

# Instructional Features

**TEAM** is designed for use by ESL teachers and by general education teachers as a support for EBs/ELs in their academic classrooms. The student books are centered around common themes and topics for each grade level and reflect instructional design that asks students to be responsible for their own learning. Each unit has an academic standards focus, a reading strategy, a language focus, and a writing focus, as shown in the chart below.

Unit/Lesson/Theme	Standards Focus	Reading Strategy	Language Focus	Writing Focus
<b>UNIT 1: Medical Mysteries</b>				
LESSON 1: <b>Pandemic</b>	Science Social Studies	Inferences	Homophones	Argument
LESSON 2: <b>Finding a Cure</b>	Science Social Studies	Main Idea	Irregular Verbs	Opinion
LESSON 3: <b>Animating Life</b>	Language Arts Science	Theme	Adverbs	1st-Person Narrative
<b>UNIT 2: Sounds Around You</b>				
LESSON 4: <b>The Science of Sound</b>	Science Mathematics	Cause and Effect	Apostrophes and Contractions	Problem and Solution
LESSON 5: <b>Movie Sound Effects</b>	Science Social Studies	Details	Synonyms	Summary
LESSON 6: <b>Appreciating Music</b>	Language Arts	Understanding Characters	Multiple-Meaning Words	Descriptive Writing
<b>UNIT 3: The Silver Screen</b>				
LESSON 7: <b>The History of Movies</b>	Science Social Studies	Sequence	Linking Verbs	Informational
LESSON 8: <b>Movie Magic</b>	Science Social Studies	Compare and Contrast	Roots and Root Words	Review
LESSON 9: <b>Lights, Camera, Action!</b>	Language Arts	Setting	Phrasal Verbs	Real-Life Event
<b>UNIT 4: The 20th Century</b>				
LESSON 10: <b>Between the Wars</b>	Social Studies	Fact and Opinion	Abstract Nouns	Travel Narrative
LESSON 11: <b>The End of the Cold War</b>	Social Studies	Details	Suffixes	Summary
LESSON 12: <b>The Fight for Women's Rights</b>	Language Arts Social Studies	Parts of a Play	Possessives	Persuasive Paragraph

**TITLE** The Science of Sound

**GENRE** Informational

### LESSON OBJECTIVES

- Read, discuss, and write about sounds in buildings
- Identify cause and effect
- Listen to a conversation about measuring sound
- Use apostrophes correctly to form contractions
- Write about a problem and its solution

### Content Standards Connection

- The Language of Science
- The Language of Mathematics

### ELPS Student Expectations

#### Reading

- Identify main ideas and details that support main ideas
- Determine the meaning of words and phrases
- Ask and answer questions to demonstrate understanding of a text
- Use information gained from photographs, maps, and illustrations to demonstrate understanding of a text
- Know and apply grade-level phonics and word analysis skills to decode words
- Describe logical connections between particular sentences and paragraphs in a text
- Use reading skills and prior knowledge to make and revise predictions
- Cite text to support inferences
- Identify and understand causes and their effects
- Use language related to cause and effect to demonstrate understanding of events in a text

#### Speaking and Listening

- Respond to and pose questions about a text
- Clarify ideas and conclusions
- Evaluate speaker's point of view for reasoning and evidence
- Engage in collaborative discussions

#### Writing

- Use language to state a problem and describe its solution
- Write a paragraph about a problem and its solution
- Use details to describe the problem and its solution
- Create and structure a piece of writing
- Develop and strengthen writing by planning and editing

#### Grammar and English Conventions

- Use apostrophes correctly
- Understand the words that form contractions
- Demonstrate understanding of word relationships
- Use knowledge of language and its conventions when writing

#### ACADEMIC LANGUAGE OF LESSON

<b>Tier 1</b>	collide, reverberates
<b>Tier 2</b>	aesthetically, disperse, instantaneous
<b>Tier 3</b>	acousticians, acoustics, amplifiers, apostrophe, contraction, decibel, exponential, logarithmic



## TOTAL TIME: 90 Minutes

My Learning Goals: 5 Minutes

First Reading: 20 Minutes

Second Reading: 25 Minutes

Show What You Know: 20 Minutes

What Did You Learn?: 15 Minutes

Check My Goals: 5 Minutes

### OBJECTIVE

- Use listening, speaking, and reading skills to tell about sound and acoustics

### ACADEMIC LANGUAGE

**Tier 1:** collide, reverberates **Tier 2:** aesthetically, disperse, instantaneous **Tier 3:** acousticians, acoustics, amplifiers

**GENRE** Informational Text

## MY LEARNING GOALS

Direct students' attention to My Learning Goals. Chorally read My Learning Goals. Explain to students that at the end of the lesson, they will determine if they have met these goals. If they have, they will put a check next to each goal.

## WORK WITH THE PAGE

Explain that students will read an informational passage over four pages. Tell students that an informational text presents facts about the subject. Unlike stories, the information can be proven and is not made up.


Read the title of the passage aloud.

Tell students you will read the full passage twice. The first time you will read it aloud. The second time you will read it as a class, or have student volunteers take turns reading the passage.

