

Online Reference Guide

Welcome to Smithsonian Science for the Classroom™ Digital Edition

Access the full digital version of Smithsonian Science for the Classroom at www.carolinascienceonline.com

Teacher Login: OK@carolina.com Password: **oklahoma**

To navigate this website, use the chart below. A tutorial video is available at www.carolina.com/ssreviewtutorial

START HERE:

Return to the beginning at any time by clicking the **Home** button



Click on the grade-level module you would like to review.

To get the big picture of the module, **click on:**

A. Module Overview

- B. Individual tabs for module information:
- Concepts and Practices Storyline
 - Standards and Module Planner
 - Resources (Teacher and Digital)

To look at an individual lesson, **click on:**

A. Lesson number

B. Individual tabs for instruction support

Lesson Overview

Objectives and Lesson Background

Materials and Preparation

- Materials List
- Preparation
- Links to digital resources
- Access to Teacher Resource Videos (coming soon)



The screenshot illustrates the website's navigation structure. It starts at the Home page, which features a sidebar with 'Home', 'Bookmarks', 'Assignments', and 'Students'. The main content area is divided into four grade-level modules: 1st Grade, Physical, Life, and Earth & Space. The 'Engineering Design' module is highlighted. Clicking on the 'Engineering Design' module leads to a page titled 'SCIENCE / HOW CAN WE SEND A MESSAGE USING SOUND?'. This page has a 'LESSONS' section with 10 numbered icons and a 'DESIGN CHALLENGE' section. The 'Module Overview' tab is selected. Below this, there are tabs for 'Module Overview', 'NGSS Alignment and Planner', 'Curriculum Overview', and 'Resources'. The 'Concepts and Practices Storyline' tab is selected. This leads to a page for 'LESSON 1: PASS IT ON'. The 'Overview' tab is selected, showing the lesson's objectives and background information. Finally, the 'Materials and Preparation' tab is selected, displaying a list of materials for the teacher and each student, along with preparation steps and a 'Coming Soon' message for the Teacher Resource Video.

Need technical support? Contact Russ Pope at russ.pope@carolina.com or 336-538-6321

Procedures

- Step-by-step instructions
- Links to digital resources such as videos, Lesson Notebook Sheets, Student Activity Guide, and interactive student reader
- Point-of-use callouts for CCCs, SEPs, ELA, and Math
- Point-of-use teacher tips, tech tips, ELL strategies, and Good Thinking misconception alerts
- Guiding questions with anticipated student responses

OverviewMaterials PreparationProcedureAssessmentExtensionDigital Resources

Procedure

[Getting Started](#) | [Activity 1](#) | [Review 1 All Together](#)

Getting Started

1. Play the Ada Asks Introduction animation. Below is a transcript of what Ada says in the animation:

"Hi, I'm Ada! Welcome to my treehouse! I've heard that you have been discussing the problem of how to send a message. You did a great job sorting objects that can send a message. Wow, what a lot of objects use sound to send a message! The people who invented these really made our lives easier. You may not know this, but I'm an inventor too. I changed my phone so it makes one sound when my dad calls and another when my grandmother calls. Neat, hey? In fact, that gives me an idea for a game to play. I'm going to pretend I'm a zookeeper and I need to feed all the animals. The problem is the animals are all fed at different times. To help me, you have to tell me which animal to feed first. To make it tricky though, you can't speak to me. You can only use a drum to tell me where to go. This means you have to come up with a code! Perhaps you can use the drum to make a pattern of sounds that tells me what to do. Let's see how good you are at this game!"

Lesson 2 Digital Resource, Engineering Grade 1
Categories: Digital Resource

Teacher tip
If you do not have access to a computer for this lesson, go straight to the Activity.

2. Ask students for suggestions for new words to add to the word wall.

Activity

1. Show students the game board. Tell students that they will play this game in pairs. Explain that one student will be the zookeeper and one student will be the messenger. The goal is for the zookeeper to get to the Finish and to feed all the animals along the way.

Tech tip
Project the game board on a smartboard.

2. Open the [Game Rules](#) file. Read out the game rules or have students read them aloud.

Teacher tip
If you do not have access to a computer for this lesson, print out the game rules or write them on chart paper or the board.

