



EXPEDITIONARY
LEARNING

Grade 4: Module 3A: Unit 1: Lesson 3

Mid-Unit 1 Assessment and Introduction to Science Talks



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Long-Term Targets Addressed (Based on NYSP12 ELA CCLS)

I can effectively engage in discussions with diverse partners about fourth-grade topics and texts. (SL.4.1)

I can determine the main idea using specific details from the text. (RI.4.2)

I can explain the main points in a historical, scientific, or technical text, using specific details in the text. (RI.4.3)

Supporting Learning Targets

- I can determine the main idea of a scientific text.
- I can explain how simple machines help people do work using details from the text.
- I can effectively participate in a Science Talk about simple machines. I can prepare for the Science Talk by gathering evidence from scientific texts about simple machines.

Ongoing Assessment

- Mid-Unit 1 Assessment: Finding the Main Idea of a Scientific Text
- Simple Machine Science journals (page 9)



Agenda	Teaching Notes
<ol style="list-style-type: none">1. Opening<ol style="list-style-type: none">A. Engaging the Reader and Reviewing Learning Targets (5 minutes)2. Work Time<ol style="list-style-type: none">A. Mid-Unit 1 Assessment: Finding the Main Idea of a Scientific Text (20 minutes)B. Science Talks: Communicating Like Scientists (5 minutes)C. Preparing Evidence and Questions for the Science Talk (10 minutes)D. Conducting the Science Talk (15 minutes)3. Closing and Assessment<ol style="list-style-type: none">A. Reflect on Discussion (5 minutes)4. Homework<ol style="list-style-type: none">A. Continue reading in your independent reading book for this unit at home.	<ul style="list-style-type: none">• Science Talks provide students the opportunity to collectively theorize and build on each other's ideas. These talks provide a window to students' thinking that helps teachers figure out what students know and possible misconceptions.• Because this lesson is an introduction to the Science Talk for students, it may take longer than 60 minutes to complete the mid-unit assessment and the Science Talk. Consider breaking this lesson into two class periods if you feel that your students need more time to complete these tasks.• Students will need access to pages 4–5 of <i>Simple Machines: Forces in Action</i> and their Simple Machines Science journals (for their Science Talk).• Review: Science Talk protocol (see Appendix).• Post: Learning targets.



Lesson Vocabulary	Materials
norms, discussion, Science Talk, participate, effectively, inform, impact	<ul style="list-style-type: none">• Mid-Unit 1 Assessment: Finding the Main Idea of a Scientific Text (one per student)• Mid-Unit 1 Assessment (answers, for teacher reference)• 2-Point Rubric: Writing from Sources/Short Response (for teacher reference)• Science Talk Norms anchor chart (newly created)• Simple Machine Science journals (introduced in Lesson 2)• Document camera• Participating in a Science Talk anchor chart (see supporting materials)• Sticky notes• Science Talk Criteria checklist (for teacher reference)• Equity sticks



Opening	Meeting Students' Needs
<p>A. Engaging the Reader and Reviewing Learning Targets (5 minutes)</p> <ul style="list-style-type: none">• Collect students' homework from Lesson 2.• Tell students today they will complete a formal assessment in which they will do on their own much of what they have been practicing:<ul style="list-style-type: none">– Read an informational text.– Identify and record the main idea and details in the graphic organizer.– Answer text-dependent questions.– Write a paragraph based on details from the text.• Remind them they will need to refer to the text to answer the questions thoroughly. They will be assessed on being able to identify the main idea and details from the text that support it.• Encourage students to do their best. Let them know this is a chance to show what they know and the effort they make to read carefully and identify important details in an informational text. This also is an opportunity to discover even more about simple machines.• Ask students to read the first two learning targets silently (“I can determine the main idea of a scientific text,” and “I can write a paragraph explaining how simple machines are used in daily life using details from the text”). Have them give a thumbs-up if they are clear on what's expected of them, a thumbs-sideways if they understand part but not all of what to do, and a thumbs-down if they are very unsure. Address any clarifying questions before beginning the assessment.	<ul style="list-style-type: none">• Using visual cues or physical gestures for the term <i>main idea</i> will help your ELLs connect this to learning done in previous sessions.• Consider underlining or drawing a box around the vocabulary words in the learning targets to help struggling readers focus on those key words.



