Nov. Gr. 1 Unit 2: Sound

Content Area: **Science**
Course(s):
Time Period: **November**
Length: **6-8 Weeks**
Status: **Published**

Unit Overview

In this unit, students will:

- explore the relationship between sound and vibration;
- compare the volume and the pitch of different sounds;
- investigate how sound makes materials move;
- identify ways people communicate using sound;
- explore how technology is used to help people communicate with sound over distances.

Enduring Understandings

There is a relationship between sound and vibration.

Sound can make materials move.

We use sound for communication

Technology helps us communicate over a distrance.

Essential Questions

What is sound?

How do we communicate with sound?

How does technology help us to communicate with sound?

Instructional Strategies & Learning Activities

- Unit 2: Sound

  Teacher Edition

  Sound: Unit At a Glance

Unit at a Glance for "Sound" includes the unit table of contents, unit vocabulary words, and the vocabulary game, Make a Match. In this unit, children will:

- explore the relationship between sound and vibration;
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- Unit 2: Sound

  Teacher Edition

  Sound: 3D Unit Planning

  Planning resources are available for each lesson and hands-on activity in the unit "Sound."
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- Unit 2: Sound

  Teacher Edition

  Sound: Connecting with NGSS

  These opportunities for informal science learning provide local context and extend and enhance concepts from the unit "Sound."
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- Unit 2: Sound

  Assessment Guide

  Sound: Unit Pretest (Editable)

  The Unit Pretest for "Sound" focuses on prerequisite knowledge. The test is composed primarily of DOK 1 items that evaluate student preparedness for the upcoming content.
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- Unit 2: Sound

  Home Letter

  Sound: Home Letter

  This is the home letter for the unit "Sound."
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- Unit 2: Sound

Teacher eBook

Sound: Unit Opener

The Unit Opener introduces the unit "Sound" and the unit project, Explore Sound.
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- Unit 2: Sound

  Online Assessment

  Sound: Unit Pretest

  The interactive Unit Pretest for "Sound" focuses on prerequisite knowledge. The test is composed primarily of DOK 1 items that evaluate student preparedness for the upcoming content.
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- Unit 2: Sound

  Assessment Guide

  Sound: Unit Test (Editable)

  The Unit Test for "Sound" assesses students' ability to apply knowledge to solve problems and explain phenomena in relation to the Performance Expectations associated with the unit. In this unit, children:
  - explore the relationship between sound and vibration;
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- Unit 2: Sound

  Student Edition

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- Unit 2: Sound

  Teacher Edition

Sound: Unit Opener

The Unit Opener introduces the unit "Sound" and the unit project, Explore Sound.
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- Unit 2: Sound

  Teacher Edition

  Sound: Integrating the NGSS* Three Dimensions of Learning

  This section details the Performance Expectations covered in the unit "Sound."
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- Unit 2: Sound

  Student eBook

  Sound: Unit Opener

  The Unit Opener for "Sound" introduces the unit project, Explore Sound. During this unit project, children will:
  - Explore the relationship between sound and vibration by planning and conducting an investigation.
  - Collect data to use as evidence to answer a question.
  - Explain a problem and construct a solution based on a claim.

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- Unit 2: Sound

  Teacher Edition

  Sound: Differentiate Instruction

  This page provides differentiated support for this unit's Science & Engineering Leveled Readers, "What Are Forces and Energy?" and "Soccer Moves!"
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- Unit 2: Sound

  Teacher Edition

  Sound: Unit Project: Explore Sound

  During the unit project "Explore Sound," children will:
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  - Unit 2: Sound

    Online Assessment

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Unit 2: Sound

Student Edition

Sound: Unit Performance Task: Communicate with Sound

During the Performance Task "Communicate with Sound," children will plan materials to test sound signals in order to communicate a message.

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Unit 2: Sound

Unit Performance Task Worksheet

Sound: Unit Performance Task: Communicate with Sound (Editable)

This is the editable Unit Performance Task worksheet for "Communicate with Sound." During this task, children will plan materials to test sound signals in order to communicate a message.