3. Ask students if they have any questions about the rules.

4. Use the following guiding questions to facilitate a discussion on what code students could use:

- What problem are we trying to solve?
(The zookeeper needs to feed all the animals in a certain order.)
- What messages does the messenger need to send to the zookeeper?
(The messenger needs to tell the zookeeper to go forward or backward and stop. The messenger needs to tell the zookeeper to go in 1, 2, 3, 4, and 5.)




Figure 2.4 Example of a student code

Assessment

A. Pre-Assessment (Lesson 1)

B. Formative Assessment, including Remediation and Enrichment suggestions

C. Written Summative

D. Performance Summative (Science or Engineering Design Challenge)

E. Assessed Task tables and rubrics specific to each lesson's assessment (aligned to the three dimensions)

1

2

3

4

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10

LESSON 1: PASS IT ON

LESSON 2: HOW CAN WE SEND A MESSAGE USING SOUND?

LESSON 3: HOW CAN WE SEND A MESSAGE USING SOUND?

LESSON 4: GOOD VIBRATIONS

LESSON 5: HOW DID OUR EARS HEAR SOUND?

LESSON 6: KAZOO KRAZINESS

LESSON 7: BEATS AND BANJOS

LESSON 8: HEAR, HEAR-WRITTEN SUMMATIVE ASSESSMENT

DESIGN CHALLENGE

OverviewMaterials PreparationProcedureAssessmentExtensionDigital Resources

Assessment

Pre-Assessment

Formative Assessment

Written Summative Assessment

Performance Summative Assessment

Lesson 8: Hear, Hear-Written Summative Assessment

Assessed Task

Bringing It All Together: Step 2 and Step 5 (Discussion and STEM notebook)

Concepts and Practices	3	2	1
Sound can make matter vibrate, and vibrating matter can make sound.	<input type="checkbox"/> Students show the eardrum and vocal cords vibrating and label both.	<input type="checkbox"/> Students show either the eardrum or vocal cords vibrating. <input type="checkbox"/> Students don't label the parts that are vibrating.	<input type="checkbox"/> Students do not indicate vibration, e.g., they show an arrow going from the mouth to the ear.
Constructing explanations	<input type="checkbox"/> Students use evidence from the text to explain how they heard the struck tuning fork, e.g., they say that the vibration must have traveled up their arm and into their ear where it caused their eardrum to vibrate.	<input type="checkbox"/> Students say that they heard the struck tuning fork because their eardrum vibrated without saying how the sound traveled up their arm.	<input type="checkbox"/> Students say that they heard the struck tuning fork because they were listening for it.
Cause and effect	<input type="checkbox"/> Students identify three cause-and-effect relationships from the reading that answer the lesson question.	<input type="checkbox"/> Students identify one or two cause-and-effect relationships that answer the lesson question.	<input type="checkbox"/> Students don't identify any cause-and-effect relationships that answer the guiding question, e.g., they say that hats keep your ears warm. <input type="checkbox"/> Students get cause and effect reversed.

Extensions

Cross-curricular activities related to each lesson's science content including literacy, math, history, art, and more

OverviewMaterials PreparationProcedureAssessmentExtensionDigital Resources

Extensions

Literacy and Music "Hip-Hop Messages"

Materials

For each student

- Smithsonian Science Stories Literacy Series: Beats and Banjos

Beats and Banjos: Student Reader
Categories: Reader

Digital Resources

- Videos and simulations
- Lesson Notebook Sheets (English and Spanish)
- Student Activity Guides (English and Spanish)
- Interactive Student Literacy Reader
- eBook Student Literacy Readers

HomeBookmarksAssignmentsStudents

LESSONS

12345678910

LESSON QUESTION: HOW CAN I MAKE THE BEST KAZOO?

Module Overview

LESSON 6: KAZOO KRAZINESS

OverviewMaterials PreparationProcedureAssessmentExtensionDigital Resources

Categories +Media type +Subject +Level +

Beats and Banjos: Student Reader

Lesson 6 Digital Resources, Engineering Grade 1

Lesson 6 Notebook Sheet: Engineering Grade 1

Spanish Student Reader: How Can We Send a Message Using Sound?

Student Reader: How Can We Send a Message Using Sound?

Student Reader: How Can We Send a Message Using Sound?

Interactive reader features clickable vocabulary definitions and a toolbar with highlighting and notes options

eBooks are available in these three formats: Spanish, on grade (↑), and below grade (↓)

www.carolina.com/ssftc

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CCPST19082.101