

Unit 2—Matter (FOSS® Physics of Sound)

Essential Question: What are some ways that energy can be changed from one form to another?

Major Understandings: *Quoted from New York State Performance Indicators*

PS 4.1 Describe a variety of forms of energy (e.g., heat, chemical, light) and the changes that occur in objects when they interact with those forms of energy.

4.1a Energy exists in various forms: heat, electric, sound, chemical, mechanical, light.

4.1b Energy can be transferred from one place to another.

4.1c Some materials transfer energy better than others (heat and electricity).

4.1d Energy and matter interact: water is evaporated by the Sun's heat; a bulb is lighted by means of electrical current; a musical instrument is played to produce sound; dark colors may absorb light, light colors may reflect light.

4.1f Heat can be released in many ways, for example, by burning, rubbing (friction), or combining one substance with another.

4.1g Interactions with forms of energy can be helpful or harmful.

4.2a Everyday events involve one form of energy being changed to another.

- animals convert food to heat and motion
- the Sun's energy warms the air and water

4.2b Humans utilize interactions between matter and energy

- chemical to electrical, light and heat: battery and bulb
- electrical to sound (e.g., doorbell buzzer)
- mechanical to sound (e.g., musical instruments, clapping)
- light to electrical (e.g., solar powered calculator)

Grade 3

	Lesson 1 (45 min) Objective(s): Survey / Pre-assessment.	Alignment with NYS Core Curriculum: PS 4.1a-d, f, g; 4.2a-b	
WEEK 1	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Note: Administration of the Survey should be a few days BEFORE the start of the unit. – Teacher Guide, Benchmark Assessment Folio, pp. 1-19, 42 – Download optional tool: Benchmark and I-Check Assessment coding sheets at www.fossweb.com/NYC – Kit preparation: see Teacher Guide, Materials, pp 1-7 and Teacher Preparation Video or DVD (or view at www.fossweb.com/NYC) – Note: see Teacher Guide, Materials, p. 3 for Materials Supplied by the Teacher and Materials from the Physics of Sound Tool Kit 8 	Investigation/Activity <ul style="list-style-type: none"> – Benchmark Assessment Packet, Survey/Posttest pages 1-4 – Letter to Parents, Teacher Sheet No.1 	Homework/Extra Practice

Grade 3

WEEK 1 (continued)	Lesson 2 (45 min) Objective(s): <ul style="list-style-type: none"> • Sounds have identifiable properties. • Objects can be identified by the sound they make when dropped. 	Alignment with NYS Core Curriculum: PS 4.1a, 4.1d		
	Advanced Planning/ Notes to Teacher <ul style="list-style-type: none"> – Teacher Guide Inv. 1: <i>Dropping In</i>, pages 8-11 – Teacher Guide Inv. 1: <i>Dropping In</i>, page 6, Sound Discrimination Assessment and Teacher Observation – www.fossweb.com – Check website for interactive simulations, to write questions to a scientist, for teaching tips, and other websites to support teaching “Physics of Sound” 	Investigation/Activity <ul style="list-style-type: none"> – Investigation1: <i>Dropping In</i>, Part 1: <i>Drop Challenge</i>, #1-11 – Teacher Guide pages 12-14 – Assessment Chart for Investigation 1, Part 1 – Teacher Observation 	Homework/Extra Practice Sit quietly somewhere in your home for 5 minutes. Make a list of all the sounds you heard.	
	Lesson 3 (45 min) Objective(s): <ul style="list-style-type: none"> • Sounds have identifiable properties • Objects can be identified by the sound they make when dropped. 	Alignment with NYS Core Curriculum: PS 4.1a, 4.1d		
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 1: <i>Dropping In</i>, Getting Ready, pages 10-11 – Teacher Guide Science Stories folio, pages 1-3 	Investigation/Activity <ul style="list-style-type: none"> – Investigation1: <i>Dropping In</i> Part 1: <i>Drop Challenge</i>, #12-17 – <i>FOSS Science Stories</i>: “Seeing” the World through Sound, pages 1-4 	Homework/Extra Practice	

Grade 3

WEEK 1 (continued)	Lesson 4 (45 min) Objective(s): <ul style="list-style-type: none"> • Objects can be identified by the sound they make when dropped. • Identifiable properties of sounds can convey information. 		Alignment with NYS Core Curriculum: PS 4.1a, 4.1d
	Advanced Planning/ Notes to Teacher <ul style="list-style-type: none"> – Teacher Guide Inv. 1: <i>Dropping In</i>, Getting Ready, pages 16- 17 – Teacher Guide Science Stories folio, pages 4-5 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 1: <i>Dropping In</i> Part 2: <i>Drop Codes</i>, #1-7 – Teacher Guide pages 18-20 – Student Sheet No. 2 	Homework/Extra Practice