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Unit 2: Sound

You Solve It

Getting the Band Together

In Getting the Band Together, students are challenged to construct their own instruments for a talent show performance. They use the supplied materials to assemble the instruments, test the instruments to ensure they work, and then collect information about how the instruments make

music.
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- Unit 2: Sound

  Student eBook

  Sound: Unit Review

  The Unit Review assesses student understanding of key ideas and concepts from the unit "Sound."
  Launch

- Unit 2: Sound

  Leveled Readers - Green

  Enrichment: Soccer Moves!

  The leveled reader "Soccer Moves!" is designed for above-level readers and can be used to extend key concepts from the unit "Sound."
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- Unit 2: Sound

  Teacher Edition

  Sound: Unit Review

  The Unit Review assesses student understanding of key ideas and concepts from the unit "Sound."
  Launch

- Unit 2: Sound

  Unit Project Worksheet

  Sound: Unit Project: Explore Sound

  This is the Unit Project worksheet for "Explore Sound." During this project, children will:
  - Explore the relationship between sound and vibration by planning and conducting an investigation.
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- Unit 2: Sound

  Teacher eBook

Sound: Unit Performance Task: Communicate with Sound

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- Unit 2: Sound

  Leveled Readers Teacher's Guide

  Topic 4: Forces and Energy

  The Leveled Readers Teachers Guide provides teaching strategies and support (as well as reproducible English and Spanish worksheets) for the Unit 2 readers "What Are Forces and Energy?" and "Soccer Moves!" On-Level and Extra-Support worksheets focus on vocabulary development, while Enrichment worksheets reinforce and enrich content.
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- Unit 2: Sound

  Student Edition

  Sound: Unit Review

  The Unit Review assesses student understanding of key ideas and concepts from the unit "Sound."
  Launch

- Unit 2: Sound

  Unit Performance Task Worksheet

  Sound: Unit Performance Task: Communicate with Sound

  This is the Unit Performance Task worksheet for "Communicate with Sound." During this task, children will plan materials to test sound signals in order to communicate a message.
  Launch

- Unit 2: Sound

  Leveled Readers - Red

  Extra-Support: What Are Forces and Energy?

  The leveled reader "What Are Forces and Energy?" is designed for below-level readers and can be used to reinforce key concepts from the unit "Sound."
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Unit 2: Sound

Leveled Readers - Blue

On-Level: What Are Forces and Energy?

The leveled reader "What Are Forces and Energy?" is designed for on-level readers and can be used to enrich key concepts from the unit "Sound."

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Unit 2: Sound

Student eBook

Sound: Unit Performance Task: Communicate with Sound

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Launch

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Unit 2: Sound

Teacher Edition

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Unit 2: Sound

Unit Project Worksheet

Sound: Unit Project: Explore Sound (Editable)

This is the editable Unit Project worksheet for "Explore Sound." During this project, children will:

- Explore the relationship between sound and vibration by planning and conducting an investigation.
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Launch

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Unit 2: Sound

You Solve It

Getting the Band Together (Teacher)

Teacher support materials are available for "Getting the Band Together." During this activity, students are challenged to construct their own instruments for a talent show performance. They use the supplied materials to assemble the instruments, test the instruments to ensure they work, and then collect information about how the instruments make music.
Launch

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Unit 2: Sound

Teacher eBook

Sound: Unit Review

The Unit Review assesses student understanding of key ideas and concepts from the unit "Sound."
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Integration of Career , Life Literacies and Key Skills

Students will establish and follow rules, routines, and responsibilities throughout the year.

	Different types of jobs require different knowledge and skills.
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.1.2.CAP.1	Make a list of different types of jobs and describe the skills associated with each job.
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
	Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.
9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

Technology and Design Integration

Students will interact with the lessons using the Smartboard. Students will use the design process to create an instrument they can play.

TECH.8.2.2	Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
TECH.8.2.2.A	The Nature of Technology: Creativity and Innovation: Technology systems impact every aspect of the world in which we live.
TECH.8.2.2.A.3	Identify a system and the components that work together to accomplish its purpose.
TECH.8.2.2.A.4	Choose a product to make and plan the tools and materials needed.
TECH.8.2.2.C	Design: The design process is a systematic approach to solving problems.
TECH.8.2.2.C.1	Brainstorm ideas on how to solve a problem or build a product.
TECH.8.2.2.C.2	Create a drawing of a product or device that communicates its function to peers and discuss.
TECH.8.2.2.C.3	Explain why we need to make new products.
TECH.8.2.2.C.4	Identify designed products and brainstorm how to improve one used in the classroom.
TECH.8.2.2.C.CS1	The attributes of design.
TECH.8.2.2.C.CS2	The application of engineering design.
TECH.8.2.2.D.1	Collaborate and apply a design process to solve a simple problem from everyday experiences.
TECH.8.2.2.D.CS1	Apply the design process.

