

hearing and vision



Our Five Senses

Teacher Guide

taste



smell



touch



Our Five Senses

Teacher Guide



Core Knowledge®

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Our Five Senses

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Our Five Senses
Teacher Guide
Core Knowledge Science™ K

Introduction

ABOUT THIS UNIT

The Big Idea

This unit focuses on the scientific concept of the five senses and how those senses can be used to experience one's surroundings.

Students can identify their eyes, ears, hands, nose, and mouth. They also understand that these body parts help them understand and interpret their surroundings. Students may not understand how much information their senses collect or that these senses can become diminished or changed.

In this unit, students will identify the body's five different senses—seeing, hearing, smelling, tasting, and touching. Students will explore what body parts are involved in each of these senses and experience how the senses interpret their surrounding environment. Students will also learn how we take care of the different senses and that certain devices can enhance or change how the senses work.

Note to Core Knowledge Teachers

Thanks to ongoing research in the field, our understanding of how children learn continues to evolve. In the subject area of science, students benefit not just from reading about concepts and ideas, but from hands-on experiences. Following the release of the Next Generation Science Standards (NGSS), the Core Knowledge Foundation used this opportunity to update and enhance the science portion of the *Core Knowledge Sequence*.

While there have been some shifts in the grade levels at which certain topics are recommended, the fundamental principles of pedagogy inherent to the Core Knowledge approach, such as the importance of building a sequential, coherent, and cumulative knowledge base, have been retained.

Although the NGSS guidelines do not reference teaching about the human body, the Core Knowledge Foundation considers student knowledge of this topic, and health, an important part of students' instruction and learning. As a result, this unit can be used in conjunction with the other CKSci units at this grade level or on its own.



To learn more about the changes and to access resources for this unit, please use the links found in the Online Resources Guide.

www.coreknowledge.org/cksci-online-resources

This science unit embodies Core Knowledge's vision of best practices in science instruction and knowledge-based schooling, such as the following:

- building students' knowledge of core ideas in life, physical, and Earth sciences, as well as engineering design;
- developing scientific practices that give students' firsthand experience in scientific inquiry, engineering, and technology; and
- connecting scientific learning to concepts across various disciplines, such as mathematics and literacy.

Related NGSS Dimensions*

This unit, *Our Five Senses*, provides the opportunity to further reinforce the following NGSS Dimensions.

Science and Engineering Practices:

- Asking questions (for science) and defining problems (for engineering)
- Constructing explanations (for science) and designing solutions (for engineering)
- Engaging in argument from evidence

Crosscutting Concepts:

- Cause and effect
- Structure and function
- Systems and system models



For detailed information about the NGSS References, follow the links in the Online Resources Guide for this unit:

www.coreknowledge.org/cksci-online-resources

*NEXT GENERATION SCIENCE STANDARDS (NGSS) is a registered trademark of Achieve. Neither Achieve nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and their endorsement is not implied.

Sources:

NGSS Lead States. 2013. *Next Generation Science Standards: For States, By States*. Washington, DC: The National Academies Press.

National Research Council. 2012. *A Framework for K–12 Science Education: Practices, Crosscutting Concepts, and Core Ideas*. Committee on a Conceptual Framework for New K–12 Science Education Standards. Board on Science Education, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

A Special Note to Kindergarten Teachers Before Starting This Unit

Why Study Science in Kindergarten?

For many Kindergarten teachers, the suggestion that science should be a part of the Kindergarten curriculum may seem questionable. For many teachers, the instructional time is devoted to teaching reading and math fundamentals to students.

The study of science in Kindergarten, however, is consistent with the Core Knowledge approach to learning. Learning science provides students with the experiences necessary to accelerate an almost innate sense of excitement and wonder about the natural world around them. Now is the time they can begin to develop a more precise language, one that allows them to describe the living and nonliving environment they encounter every day.

Albert Einstein said, “Curiosity has its own reason for existing.” It is the nature of children to be curious about the world around them, and Kindergarten is the right time to witness, promote, and accelerate that curiosity in a systematic way.

Teaching science to young children affords them the opportunity to take a deeper look at the world around them. Most young students’ scientific knowledge is derived from their personal experiences, that is, from interactions with the air, water, land, and other matter around them. All these lead to a student’s wonder about life, Earth, space, and physical science.

Before Starting *Our Five Senses*

Students come to Kindergarten classrooms across the country with a wide range of prior experiences. Some students have attended preschool, while others have not. Some have grown up in cities away from nature. Others have grown up in the country, intimately involved in nature.