Work Time	Meeting Students' Needs
<p>A. Mid-Unit 1 Assessment: Finding the Main Idea of a Scientific Text (20 minutes)</p> <ul style="list-style-type: none"> • Distribute the Mid-Unit 1 Assessment: Finding the Main Idea of a Scientific Text. Give students 20 minutes to complete the assessment. • While students take the assessment, circulate to monitor their test-taking skills. This is an opportunity to analyze students' behaviors while taking an assessment. Document strategies students are using during the assessment. For example, look for students annotating their text, using their graphic organizer to take notes before answering questions, and students going back to the text as they answer questions. 	<ul style="list-style-type: none"> • For students needing additional support producing language, consider offering a word bank of content words from the text to be used in the graphic organizer.
<p>B. Science Talks: Communicating Like Scientists (5 minutes)</p> <ul style="list-style-type: none"> • Introduce the Science Talk by saying researchers share information they have learned with others and ask questions of other experts. This helps experts build their understanding by sharing their own thoughts as well as learn from what others say. Experts in the real world talk all the time to expand their thinking. • Remind students of all the learning they have done so far about simple machines. Tell them today they will have the opportunity to use what they've learned in a Science Talk. Share today's last learning target for the Science Talk. "I can effectively participate in a Science Talk about simple machines." Ensure that students understand the meaning of the words <i>effectively</i> and <i>participate</i>. • Inform students that a Science Talk is a discussion about big or important questions scientists have. While scientists discuss these big questions with one another, it is important for them to create a set of rules, or norms, they'll follow so everyone's ideas can be heard and considered. • Start a Science Talk Norms anchor chart and focus students' attention on the phrase <i>effectively participate</i>. Ask them what it looks/sounds like to effectively participate with peers. Listening for ideas such as: "Wait my turn to speak, so I am heard; don't shout/speak too loudly; make sure everyone gets a turn to speak; no one person does most/all of the speaking; use information from text to support my ideas," etc. Add students' ideas to the anchor chart. 	<ul style="list-style-type: none"> • Science Talks help your ELLs process their thinking verbally, and learn from the thoughts of others. • Encourage students to agree or disagree using thumbs-ups or thumbs-down. This can help students who struggle with language to process what their peers say. • Consider drawing visuals next to each norm, giving ELLs another access point to understand the text. Providing visual models of academic vocabulary supports language development and comprehension.



Work Time (continued)	Meeting Students' Needs
<p>C. Preparing Evidence and Questions for the Science Talk (10 minutes)</p> <ul style="list-style-type: none">• Ask the class the Science Talk question (which is also a guiding question): “How do simple machines impact our lives?” Clarify the meaning of the word <i>impact</i> if necessary. During this talk, students will start to build an understanding of how simple machines impact our lives.• Refer to the supporting learning target for today: “I can prepare for the Science Talk by gathering evidence from scientific texts about simple machines.” Explain the importance of experts sharing specific evidence from texts in their discussions with others.• Show page 9 of the Simple Machine Science journals on the document camera. Point out the different sections for recording notes on this page. Indicate to students they will only be taking notes on the first two sections of the recording form. The last two sections are for reflection and goal setting.• Briefly model how to fill in the first section on page 9 using evidence from the texts. In the first column, you could write: “When I read that pyramid workers used levers to help pick up bricks.” And in the second column: “I think levers help lift heavy things.”• Explain to students that the section marked “My Science Talk Notes: Ideas and Questions” is a space to write notes and questions during the Science Talk and to leave this space blank until the discussion begins.• Give students 10 minutes to complete their first section of page 9. Confer with the class as necessary, and remind them to use specific evidence from the text to support their thinking.	<ul style="list-style-type: none">• Having the students generate a physical gesture for the word <i>impact</i> will help your struggling readers associate meaning to this word.• Allow ELLs and other students to use pictures and symbols as necessary on their recording forms.