### First Reading

As you read the four sections of the passage aloud the first time, instruct students to follow along in their books and to circle or underline any unfamiliar words. Tell them that when you are finished reading the passage the first time, you will discuss the unfamiliar words.

Circulate among students to identify words that have been circled or underlined. Discuss each of the word meanings and model sentences with the

  
 READING

## Let's Read

### MY LEARNING GOALS


I can

- read and understand an informational passage about acoustics.
- recognize cause and effect.


### Architects and Acoustics

Architects design buildings to be functional and aesthetically pleasing, but it takes special skills to design a concert hall. If an audience can't hear what they came to experience, they can become extremely frustrated. So concert halls, and buildings like churches and theaters where sound is important, are designed with expert help. Acoustics is the scientific study of sound. Acousticians are the experts in the field of sound.


Sound moves in invisible waves. Those waves cause whatever they pass through, whether it's air, water, or solids, to vibrate. Sound travels faster through water and solids than through air because the molecules of water and solids are more densely packed together. The speed of sound depends on how frequently sound waves collide with and vibrate molecules. In air that is 68° Fahrenheit (20° Celsius), the speed of sound is about 1,129 feet (344 meters per second).



*Blue and Green Music*  
Georgia O'Keefe  
1919–1921



Underline the word that means "the scientific study of sound."



What are some buildings where sound is important?

Buildings where sound is important are \_\_\_\_\_.

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meanings. Alternatively, you can also ask student volunteers to tell the meanings and model sentences.

As you read, answer any questions that students may have.

**WORK WITH THE PAGE**

Read section two of the passage aloud, have students read chorally, have student volunteers take turns, or have students read silently.

**Say:** Now, we will read more about architects and acoustics.

Read the text on the page. Direct students' attention to the illustrations. Talk about the illustrations.

Encourage students to ask questions as you read.

Pause at the end of the page to explain any words or phrases that students are unfamiliar with.

**Check for Understanding**

Instruct students to complete the Check for Understanding.

**Say:** Now, complete the Check for Understanding at the bottom of the page.

Ask students to share their answers.

You may choose to expand the activity by orally asking students more questions.

**Turn and Talk**

Direct students to complete the Turn and Talk activity with a partner.

**Say:** Look at the Turn and Talk question at the bottom of the page. Turn to a partner and read and answer the question.

Why are some restaurants noisier than others? Some restaurants do not have \_\_\_\_\_. [carpeting on the floor or curtains at the windows; the seating may not have cushions]

READING

## Let's Read

### Waves of Sound

As a musician plays an instrument, sound waves disperse in every direction. Some travel directly to your ear, but others reflect off side and back walls and hit some seats before they reach you, not as the instrument makes them. Sound may seem instantaneous to you as a listener, but it isn't.

All the components of a concert hall have the right balance of absorbing and reflecting materials for the room to have good acoustics. Large, dense hard objects like walls or panels on the ceiling reflect sound. Soft, textured surfaces, like carpet on the floor and the cushions on the seats, absorb it. The room must be built so that people can't hear outside sounds.

Basic Acoustics

Curtains  
Some of the sound wave is absorbed  
Acoustically absorbing surface

Standard wall  
All of the sound wave bounces off  
Acoustically reflective surface

The sound wave spreads out  
Acoustical panels

Circle an example of something that absorbs sound.

Why are some restaurants noisier than others?  
Some restaurants do not have \_\_\_\_\_.

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To extend the conversation, use these questions and sentence starters.

Have you ever been to a concert hall or theater?  
I have \_\_\_\_\_.

What did the interior look like? It had \_\_\_\_\_.



## AUDIO SCRIPT

**Sofia:** Have your parents ever told you to turn the volume of the television down?

**Mateo:** Yes, although my mom sometimes asks me to turn it up.

**Sofia:** That's because we each have our own internal "loudness meter" that tells us the volume we are comfortable with. What's just right for you may be deafening someone else.

**Mateo:** So how do we know how loud the sound really is?

**Sofia:** Scientists get an objective opinion. They use a sound-level meter, which measures the intensity, or loudness of sounds.

**Mateo:** What is sound intensity?

**Sofia:** Sound intensity is the amount of energy in a sound. It is measured in decibels. The base unit for measuring sound is the bel. One decibel equals 0.1 bel. The scale for measuring sound is different from other scales like temperature. On a temperature scale the increments represent an added difference. That's why  $50^{\circ}$  is  $10^{\circ}$  more than  $40^{\circ}$ . But when you measure sound it is different.

**Mateo:** How is it different?

**Sofia:** The decibel scale is logarithmic, and the increases are exponential. Each increase in 10 decibels means a tenfold increase in loudness. A sound you can barely hear is 1 decibel. Someone whispering is 20 decibels. But the whisper is not 20 times louder than the sound you barely heard—its 100 times louder.

**Mateo:** Wow, that's quite a difference!

**Sofia:** I know. A rock concert is 120 decibels and that is a billion times louder than the slight sound you heard. Sound at about 120 decibels causes pain. That's why some people wear earplugs.

**Mateo:** True, I know hearing loss can begin at much lower thresholds if you listen to the sound for a long enough time. That's why my parents tell me to lower the volume of my music, especially if I am wearing earbuds or headphones. Part of the reason noise may seem louder to one person and not another is that they may have already lost some of their hearing.