Some have had teachers and/or family members who have been reading aloud and sharing the wonderful world of animals and plants with them for several years, while others have not. Some have traveled to other cities, states, and countries, while others may know only their own family and neighborhood.

Draw out students. Give them the opportunity to express what they know about the way they sense the world with their own bodies’ sensory organs. You can assess the prior knowledge students have about science, and since science deals with everything around a child, the wealth of their background in science should not be underestimated.

Our Five Senses is one of five units in the Kindergarten CKSci series that we encourage teachers to use over the course of the school year. Kindergarten teachers who begin the year with a unit will have time to complete all five of the Kindergarten CKSci units in an academic year. Additional guidance regarding pacing is provided in each CKSci Teacher Guide.

What Students Need to Learn

For this unit, the *Core Knowledge Science Sequence* specifies the following content and skills. Specific learning objectives are provided in each lesson throughout the unit.

Lesson 1: The Sensational Carnival!

- Define *sense*.
- Identify human senses.

Lesson 2: Your Sense of Sight

- Define *vision*.
- Identify and illustrate body parts associated with sight.
- Describe vision-related adaptive devices.
- Describe wellness and safety practices for taking care of eyes and vision.

Lesson 3: Your Sense of Hearing

- Define *hearing*.
- Identify and illustrate body parts associated with hearing.
- Describe auditory adaptive devices.
- Describe wellness and safety practices for taking care of ears and hearing.

Lesson 4: Your Sense of Smell

- Define *smell*.
- Identify and illustrate body parts associated with the sense of smell.

Lesson 5: Your Sense of Taste

- Define *taste*.
- Identify and illustrate body parts associated with the sense of taste.

Lesson 6: Your Sense of Touch

- Define *touch*.
- Identify and illustrate body parts associated with the sense of touch.

Lesson 7: Science in Action: A Visit to the Eye Doctor

- Learn about what happens during a typical eye doctor visit.
- Associate eyeglass lenses with Benjamin Franklin.

What Teachers Need to Know

Supportive information on the content standards and the science they address is provided throughout the lessons at points of relevance:

Know the Standards: These sections, found later in this Teacher Guide, explain what to teach and why, with reference to NGSS and Core Knowledge expectations, as well as connections to relevant math and reading language arts standards.

Know the Science: These sections provide supporting, adult-level, background information or explanations related to specific science concepts, examples, or Disciplinary Core Ideas.

USING THE STUDENT BOOK

Student Book



The *Our Five Senses* Student Book includes seven chapters, intended to be read aloud by the teacher as the students look at images on each page.

As you will note when you examine the Student Book, minimal text is included on each page. Instead, colorful photos and engaging illustrations dominate the Student Book pages. The design of the Student Book in this way is intentional because students in Kindergarten–Grade 2 are just learning to read. At these grade levels, students are learning how to decode written words, so the complexity and amount of text that these young students can actually read is quite limited.

While some advanced students may be able to read words on a given page of the Student Book, as a general rule students should not be expected or asked to read aloud the text on the Student Book pages. The text in the Student Book is there so that teachers and parents can read it when sharing the Student Book with students.

The intent of the Grades K–2 CKSci lessons is to build students’ understanding and knowledge of science concepts, as well as of associated practices and skills. It is for this very reason that in Grades K–2 CKSci, the core content of each lesson is reinforced to students using a teacher Read Aloud, accompanied by example images and diagrams. Cognitive science research has clearly documented the fact that students’ listening comprehension far surpasses their reading comprehension well into the late elementary and early middle school grades. Said another way, students are able to understand and grasp far more complex ideas and text that they hear read aloud than they would ever be able to read or comprehend when they read to themselves. For a more thorough discussion of listening and reading comprehension and the underlying cognitive science research, teachers may want to refer to Appendix A of the Common Core State Standards for English Language Arts, noting in particular the Speaking and Listening section of the appendix.

Use this link to download the CKSci Online Resources for this unit, where the specific link to this appendix can be found:

www.coreknowledge.org/cksci-online-resources

Pacing

The *Our Five Senses* unit is one of five units in the Kindergarten CKSci series. We encourage teachers who are using the full series to complete all units during the school year. Each Core Lesson requires thirty to forty-five minutes of instruction time. The time it takes to complete a full lesson depends on class size and individual circumstances. Each lesson concludes with a Check for Understanding, providing the teacher with an opportunity for formative assessment.

