



Grade 1 Science
Unit 1 Physical Science
Topic 1 Sound - 30 days

Unit Overview: In this unit students will connect and expand on their ideas of sound and light. In **Topic 1** students will learn that sound is related to the vibration of matter and be able to describe sound by pitch and volume. Students will explore the vibrations that sound makes in matter and the types of sound made by musical instruments. Students will learn about the different ways in which sounds can be used to communicate. Light is the focus of Topic 2. Students learn about sources of light and will recognize that light enables them to see objects. The students will explore how light interacts with matter and consider the specific uses of light in everyday situations, including safety, to communicate, to set a mood. Students will design a way to use light to communicate a message over a distance.

Topic Essential Question: What happens when objects vibrate?

Lessons

- Topic Launch/Quest Kickoff
- Lesson 1 Describe Sound
- Lesson 2 Make Sound
- Lesson 3 Use of Sounds
- Topic Close –Assessment, Quest Findings

NYSSLS Performance Expectations (PE)

1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]

1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drumbeats.] [Assessment Boundary: Assessment does not include technological details for how communication devices work.]

K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

Higher Order Thinking Skills (HOTS)

Higher Order Thinking Skills (HOTS) will be identified within each topic plan. Grade 1 HOTS include:

- sequencing
- categorizing
- identifying patterns
- cause and effect
- researching
- brainstorming
- logic
- reasoning
- inferencing
- academic vocabulary

Grade 1 Unit 1 Physical Science

<p>Topic Opener PE: 1-PS4-1, 1-PS4-4, K-2 ETS-1 SEP: Planning and Carrying Out Investigations* Developing and Using Models* Constructing Explanations and Designing Solutions* DCI: PS4.C - Information Technologies and Instrumentation ● People also use a variety of devices to communicate (send and receive information) over long distances. CCC: Cause and Effect*</p> <p>*Denotes Higher Order Thinking Skill</p>	<p>Savvas Highlighted labs are important to the understanding of the instructional concepts in this lesson and must be completed during Science instructional time.</p> <ul style="list-style-type: none">● <i>u</i>Connect Lab – How can a ruler make sound?*● Quest Kickoff- Sending Sound Messages● Leveled Readers● STEM Engineering Reader● Science Song – Listen to the Sounds!
<p>Lesson 1- Describe Sound PE: 1-PS4-1, K-2ETS1-1 SEP: Developing and Using Models* DCI: PS4.A – Wave Properties ● Sound can make matter vibrate and vibrating matter can make sound. CCC: Cause and Effect*</p> <p>*Denotes Higher Order Thinking Skill</p>	<p>Savvas Guiding Objective ● Students will describe sound. Vocabulary ● vibrate ● pitch ● volume Connect ● TE/SB p. 6 ● Jumpstart Discovery Investigate ● TE/SB pp. 7-8 ● <i>u</i>Investigate Lab - How does size affect sound?*● Video – Sounds● Reading Check – Draw Conclusions*Synthesize ● TE/SB pp. 9-10 ● Interactivity- Sound of Sounds ● Quest Connection ● Quest Check-In – Sounds of the World Demonstrate ● TE/SB p. 9 ● Lesson 1 Quiz</p>

<p><u>Lesson 2 Make Sound</u> PE: 1-PS4-1 SEP: Engage in Argument from Evidence* DCI: PS4.A – Wave Properties</p> <ul style="list-style-type: none"> • Sound can make matter vibrate and vibrating matter can make sound. <p>CCC: Cause and Effect*</p> <p>*Denotes Higher Order Thinking Skill</p>	<p>Savvas Guiding Objective</p> <ul style="list-style-type: none"> • Students will vibrate objects to make sounds. Students will show that sounds can make objects vibrate. <p>Vocabulary</p> <ul style="list-style-type: none"> • percussion <p>Connect</p> <ul style="list-style-type: none"> • TE/SB p.12 • Jumpstart Discovery <p>Investigate</p> <ul style="list-style-type: none"> • TE/SB pp. 13-16 • Video – Vibrations and Sounds • uInvestigate Lab - How can you see sound?* • Literacy Toolbox - Draw Conclusions* <p>Synthesize</p> <ul style="list-style-type: none"> • TE/SB pp. 14-15 • Interactivity – Length and Sound* • Quest Connection <p>Demonstrate</p> <ul style="list-style-type: none"> • TE/SB pp.17-18 • Lesson 2 Quiz • Quest Check-In - How can instruments talk? *
<p><u>Lesson 3 Uses of Sound</u> PE: 1-PS4-4, K-2-ETS1-1 SEP: Constructing Explanations and Designing Solutions* DCI: PS4.C- Information Technologies and Instrumentation</p> <ul style="list-style-type: none"> • People also use a variety of devices to communicate (send and receive information) over long distances. <p>ETS1.C – Optimizing the Design Solution</p> <ul style="list-style-type: none"> • Because there is always more than one possible solution to a problem, it is useful to compare and test design. <p>*Denotes Higher Order Thinking Skill</p>	<p>Savvas Guiding Objectives</p> <ul style="list-style-type: none"> • Students will identify how people use sound. <p>Vocabulary</p> <ul style="list-style-type: none"> • communicate <p>Connect</p> <ul style="list-style-type: none"> • TE/SB p. 20 • Jumpstart Discovery <p>Investigate</p> <ul style="list-style-type: none"> • TE/SB pp. 21-25 • Video – Communicating with Sound • uInvestigate Lab– What does that sound say? • Literacy Toolbox – Draw Conclusions* • Quest Connection* <p>Synthesize</p> <ul style="list-style-type: none"> • TE/SB p. 22 • Interactivity – Sending Sounds to Communicate <p>Demonstrate</p> <ul style="list-style-type: none"> • TE/SB pp.24-25 • Quest Check-In Lab– How can an instrument send a secret?* • Lesson 3 Quiz