Grade 3

WEEK 2	Lesson 5 (45 min) Objective(s): <ul style="list-style-type: none"> • Objects can be identified by the sound they make when dropped. • Identifiable properties of sounds can convey information. 		Alignment with NYS Core Curriculum: PS 4.1a, 4.1d
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 1: <i>Dropping In</i>, Getting Ready, pages 16- 17 – Teacher Guide Science Stories folio, pages 4-5 – www.fossweb.com – Check website for interactive simulations, to write questions to a scientist, for teaching tips, and other websites to support teaching “Physics of Sound” 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 1: <i>Dropping In</i> Part 2: <i>Drop Codes</i>, #8-11 – Teacher Guide page 20 – Response No. 3 – Assessment Chart for Investigation 1, Part 2–Response Sheet – <i>FOSS Science Stories</i>: Listen to This, pages 5-6 	Homework/Extra Practice Crinkle four different kinds of paper – (foil, wax paper, writing paper, newspaper, tissue paper, facial tissue). As you crinkle each one listen to the sound they make. Is there a difference in the sounds they make? Try to describe each sound. Write down your observations.
	Lesson 6 (45 min) Objective(s): <ul style="list-style-type: none"> • Sustained sound is caused by vibrations. • Sound requires a source and a receiver. • The intensity of the vibration determines the volume. 		Alignment with NYS Core Curriculum: PS 4.1a-d
	Advanced Planning/ Notes to Teachers Teacher Guide Inv. 1: <i>Dropping In</i> , Getting Ready, pages 21-24	Investigation/Activity <ul style="list-style-type: none"> – Investigation 1: <i>Dropping In</i> Part 3: <i>Sound and Vibrations</i>, #1-7 – Teacher Guide pages 25-26 	Homework/Extra Practice Math Extension, Student Sheet No. 29

Grade 3

WEEK 2 (continued)	Lesson 7 (45 min) Objective(s): <ul style="list-style-type: none"> • Sustained sound is caused by vibrations. • Sound requires a source and a receiver. • The intensity of the vibration determines the volume. 		Alignment with NYS Core Curriculum: PS 4.1a-d
	Advanced Planning/ Notes to Teachers Teacher Guide Inv. 1: <i>Dropping In</i> , Getting Ready, pages 21-24	Investigation/Activity <ul style="list-style-type: none"> – Investigation 1: <i>Dropping In</i> Part 3: <i>Sound and Vibrations</i>, #8-17 – Teacher Guide page 27-28 – Assessment Chart for Investigation 1, Part 3 – Teacher Observation – Student Sheet No. 4-5 	Homework/Extra Practice
	Lesson 8 (45 min) Objective(s): <ul style="list-style-type: none"> • Sustained sound is caused by vibrations. • Sound requires a source and a receiver. • The intensity of the vibration determines the volume. 		Alignment with NYS Core Curriculum: PS 4.1a-d
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 1: <i>Dropping In</i>, Getting Ready, pages 21-24 – Teacher Guide Science Stories folio, pages 6-7 – Teacher Guide, Benchmark Assessment Folio, I-Check 1, pp. 20-25, 42 – Plan Assessment Review time with class after teacher assessment coding. 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 1: <i>Dropping In</i> Part 3: <i>Sound and Vibrations</i>, #18-20 –Teacher Guide page 29 –<i>FOSS Science Stories: Animal Babble</i>, pages 7-8; Your Source and Receiver, pages 9-10 	Homework/Extra Practice Home School Connection Student Sheet No. 33