At the end of this unit Introduction, you will find a blank Pacing Guide on page 11, which you may use to plan how you might pace the lessons, as well as when to use the various other resources in this unit. We strongly recommend that you preview the unit in full before beginning and create your pacing guide before teaching the first lesson. As a general rule, we recommend that you spend no more than ten days teaching the *Our Five Senses* unit so that you have time to teach the other units in the Kindergarten CKSci series.

If you are familiar with the previous units at this grade level, you may notice that this unit differs slightly in organization from the NGSS units in the CKSci program. Lessons in the NGSS CKSci units are comprised of multiple segments that build to students' demonstration of a complex Performance Expectation. Because *Our Five Senses* is not designed to support any specific NGSS Performance Expectation, the instructional episodes are not grouped into multipart lessons. As such, they are identified simply as *lessons* instead of *lesson segments*.

The Core Lessons

- Lesson time: Most Core Lessons constitute one classroom session of thirty to forty-five minutes. Some lessons cover two or three days of instruction. Some single-day activities and performance tasks might require setting aside a longer block of time.
- Lesson order: The lessons are coherently sequenced to build from one to the next, linking student engagement across lessons and helping students build new learning on prior knowledge.

Unit Big Question: How can we tell what is going on at a carnival?		Lesson Questions
Lesson 1	The Sensational Carnival!	What are human senses?
Lesson 2	Your Sense of Sight	What is vision, and what body parts allow us to see?
Lesson 3	Your Sense of Hearing	What is hearing, and what body parts enable us to hear?
Lesson 4	Your Sense of Smell	What are scents, and how do we smell them?
Lesson 5	Your Sense of Taste	How do we detect the taste of food?
Lesson 6	Your Sense of Touch	How do our bodies sense contact?
Lesson 7	Science in Action: A Visit to the Eye Doctor	How can we take care of our senses?

Activity Pages

Activity Pages



AP 1.1

AP 2.1

AP 2.2

AP 3.1

AP 3.2

AP 4.1

AP 4.2

AP 5.1

AP 5.2

AP 6.1

Black line reproducible masters for Activity Pages, as well as an Answer Key, are included in Teacher Resources on pages 50–60. The icon shown to the left appears throughout the Teacher Guide wherever Activity Pages (AP) are referenced.

Lesson 1—Carnival Senses (AP 1.1)

Lesson 2—Your Eye (AP 2.1)

Lesson 2—Helping to See (AP 2.2)

Lesson 3—Your Ear (AP 3.1)

Lesson 3—Helping to Hear (AP 3.2)

Lesson 4—Your Nose (AP 4.1)

Lesson 4—Scents Sense (AP 4.2)

Lesson 5—Your Tongue (AP 5.1)

Lesson 5—Taste Test (AP 5.2)

Lesson 6—Touch (AP 6.1)

Online Resources for Science

Online Resources



For each CKSci unit, the Teacher Guide includes references to online resources (including external websites and downloadable documents) to enhance classroom instruction. Look for the icon on the left.

Use this link to download the CKSci Online Resources for this unit:

www.coreknowledge.org/cksci-online-resources

Teaching Strategies

Start with the familiar.

Lead with an experience. Begin each lesson with a demonstration, activity, or question about a phenomenon to engage students and focus their attention on the topic. Start with the familiar. Every science topic introduced to students relates in some way to their known world and everyday experiences. The purpose of every lesson is to build a bridge between what is familiar to students and broader knowledge about the way the world works.

Ask driving questions.

The unit is governed by a Big Question, and each lesson poses a more specific sub-question as students are introduced to new science content. Use these questions to engage students in conversation and help them think about how their own real-world experiences relate to the topic.

Encourage scientific thinking.	Approach the lessons with students not as learning about science but as learning about the world with a scientific mind. Science learning models science practice. Throughout the lessons, encourage students to ask questions about what they observe, do, and read. Record relevant questions in a prominent place in the classroom. Guide students back to these questions as opportunities to answer them emerge from readings, demonstrations, and activities.
Use continuous Core Vocabulary instruction.	During instruction, emphasize Core Vocabulary terms and their meanings in context rather than relying on isolated drill for memorization of definitions. Through scaffolded questioning, encourage students to come up with definitions in their own words and to use the words in their own sentences. Core Vocabulary words for each lesson, as well as Language of Instruction, other key terms teachers are encouraged to use in discussing topics with students, are provided at the start of each lesson. You can find Core Vocabulary and Language of Instruction definitions in the Glossary on pages 61–62.
Emphasize observation and experience.	Lessons employ various ways for students to learn, including watching, listening, reading, doing, discussing, and writing.
Use science practices.	Give students opportunities to discover new content knowledge through investigation and to use their new knowledge both in problem-solving exercises and as evidence to support reasoning. Students learn what science and engineering practices are by engaging in those same practices as they learn.
Make frequent connections.	Use a combination of demonstrations and reading materials, rich with examples, to help students recognize how the science concepts they are learning apply in their everyday lives. Prompt students to relate lesson content to their own experiences, to relate the new and unfamiliar to the familiar, and to connect ideas and examples across disciplines.
Monitor student progress.	Use verbal questioning, student work, and the Check for Understanding assessments at the end of each lesson to monitor progress during each lesson and to measure understanding at the conclusion of the unit. Many lessons provide tips to help you support students who need further explanations or clarifications.