Work Time (continued)	Meeting Students' Needs
<p>D. Conducting the Science Talk (15 minutes)</p> <ul style="list-style-type: none">• Gather students on the rug. Remind them to bring their Simple Machine Science journals. Display the Participating in a Science Talk anchor chart for students. Briefly review the anchor chart with students, and answer any clarifying questions.• Remind students they can take notes in the second section on page 9 of their Science journal if they think of an idea or question they would like to share while waiting their turn to speak.• As you circulate and note which students speak and what ideas are being shared, record these observations on sticky notes. Refer to these in future lessons.• Direct students to begin the Science Talk. Use the Science Talk Criteria checklist during this time to monitor student progression toward the learning targets. Quickly redirect and support students as needed, but avoid leading the conversation. Remind students that their questions and comments should be directed to one another, not the teacher. Briefly review the Science Talk Norms anchor chart.	<ul style="list-style-type: none">• Provide sentence frames for students as they participate in the Science Talk: “When I saw/heard _____, I learned _____” and “I wonder _____.”



Closing and Assessment	Meeting Students' Needs
<p>A. Reflect on Discussion (5 minutes)</p> <ul style="list-style-type: none"> Read aloud the learning target: "I can effectively participate in a Science Talk about simple machines." Ask students to give a thumbs-up if they met the target or thumbs-down if they still need to work on the target. Using equity sticks, cold call several students to share why they gave themselves a thumbs-up or thumbs-down, prompting them to refer to the norms they determined for the Science Talk Norms anchor chart to support their self-assessment. 	<ul style="list-style-type: none"> Allowing students to work in small groups provides the opportunity for all students to share their voices.
Homework	Meeting Students' Needs
<ul style="list-style-type: none"> Continue reading in your independent reading book for this unit at home. <p><i>Note: Students will need specific feedback from this Science Talk to reflect on and set goals before beginning their next Science Talk (Unit 2, Lesson 6). Write feedback on the Teacher Feedback sections on page 9 of students' Simple Machines Science journal.</i></p> <p><i>Focus the feedback on the learning target that was emphasized in this lesson: "I can prepare for the Science Talk by using evidence from scientific texts." Also give suggestions to students who may need more coaching to follow the Science Talk norms created in this lesson. Keep feedback focused, brief, and encouraging. For example: "I noticed that you recorded three pieces of evidence from the text on your form. Great! During our next Science Talk, be sure to mention the text during the class discussion." Or: "I noticed you were able to use evidence from the text when sharing your ideas during the Science Talk. Good work! One thing you should focus on for our next Science Talk is waiting your turn to speak."</i></p>	



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Supporting Materials



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Mid-Unit 1 Assessment:
Finding the Main Idea of a Scientific Text

Name: _____

Date: _____

Directions:

1. Read “Everyday Simple Machines” text.
2. Complete the graphic organizer.
3. Use evidence from the text to answer the questions.

Everyday Simple Machines

Wouldn't it be great if there were some cool inventions that could make work easier? Actually, there are! These inventions are ancient, and they are called **simple machines**. Simple machines have helped people do **work** for ages, and they are still used today.

When you ride an elevator, you are using a pulley. When you cut something with a knife, you are using a wedge. When you open a jar, you are using a screw. Simple machines are all around us. A slide is an inclined plane, a doorknob is actually a wheel and axle, and the handle on your toilet is a lever. It is amazing, really, how our lives are made easier by simple machines.

But simple machines are not called simple because they make life simple; they are called simple because they have few or no moving parts. And they make only a certain type of work easier, too. They won't help with your homework, but they can help you move something. If you need to push, pull, or lift something, a simple machine makes it easier by reducing the amount of **effort** needed.

Great, so using a simple machine means less work, right? Actually, no. When you use a simple machine, there is a trade-off. It takes less effort, but you have to move a greater distance. For example, if you choose to walk up a ramp instead of the stairs, it might not feel as hard, but you have to walk a longer distance. So you end up using about the same amount of **energy**.

So the next time you ride your bike down a ramp, bite down on apple, open a can of peanut butter, reel in a fish, or ride on a seesaw, thank a simple machine. They make work easier, but they can also make life more fun!