<p>Topic Close</p> <ul style="list-style-type: none"> • Assessment and Remediation TE/SE pp. 30-35 • Quest Finding p.28 	<p>Topic 1 Enrichment</p> <p>Topic 1- Lesson 1 Enrichment - TE p. 9 - This activity extends student understanding of the lesson providing them an opportunity to learn about how musicians make their instruments change pitch to be in tune through academic vocabulary (tune, instrument, pitch) Enrichment Skill- Academic vocabulary</p> <p>Topic 1- Lesson 2 Enrichment - TE p.17 - This activity extends student understanding of the lesson by explaining how patterns of bumps in a music box create songs. Enrichment Skill- Patterns</p> <p>Topic 1- Lesson 3 Enrichment - TE p. 24 -This activity extends student understanding of the lesson reinforcing how music can be played to show feelings through the use of musical vocabulary (pianissimo, adagio, allegro) Enrichment Skills-Academic vocabulary</p>
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<p>English Language Learners (ELL) Enhancements</p> <p>To access hyperlinked material, you must be logged into your BPS Google Drive</p>	<p>Listening</p> <ul style="list-style-type: none"> • Cross- Linguistic Practices: Gives students opportunities to make connections between what they hear and their home language (For example, allow students to listen to a passage and identify cognates). • Activating Prior Knowledge Activating prior knowledge means both eliciting from students what they already know and building initial knowledge that they need in order to access upcoming content. • Activating Prior Knowledge • Visuals - GIFs, pictures- will assist students in understanding what they are listening to. Use visual thinking strategies to set the lens for learning. • Video to review or introduce a topic – use closed captioning to help students see the words and pronunciations while they listen to the content. • Word stretching / Vowel stretching when instructing allows student to listen closely to the pronunciation of the word. • Performance Level Descriptors this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of listening Scroll for grade 1.
	<p>Speaking</p> <ul style="list-style-type: none"> • Sentence Stems/Frames - to begin a sentence - such as <i>Evolution is...</i> or <i>I think that evolution is...</i> • Academic Conversation Starters: Have a visual of a list of academic sentence starters that students can refer to in a discussion. • Choral Reading - To build fluency, self-confidence and motivation with reading/speaking • Create movement to go with the word. Movement can be a motivating factor, as well as a kinesthetic tool for conceptualizing the rhythm and flow of fluent reading while triggering brain function for optimal learning • Performance Level Descriptors This document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of speaking. Scroll for grade 1.

Reading

- Supplementary Text to help reinforce concepts.
- **Visual Aids** - Pictures or models to support vocabulary words and concepts
- Video to review or introduce a topic - use **closed captioning** to help students read along while they listen to the content.
- **4 Square / Frayer models** to help students gain a deeper understanding of vocabulary.
- **Highlighting** important text to assist students in answering questions after the reading.
- **Chunking**-Break reading of text into chunks or paragraphs
- **Performance Level Descriptors** this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of reading. Scroll for grade K.
- **Vocabulary Morphology**- Morphology relates to the segmenting of words into affixes (prefixes and suffixes) and roots or base words, and the origins of words. Understanding that words connected by meaning can be connected by spelling can be critical to expanding a student's vocabulary

Instructional Accommodations (depending on the student's needs)

- **Extended time** for tests in class, projects and assignments
- **Directions read.** Broken down as necessary
- **Model** how to complete the activity in the lesson
- **Oral simplification** of directions or questions
- **Translated version** of test when available. Student may have both version English and native language version
- Use of **approved bilingual glossaries** from NYS in each subject

Special Education Modifications

Special Education students must have accommodations as per Individual Educational Plan (IEP)

Instructional

- **Pre-teach** vocabulary
- Use **picture vocabulary**
- Scaffold **Depth of Knowledge** questions
- Provide copy of notes/**notes in "cloze"** form
- Use of **Think, Pair, and Share** strategy to help process information
- **Scaffold** written assignments with the use of **graphic organizers**
- Allow for **multiple ways to respond** (verbal, written, response board)
- Provide **model of performance task**
- **Modify informational text** to fit the needs of the students
- Provide a digital or paper **interactive notebook**
- Present complex **tasks in multiple ways**
- Provide **mnemonic strategies** for scientific concepts

Technology:

- **Audio** reading of text
- **Text to type** functions
- **Videos** to clarify/visualize science concepts
- **Record class lecture/discussions** and make accessible to student
- **Nearpod**- interactive presentations of notes

In Class Assessments

- Provide **multiple options** for projects
- **Use of timer** in class
- Break all complex tasks into chunks

Grade 1 Unit 1 Physical Science

<p>Step Up to Writing Step Up to Writing materials can be found in BPS Science K-12 Schoology Folder Gr 1 Resources Gr 1 SUTW materials</p>	<ul style="list-style-type: none">• Easy Two-Column Notes• Breaking Down Definitions• Paragraph Frame- What I Learned• Performance Level Descriptors this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of writing. Scroll for grade 1.
<p>Culturally and Linguistically Responsive Teaching (CLRT) in the Science Classroom</p>	<ul style="list-style-type: none">• Materials, resources, and/or discussions address diverse cultural backgrounds and real-world applications• Artifacts (posters, charts, etc.) in the science classroom are representative of the cultures of the student population• All students are given an opportunity to engage in science discourse• Teacher demonstrates high expectations for all students