Effective and Safe Classroom Activities

Online Resources



Conducting safe classroom demonstrations and activities is essential to successful elementary science education. The following resources provide Core Knowledge's recommendations for developing effective science classroom activities.

These resources, included at the back of the Teacher Guide on pages 63–67, consist of the following:

- Classroom Safety for Activities and Demonstrations
- Strategies for Acquiring Materials
- Advance Preparation for Activities and Demonstrations
- What to Do When Activities Don't Give Expected Results

These resources may also be accessed within the CKSci Online Resources Guide for this unit, available at

www.coreknowledge.org/cksci-online-resources

MATERIALS AND EQUIPMENT

The unit requires a large variety of materials to support various ways of learning (including doing, discussing, listening, watching, reading, and writing). Prepare in advance by collecting the materials and equipment needed for all the demonstrations and hands-on investigations.

- Roll paper, poster board, or a bulletin board should be dedicated at the beginning of the unit to serve as a question board to cumulatively document and return to student questions. The question board is referred to in the materials for lessons in which it is used but is not repeated in the materials listed here.
- Internet access and the means to project images/videos for whole-class viewing is also required in many lessons but is not repeated below.

Lesson 1 The Sensational Carnival!

- n/a

Lesson 2 Your Sense of Sight

- simple eye chart
- collection of safety glasses and other adaptive eye equipment, such as eyeglasses, bifocals, goggles, work glasses, binoculars, hand lenses, microscopes, and loupes

Lesson 3 Your Sense of Hearing

- collection of safety and other adaptive ear equipment, such as headphones, earbuds, earplugs, earmuffs and hearing aids

Lesson 4 Your Sense of Smell

- items in individual paper cups with opaque lids for students to smell: lemon, banana, mint, onion, vinegar, coffee, pine needles, garlic, rose petals, pencil shavings

Lesson 5 Your Sense of Taste

- finger foods in individual paper cups: tart gummy candy, salty cheese-flavored cracker, raisin, semisweet chocolate chip, cheese cube
- plastic spoons (1 per student)
- question board

Lesson 6 Your Sense of Touch

- collection of balls with different textures: tennis ball, table tennis ball, marble, rubber ball, golf ball, billiard ball, baseball
- short pieces of string

Lesson 7 Science in Action: A Visit to the Eye Doctor

- simple eye chart

OUR FIVE SENSES PACING GUIDE

_____’s Class

Note to Teacher: When using *Our Five Senses* as part of the Kindergarten CKSci series, this unit is intended to be taught as the fifth unit of Kindergarten CKSci.

Week 1

Day 1

Day 2

Day 3

Day 4

Day 5

--	--	--	--	--

Week 2

Day 6

Day 7

Day 8

Day 9

Day 10

--	--	--	--	--

Week 3

Day 11

Day 12

Day 13

Day 14

Day 15

--	--	--	--	--

UNIT 5

Our Five Senses

OVERVIEW

Big Question: How can we tell what is going on at a carnival?

Lessons	Lesson Questions	Advance Preparation
1. The Sensational Carnival!	What are human senses?	Read Student Book, Chapter 1.
2. Your Sense of Sight	What is vision, and what body parts allow us to see?	Read Student Book, Chapter 2. Gather and set up materials for student investigation.
3. Your Sense of Hearing	What is hearing, and what body parts enable us to hear?	Read Student Book, Chapter 3. Gather and set up materials for student investigation.
4. Your Sense of Smell	What are scents, and how do we smell them?	Read Student Book, Chapter 4. Gather and set up materials for student investigation.
5. Your Sense of Taste	How do we detect the taste of food?	Read Student Book, Chapter 5. Gather and set up materials for student investigation.
6. Your Sense of Touch	How do our bodies sense contact?	Read Student Book, Chapter 6. Gather and set up materials for student investigation.
7. Science in Action: A Visit to the Eye Doctor	How can we take care of our senses?	Read Student Book, Chapter 7.

