT a characteristic of this text?
  - A. diagrams
  - B. **dialogue**
  - C. numbered steps
  - D. bulleted list

3. What is the purpose of the yellow box at the top of page 14?

**[Possible Answer] It tells the materials needed for the experiment.**



**End of Unit 2 Assessment, Part II:**  
Reading and Answering Questions about Experiments  
(Answers, for Teacher Reference)

4. The diagram at the bottom of page 14 helps the reader to visualize which step in the experiment?

**[Possible Answers] Step 2, Step 4, or Steps 2 and 4**

5. How many times is the reader asked to record measurements?

- A. **twice**
- B. five times
- C. three times
- D. once

6. In Step 4, the reader is asked to:

- A. Record the distance.
- B. Use the skinny wedge.
- C. **Use the fat wedge.**
- D. Use a ruler.

End of Unit 2 Assessment, Part II:  
Reading and Answering Questions about Experiments  
(Answers, for Teacher Reference)

Use the attached rubric to score the following questions.

7. Reread the text and write your **hypothesis**: What do you think is going to happen? Use evidence from the text to support your prediction.

**[Possible Responses]**

- **Both wedges will push the blocks apart.**
- **The thick wedge will push the blocks farther apart than the thin wedge.**
- **It will be harder to push the blocks apart with the thick wedge.**

8. **Observations**: As you conduct this experiment, what do you see happening?

**[Possible Answer]** When I used put a force down on the blocks using the skinny wedge the blocks moved \_\_\_\_\_ inches apart. When I put a force down using the fat wedge the blocks moved \_\_\_\_\_ inches apart.

9. **Conclusion**: Describe what you have learned about the wedge and how it works.

**[Possible Answer]** In this experiment I learned that the wedge is a simple machine that pushes things apart. I found that fat wedges move things more than skinny wedges, but I had to push harder. I think this means you need to use more effort with fat wedges and less with skinny wedges, but they can both help you do work.



End of Unit 2 Assessment, Part II:  
Reading and Answering Questions about Experiments  
(Answers, for Teacher Reference)

**\*Uncover the top of page 15 in the text and read the “How Does It Work?” section.  
Then answer the following questions.**

10. Which explanation of how a wedge affects a force is supported by the text?
- A. Pushing down on a wedge increases the force.
  - B. Pushing down on a wedge does not affect the force.
  - C. **Pushing down on a wedge changes the direction of the force to sideways.**
  - D. Pushing down on a wedge changes the direction of the force upwards.
11. According to the text, how is the distance between the blocks affected by using the thin versus the thick wedges?
- A. **Thick wedges take more effort than thin wedges, but move the blocks a greater distance.**
  - B. Thin and thick wedges both move the blocks an equal distance.
  - C. Thick wedges do not move the blocks.
  - D. Thick wedges don't work as well as thin wedges.



**2-Point Rubric: Writing from Sources/Short Response<sup>1</sup>**  
(For Teacher Reference)

Use the below rubric for determining scores on short answers in this assessment.

<b>2-point Response</b>	The features of a 2-point response are:
	<ul style="list-style-type: none"><li>• Valid inferences and/or claims from the text where required by the prompt</li><li>• Evidence of analysis of the text where required by the prompt</li><li>• Relevant facts, definitions, concrete details, and/or other information from the text to develop response according to the requirements of the prompt</li><li>• Sufficient number of facts, definitions, concrete details, and/or other information from the text as required by the prompt</li><li>• Complete sentences where errors do not impact readability</li></ul>
<b>1-point Response</b>	The features of a 1-point response are:
	<ul style="list-style-type: none"><li>• A mostly literal recounting of events or details from the text as required by the prompt</li><li>• Some relevant facts, definitions, concrete details, and/or other information from the text to develop response according to the requirements of the prompt</li><li>• Incomplete sentences or bullets</li></ul>
<b>0-point Response</b>	The features of a 0-point response are:
	<ul style="list-style-type: none"><li>• A response that does not address any of the requirements of the prompt or is totally inaccurate</li><li>• No response (blank answer)</li><li>• A response that is not written in English</li><li>• A response that is unintelligible or indecipherable</li></ul>

<sup>1</sup>From New York State Department of Education, October 6, 2012.