Grade 3

WEEK 3	Lesson 9 (45 min) Objective(s): <ul style="list-style-type: none"> • Sounds have identifiable properties. • Objects can be identified by the sound they make when dropped. • Identifiable properties of sounds can convey information. • Sustained sound is caused by vibrations. • Sound requires a source and a receiver. • The intensity of the vibration determines the volume. 		Alignment with NYS Core Curriculum: PS 4.1a-d	
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide, Benchmark Assessment Folio, pp. 20-25, 42 – Plan Assessment Review time with class after teacher assessment coding. 	Investigation/Activity Benchmark Assessment Packet, Investigation 1 I-Check pages 1-3		Homework/Extra Practice
	Lesson 10 (45 min) Objective(s): <ul style="list-style-type: none"> • Sound originates from vibrating sources. • Pitch is how high or low a sound is. • Differences in pitch are caused by differences in the rate at which objects vibrate. 		Alignment with NYS Core Curriculum: PS 4.1a-d	
	Advanced Planning/ Notes to Teachers Teacher Guide Inv. 2: <i>Good Vibrations</i> , Getting Ready, pages 8-9	Investigation/Activity <ul style="list-style-type: none"> – Investigation 2: <i>Good Vibrations</i> Part 1: <i>Vibration and Pitch</i>, # 1-8 – Teacher Guide pages 10-12 – Assessment Chart for Investigation 2, Part 1 – Teacher Observation 		Homework/Extra Practice Brainstorm a list of words that imitate sounds (onomatopoeia). Make a chart to match each word with the object that makes the sound. (Bees/buzz).

Grade 3

WEEK 3 (continued)	Lesson 11 (45 min) Objective(s): <ul style="list-style-type: none"> • Sound originates from vibrating sources. • Pitch is how high or low a sound is. • Differences in pitch are caused by differences in the rate at which objects vibrate. 		Alignment with NYS Core Curriculum: PS 4.1a-d
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 2: <i>Good Vibrations</i>, Getting Ready, pages 8-9 – Teacher Guide Science Stories folio, pages 8-9 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 2: <i>Good Vibrations</i> Part 1: <i>Vibration and Pitch</i>, # 9-11 – Teacher Guide page 12 – <i>FOSS Science Stories: Highs and Lows?</i> pages 11-13 	Homework/Extra Practice Home School Connection Student Sheet No. 34
	Lesson 12 (45 min) Objective(s): <ul style="list-style-type: none"> • Differences in pitch are caused by differences in the rate at which objects vibrate. • Pitch can be changed by changing the length or tension of the object vibrating at the sound source. 		Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 2: <i>Good Vibrations</i>, Getting Ready, pages 13-15 – Teacher Guide Science Stories folio, pages 10-11 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 2: <i>Good Vibrations</i> Part 2: <i>Length and Pitch</i>, # 1-7 – Teacher Guide page 16-17 – Assessment Chart for Investigation 2, Part 2 – Student Sheets – Student Sheet No. 6-9 	Homework/Extra Practice

Grade 3

WEEK 4	Lesson 13 (45 min) Objective(s): <ul style="list-style-type: none"> Differences in pitch are caused by differences in the rate at which objects vibrate. Pitch can be changed by changing the length or tension of the object vibrating at the sound source. 		Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> Teacher Guide Inv. 2: <i>Good Vibrations</i>, Getting Ready, pages 13-15 Teacher Guide Science Stories folio, pages 8-9 	Investigation/Activity <ul style="list-style-type: none"> Investigation 2: <i>Good Vibrations</i> Part 2: <i>Length and Pitch</i>, # 8-11 Teacher Guide pages 17-18 Assessment Chart for Investigation 2, Part 2 – Student Sheets Student Sheet No. 6-9 	Homework/Extra Practice
	Lesson 14 (45 min) Objective(s): <ul style="list-style-type: none"> Differences in pitch are caused by differences in the rate at which objects vibrate. Pitch can be changed by changing the length or tension of the object vibrating at the sound source. 		Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> Teacher Guide Inv. 2: <i>Good Vibrations</i>, Getting Ready, pages 13-15 Teacher Guide Science Stories folio, pages 10-11 	Investigation/Activity <ul style="list-style-type: none"> Investigation 2: <i>Good Vibrations</i> Part 2: <i>Length and Pitch</i>, # 12-14 Teacher Guide page 19 <i>FOSS Science Stories</i>: Making Waves and Sound Off! pages 14-16 	Homework/Extra Practice Make a homemade musical instrument by recycling something you find at home. Play the instrument for your class.