Mid-Unit 1 Assessment:
Finding the Main Idea of a Scientific Text

Glossary

effort: a force (push or pull) that moves an object

energy: the ability to do work

simple machines: tools with few or no moving parts that make work easier; there are six types of simple machines: inclined plane, lever, pulley, screw, wedge, and wheel and axle

work: using a force (push or pull) to move an object over a distance

Written by Expeditionary Learning for Instructional Purposes

Sources:

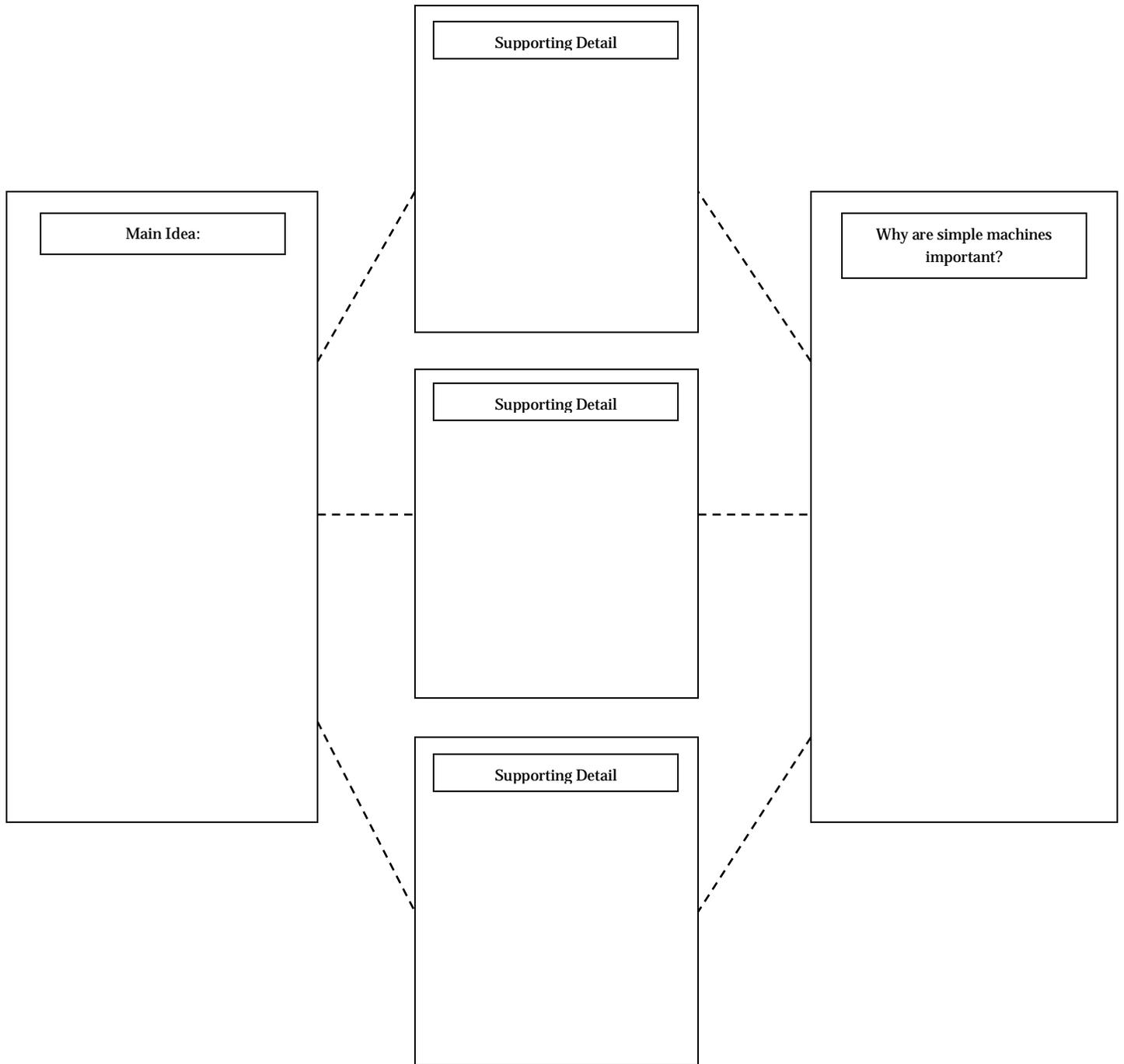
Buffy Silverman, *Simple Machines: Forces in Action*, Do It Yourself series (New York: Heinemann, 2009); ISBN: 978-1-4329-2317-4.