Interdisciplinary Connections

Students go to the STEM lab bi-monthly to create hands-on projects that align with the unit.

Students will listen to and read non-fiction texts about sound.

LA.RI.1.1	Ask and answer questions about key details in a text.
LA.RI.1.2	Identify the main topic and retell key details of a text.
LA.RI.1.3	Describe the connection between two individuals, events, ideas, or pieces of information in a text.
LA.RI.1.4	Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.
LA.RI.1.5	Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.
LA.RI.1.6	Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.
LA.RI.1.8	Identify the reasons an author gives to support points in a text and explain the application of this information with prompting as needed.
LA.RI.1.9	Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).
LA.RI.1.10	With prompting and support, read informational texts at grade level text complexity or

above.

Differentiation

- Understand that gifted students, just like all students, come to school to learn and be challenged.
- Pre-assess your students. Find out their areas of strength as well as those areas you may need to address before students move on.
- Consider grouping gifted students together for at least part of the school day.
- Plan for differentiation. Consider pre-assessments, extension activities, and compacting the curriculum.
- Use phrases like "You've shown you don't need more practice" or "You need more practice" instead of words like "qualify" or "eligible" when referring to extension work.
- Encourage high-ability students to take on challenges. Because they're often used to getting good grades, gifted students may be risk averse.

- **Definitions of Differentiation Components**:

    - Content – the specific information that is to be taught in the lesson/unit/course of instruction.
    - Process – how the student will acquire the content information.
    - Product – how the student will demonstrate understanding of the content.
    - Learning Environment – the environment where learning is taking place including physical location and/or student grouping

Differentiation occurring in this unit:

See suggestions in the teacher manual for differentiation for struggling and advanced learners.

Modifications & Accommodations

Refer to QSAC EXCEL SMALL SPED ACCOMMOCATIONS spreadsheet in this discipline.

Modifications and Accommodations used in this unit:

IEP and 504 accommodations will be utilized.

Benchmark Assessments

Benchmark Assessments are given periodically (e.g., at the end of every quarter or as frequently as once per month) throughout a school year to establish baseline achievement data and measure progress toward a standard or set of academic standards and goals.

Schoolwide Benchmark assessments:

Aimsweb benchmarks 3X a year

Linkit Benchmarks 3X a year

DRA

Additional Benchmarks used in this unit:

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eacher will use the assessments located in the series to compare growth over time.

Formative Assessments

Assessment allows both instructor and student to monitor progress towards achieving learning objectives, and can be approached in a variety of ways. **Formative assessment** refers to tools that identify misconceptions, struggles, and learning gaps along the way and assess how to close those gaps. It includes effective tools for helping to shape learning, and can even bolster students' abilities to take ownership of their learning when they understand that the goal is to improve learning, not apply final marks (Trumbull and Lash, 2013). It can include students assessing themselves, peers, or even the instructor, through writing, quizzes, conversation, and more. In short, formative assessment occurs throughout a class or course, and seeks to improve student achievement of learning objectives through approaches that can support specific student needs (Theal and Franklin, 2010, p. 151).

Formative Assessments used in this unit:

Self-Check and Unit Reviews

Summative Assessments

Summative assessments evaluate student learning, knowledge, proficiency, or success at the conclusion of an instructional period, like a unit, course, or program. Summative assessments are almost always formally graded and often heavily weighted (though they do not need to be). Summative assessment can be used to great effect in conjunction and alignment with formative assessment, and instructors can consider a variety of ways to combine these approaches.

Summative assessments for this unit:

Self-Check and Unit Reviews

Instructional Materials

HMH Science Dimensions prgram materials

Materials listed for hands on exploration.

Standards

1-PS4-1	Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. 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. Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question.
PS4.A	Wave Properties Sound can make matter vibrate, and vibrating matter can make sound.
1-PS4-2	Make observations to construct an evidence-based account that objects can be seen only when illuminated.
1-PS4-3	Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.
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.