Grade 3

WEEK 4 (continued)	Lesson 15 (45 min) Objective(s): <ul style="list-style-type: none"> Differences in pitch are caused by differences in the rate at which objects vibrate. Pitch can be changed by changing the length or tension of the object vibrating at the sound source. 	Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b		
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> Teacher Guide Inv. 2: <i>Good Vibrations</i>, Getting Ready, pages 20-22 Teacher Guide Science Stories folio, pages 12-13 	Investigation/Activity <ul style="list-style-type: none"> Investigation 2: <i>Good Vibrations</i> Part 2: <i>Tension and Pitch</i>, # 1-9 Teacher Guide pages 23-24 Student Sheets No. 11-12 Assessment Chart for Investigation 2, Part 3 – Student Sheets Response Sheet No. 10 	Homework/Extra Practice Math Extension, Student Sheet No. 30	
	Lesson 16 (45 min) Objective(s): <ul style="list-style-type: none"> Differences in pitch are caused by differences in the rate at which objects vibrate. Pitch can be changed by changing the length or tension of the object vibrating at the sound source. 	Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b		
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> Teacher Guide Inv. 2: <i>Good Vibrations</i>, Getting Ready, pages 20-22 Teacher Guide Science Stories folio, pages 12-13 	Investigation/Activity <ul style="list-style-type: none"> Investigation 2: <i>Good Vibrations</i> Part 3: <i>Tension and Pitch</i>, # 10-12 Teacher Guide page 24 <i>FOSS Science Stories: Scoping Out Sound</i> pages 17-18 	Homework/Extra Practice	

Grade 3

WEEK 5	Lesson 17 (45 min) Objective(s): <ul style="list-style-type: none"> • Sound originates from vibrating sources. • Pitch is how high or low a sound is. • Differences in pitch are caused by differences in the rate at which objects vibrate. • Pitch can be changed by changing the length or tension of the object vibrating at the sound source. 		Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide, Benchmark Assessment Folio, pp. 26-35, 42 – Plan Assessment Review time with class after teacher assessment coding. 	Investigation/Activity Benchmark Assessment Packet, Investigation 2 I-Check pages 1-5	Homework/Extra Practice Think about this: If a tree fell in the forest and no one was around to hear it fall—did it make a sound? Write your thoughts on a piece of paper to share with your classmates.
	Lesson 18 (45 min) Objective(s): <ul style="list-style-type: none"> • Sound vibrations need a medium to travel. • Sound travels through liquids, such as water. • Sound travels through gases, such as air. • Sound energy can be directed with reflective tubes and megaphones. • Our outer ears are designed to gather sound energy. 		Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 3: <i>How Sound Travels</i>, Getting Ready, pages 8-10 – Teacher Guide Science Stories folio, pages 14-15 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 3: <i>How Sound Travels</i> Part 1: <i>Sounds through Air and Water</i>, # 1-10 – Teacher Guide pages 11-13 – Student Sheet No. 13-14 	Homework/Extra Practice

Grade 3

WEEK 5 (continued)	Lesson 19 (45 min) Objective(s): <ul style="list-style-type: none"> • Sound vibrations need a medium to travel. • Sound travels through liquids, such as water. • Sound travels through gases, such as air. • Sound energy can be directed with reflective tubes and megaphones. • Our outer ears are designed to gather sound energy. 		Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 3: <i>How Sound Travels</i>, Getting Ready, pages 8-10 – Teacher Guide Science Stories folio, pages 14-15 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 3: <i>How Sound Travels</i> Part 1: <i>Sounds through Air and Water</i>, # 11-17 – Teacher Guide pages 13-14 – Assessment Chart for Investigation 3, Part 1 – Response Sheet – Response Sheet No. 15 – <i>FOSS Science Stories: Moving Along?</i> pages 19-20 	Homework/Extra Practice Home School Connection Student Sheet No. 35
	Lesson 20 (45 min) Objective(s): <ul style="list-style-type: none"> • Sound vibrations need a medium to travel. • Sound travels through solids, such as wood. 		Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 3: <i>How Sound Travels</i>, Getting Ready, pages 15-16 – This investigation allows for extended student notebooking and teacher observation(s). – Teacher Guide Science Stories folio, pages 16-17 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 3: <i>How Sound Travels</i> Part 2: <i>Sounds through Solids</i>, # 1-7 – Teacher Guide pages 17-18 – Student Sheet No. 16-17 – Assessment Chart for Investigation 3, Part 2 – Teacher Observation 	Homework/Extra Practice