Science Education at Jefferson Lab: <http://education.jlab.org/>, education.jlab.org/jsat/powerpoint/work_and_simple_machines.ppt

The Franklin Institute, Resources for Science Learning: <http://www.fi.edu/qa97/spotlight3/>

Scholastic Teacher Resource: <http://teacher.scholastic.com/dirtrep/simple/invest.htm>

Mid-Unit 1 Assessment:
Finding the Main Idea of a Scientific Text



Mid-Unit 1 Assessment:
Finding the Main Idea of a Scientific Text

1. Which of the following is the best example of a main idea for this text?
 - A. Simple machines are easy to make.
 - B. Simple machines are only good for some work.
 - C. Simple machines are old.
 - D. Simple machines can be found everywhere and are used everyday.

2. Which detail from the text best supports the main idea in Question 1?
 - A. “Simple machines have helped people do work for ages ...”
 - B. “When you ride an elevator, you are using a pulley.”
 - C. Simple machines “have few or no moving parts.”
 - D. “They won’t help with your homework ...”

3. Which detail from the text helps explain how simple machines help with work?
 - A. “... a simple machine makes [work] easier by reducing the amount of effort needed.”
 - B. “They make work easier, but they can also make life more fun!”
 - C. “... our lives are made easier by simple machines.”
 - D. “Simple machines have helped people do work for ages ...”



Mid-Unit 1 Assessment:
Finding the Main Idea of a Scientific Text

4. Reread the following paragraph from the text and answer the question below:

“Great, so using a simple machine means less work, right? Actually, no. When you use a simple machine, there is a trade-off. It takes less effort, but you have to move a greater distance. For example, if you choose to walk up a ramp instead of the stairs, it might not feel as hard, but you have to walk a longer distance. So you end up using the same amount of energy.”

What is the *trade-off* of using simple machines described in this paragraph? Use details from the text to support your answer.

Mid-Unit 1 Assessment:
Finding the Main Idea of a Scientific Text
(Answers, for Teacher Reference)

1. Which of the following is the best example of a main idea for this text?
 - A. Simple machines are easy to make.
 - B. Simple machines are only good for some work.
 - C. Simple machines are old.
 - D. **Simple machines can be found everywhere and are used everyday.**

2. Which detail from the text best supports the main idea in Question 1?
 - A. “Simple machines have helped people do work for ages ...”
 - B. **“When you ride an elevator you are using a pulley.”**
 - C. Simple machines “have few or no moving parts.”
 - D. “They won’t help with your homework ...”

3. Which detail from the text helps explain how simple machines help with work?
 - A. **“... a simple machine makes [work] easier by reducing the amount of effort needed.”**
 - B. “They make work easier, but they can also make life more fun!”
 - C. “... our lives are made easier by simple machines.”
 - D. “Simple machines have helped people do work for ages ...”



2-Point Rubric: Writing from Sources/Short Response¹
(For Teacher Reference)

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

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

¹From New York State Department of Education, October 6, 2012.



Science Talk Criteria Checklist

Student name	Norms	Prepare with evidence	Ask questions to clarify understanding	Connect questions to what others say	Teacher comments



Participating in a Science Talk Anchor Chart

- Real scientists often participate in Science Talks to share ideas and work through questions they have.
- Think about the question: How do simple machines impact our lives?
- Revisit the text and gather evidence to support your thinking.
- Gather in a circle on the floor, with your Science journals.
- Take turns sharing your thinking about the question. Be sure to reference the evidence you gathered from the text.
- As you listen to the conversation, record any new ideas or questions you would like to share with the group as you wait to speak.
- Respond to others and build on their ideas.
- Follow Science Talk norms.