Grade 3

WEEK 6	Lesson 21 (45 min) Objective(s): <ul style="list-style-type: none"> • Sound vibrations need a medium to travel. • Sound travels through solids, such as wood. 		Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b	
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 3: <i>How Sound Travels</i>, Getting Ready, pages 15-16 – This investigation allows for extended student notebooking and teacher observation(s). – Teacher Guide Science Stories folio, pages 16-17 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 3: <i>How Sound Travels</i> Part 2: <i>Sounds through Solids</i>, # 8-9 – Teacher Guide pages 17-18 – Assessment Chart for Investigation 3, Part 2 – Teacher Observation 		Homework/Extra Practice Math Extension, Student Sheet No. 31
	Lesson 22 (45 min) Objective(s): <ul style="list-style-type: none"> • Sound vibrations need a medium to travel. • Sound travels through solids, such as wood. 		Alignment with NYS Core Curriculum: PS 4.1a-d, f, g 4.2a-b	
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 3: <i>How Sound Travels</i>, Getting Ready, pages 15-16 – This investigation allows for extended student notebooking and teacher observation(s). – Teacher Guide Science Stories folio, pages 16-17 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 3: <i>How Sound Travels</i> Part 2: <i>Sounds through Solids</i>, # 10-12 – Teacher Guide pages 19 – <i>FOSS Science Stories</i>: Bouncing Back? page 21 and Energy pages 22-28 		Homework/Extra Practice

Grade 3

WEEK 6 (continued)	<p>Lesson 23 (45 min) Objective(s):</p> <ul style="list-style-type: none"> • Sound vibrations need a medium to travel. • Sound travels through solids, such as wood. • Sound travels through liquids, such as water. • Sound travels through gases, such as air. • Sound energy can be directed with reflective tubes and megaphones. • Our outer ears are designed to gather sound energy. 	<p>Alignment with NYS Core Curriculum: PS 4.1a-d, 4.2a-b</p>	
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide, Benchmark Assessment Folio, pp. 36-41, 42 – Note: PS 4.1f, g is not assessed in the I Check. Teachers may use Homework/Extra Practice as assessment opportunity. – Plan Assessment Review time with class after teacher assessment coding. 	<p>Investigation/Activity</p> <p>Benchmark Assessment Packet, Investigation 3 I-Check pages 1-3</p>	<p>Homework/Extra Practice</p> <p>Bring in a picture (or draw one) to make a class collage of musical instruments.</p>
	<p>Lesson 24 (45 min) Objective(s):</p> <ul style="list-style-type: none"> • Several variables affect pitch, including size (length) and tension of the vibrating object at the sound source. • Sound can be directed through air, water, or solids to the sound receivers. • The medium that sound passes through affects its volume and the distance over which it can be heard. 	<p>Alignment with NYS Core Curriculum: PS 4.1a-d, g 4.2a-b</p>	
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 4: <i>Sound Challenges</i>, Getting Ready, pages 6-9 – This investigation allows for extended student notebooking and teacher observation(s). 	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 4: <i>Sound Challenges</i> Part 1: <i>Sound Challenges</i>, # 1-11 – Teacher Guide pages 10-13 – Student Sheet No. 18-25 – Assessment Chart for Investigation 4, Part 1 – Teacher Observation 	<p>Homework/Extra Practice</p>

Grade 3

WEEK 7	<p>Lesson 25 (45 min) Objective(s):</p> <ul style="list-style-type: none"> • Several variables affect pitch, including size (length) and tension of the vibrating object at the sound source. • Sound can be directed through air, water, or solids to the sound receivers. • The medium that sound passes through affects its volume and the distance over which it can be heard. 		<p>Alignment with NYS Core Curriculum: PS 4.1a-d, g, 4.2a-b</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 4: <i>Sound Challenges</i>, Getting Ready, pages 6-9 – This investigation allows for extended student notebooking and teacher observation(s). 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 4: <i>Sound Challenges</i> Part 1: <i>Sound Challenges</i>, # 12-15 – Teacher Guide pages 14 – Student Sheet No. 18-25 	<p style="text-align: center;">Homework/Extra Practice</p> <p>Math Extension, Student Sheet No. 32</p>
	<p>Lesson 26 (45 min) Objective(s):</p> <ul style="list-style-type: none"> • Several variables affect pitch, including size (length) and tension of the vibrating object at the sound source. • Sound can be directed through air, water, or solids to the sound receivers. • The medium that sound passes through affects its volume and the distance over which it can be heard. 		<p>Alignment with NYS Core Curriculum: PS 4.1a-d, g, 4.2a-b</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 4: <i>Sound Challenges</i>, Getting Ready, pages 6-9 – Teacher Guide Science Stories folio, pages 20-23 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 4: <i>Sound Challenges</i> Part 1: <i>Sound Challenges</i>, # 16-18 – Teacher Guide pages 15 – <i>FOSS Science Stories: Lights! Camera! Action!</i> pages 29-31 and Grandmother’s Hearing Test, pages 32-36 	<p style="text-align: center;">Homework/Extra Practice</p> <p>Sound effects can be created by using simple materials. Try to find materials to make one or more of the following sounds: rain; galloping horse; fire crackling; storm wind blowing. Create other sound effects.</p>

Grade 3

WEEK 7 (continued)	Lesson 27 (45 min) Objective(s): Apply content introduced in previous parts.		Alignment with NYS Core Curriculum: PS 4.1a-d, g, 4.2a-b
	Advanced Planning/ Notes to Teachers – Teacher Guide Inv. 4: <i>Sound Challenges</i> , Getting Ready, pages 16-18 – Note: PS 4.1f, g are not assessed in FOSS® Physics of Sound. Individual/group or class projects reinforcing these concepts may be desirable projects for Part 2: <i>Choosing Your Own Investigation</i>	Investigation/Activity – Investigation 4: <i>Sound Challenges</i> Part 2: <i>Choosing Your Own Investigation</i> , #1-4 – Teacher Guide page 19 – Student Sheet No. 26-28 – Assessment Chart for Investigation 4, Part 2 – Teacher Observation Supplement to Student Sheet No. 26: Project Ideas Research how: 1. (PS4.1f) Heat can be released in many ways, for example, by rubbing (friction), or combining one substance with another. 2. (PS4.1g) Interactions with forms of energy can be helpful or harmful.	Homework/Extra Practice
	Lesson 28 (45 min) Objective(s): Apply content introduced in previous parts.		Alignment with NYS Core Curriculum: PS 4.1a-d, g, 4.2a-b
	Advanced Planning/ Notes to Teachers Teacher Guide Inv. 4: <i>Sound Challenges</i> , Getting Ready, pages 16-18	Investigation/Activity – Investigation 4: <i>Sound Challenges</i> Part 2: <i>Choosing Your Own Investigation</i> , #5 – Teacher Guide page 20 – Student Sheet No. 26-28 – Assessment Chart for Investigation 4, Part 2 – Teacher Observation	Homework/Extra Practice

Grade 3

WEEK 8	Lesson 29 (45 min) Objective(s): Apply content introduced in previous parts.		Alignment with NYS Core Curriculum: PS 4.1a-d, g, 4.2a-b
	Advanced Planning/ Notes to Teachers Teacher Guide Inv. 4: <i>Sound Challenges</i> , Getting Ready, pages 16-18	Investigation/Activity – Investigation 4: <i>Sound Challenges</i> Part 2: <i>Choosing Your Own Investigation</i> , #5 – Teacher Guide page 20 – Student Sheet No. 26-28 – Assessment Chart for Investigation 4, Part 2 – Teacher Observation	Homework/Extra Practice
	Lesson 30 (45 min) Objective(s): Apply content introduced in previous parts.		Alignment with NYS Core Curriculum: PS 4.1a-d, g 4.2a-b
	Advanced Planning/ Notes to Teachers Teacher Guide Inv. 4: <i>Sound Challenges</i> , Getting Ready, pages 16-18	Investigation/Activity – Investigation 4: <i>Sound Challenges</i> Part 2: <i>Choosing Your Own Investigation</i> , #6-7 – Teacher Guide page 20 – Student Sheet No. 26-28 – Assessment Chart for Investigation 4, Part 2 – Teacher Observation	Homework/Extra Practice

Grade 3

WEEK 8 (continued)	Lesson 31 (45 min) Objective(s): Post-assessment		Alignment with NYS Core Curriculum: PS 4.1a-d, f, g; 4.2a-b		
	Advanced Planning/ Notes to Teachers – Teacher Guide, Benchmark Assessment Folio, pp. 1-19, 42 – Download optional tool: Benchmark and I-Check Assessment coding sheets at www.fossweb.com/NYC .	Investigation/Activity Benchmark Assessment Packet, Survey/Posttest pages 1-4		Homework/Extra Practice	
	Lesson 32 (45 min) Objective(s): Post-assessment review		Alignment with NYS Core Curriculum: PS 4.1a-d, f, g 4.2a-b		
	Advanced Planning/ Notes to Teachers Teacher Guide, Benchmark Assessment Folio, pp. 1-23, 56	Investigation/Activity Benchmark Assessment Review		Homework/Extra Practice	