What's the Story?

The five senses allow people to experience sight, sound, smell, taste, and touch. Certain parts of the human body perform these sensory functions, sending signals to the brain for interpretation.

In Lessons 1–7, students listen and read along with Teacher Read Aloud of Student Book Chapters 1–7. They identify the five senses as sight, hearing, smell, taste, and touch. Reading about the five senses is reinforced by teacher demonstrations. Students further explore the familiar environment and investigate through manipulation of objects and materials.

LESSON 1

The Sensational Carnival!

Big Question: How can we tell what is going on at a carnival?

Lesson Question: What are human senses?

Tie to the Anchoring Phenomenon: Alyssa and her aunt use their senses to experience sights, sound, smells, tastes, and touch sensations at a carnival.

AT A GLANCE

Learning Objectives

- ✓ Define *sense*.
- ✓ Identify human senses.

Instructional Activities

- student drawing
- teacher Read Aloud
- question generation

Core Vocabulary

Core Vocabulary: Core Vocabulary terms are those that students should learn to use accurately in discussion and in written responses. During instruction, expose students repeatedly to these terms. However, these terms are not intended for isolated drill or memorization.

sense

Language of Instruction: The Language of Instruction consists of additional terms, not considered a part of Core Vocabulary, that you should use when talking about any concepts in this exercise. Students will benefit from your modeling the use of these words without the expectation that students will use or explain the words themselves. A Glossary at the end of this Teacher Guide lists definitions for both Core Vocabulary and Language of Instruction.

brain detect environment surroundings

Instructional Resources

Student Book



Ch. 1

Activity Page



AP 1.1

Student Book, Chapter 1
“The Sensational Carnival!”

Activity Page
Carnival Senses (AP 1.1)

Materials and Equipment

Collect or prepare the following items:

- question board
- internet access and the means to project images/video for whole-class viewing

THE CORE LESSON 1

1. Introduce students to Lesson 1.

Online Resources



Activity Page



AP 1.1

Read the Big Question you'll be answering in this unit—**How can we tell what is going on at a carnival?**

- Play a video of a carnival for students. **Ask students** if they have ever been to a carnival, fair, or theme park. **Ask** them to share about games, foods, rides, animals, crafts, and experiences they have had there.
- Then introduce the Lesson Question—**What are human senses?**
- Play a video song to introduce the senses. Talk about the sense organs students use to see, hear, smell, taste, and touch. Then have students sit quietly with their eyes closed. **Ask** the following questions:
 - What do you hear?
 - » Sample answers: clock, playground noise, cars
 - What do you smell?
 - » Sample answers: cleanser, eraser, flowers, books
 - What do you taste?
 - » Sample answers: toast from breakfast or lunch, peanut butter from lunch
 - What can you feel with your hands?
 - » Sample answers: cloth, desk, skin
 - Then open your eyes. What do you see?
 - » Sample answers: windows, desk, door

- Distribute Carnival Senses (AP 1.1), and ask students to draw a picture of one thing they might see, hear, smell, taste, and touch at a carnival. Ask them to present their drawings.

See the Online Resources Guide for a link to the recommended video.

www.coreknowledge.org/cksci-online-resources

2. Read together: “The Sensational Carnival!”

Student Book



Ch. 1

While some advanced students may be able to read words on a given page of the Student Book, as a rule students should not be expected or asked to read aloud the text on the Student Book pages. The text in the Student Book is there so that teachers and parents can read it when sharing the Student Book with students.

Read Aloud Support

Pages 2–3

Ask students to turn to pages 2–3 of the Student Book and look at the images as you read aloud. Remind them that the title of this chapter is “The Sensational Carnival!” and tell them to pay special attention to what Alyssa might see, hear, smell, taste, or touch as she visits the carnival.

Ask students to look at the picture across pages 2 and 3. Explain that it is a picture of Alyssa and her aunt at a carnival.

LITERAL—What makes Alyssa feel cold?

» the water from the dunking booth

LITERAL—What can Alyssa see?

» flashing lights, colorful clown

LITERAL—What can Alyssa hear?

» clunk, ding, splash, crowd cheering

CORE VOCABULARY—Explain that a **sense** is what the human body uses to take in information. Your five senses help you understand what is happening around you.

INFERENTIAL—What might Alyssa taste and smell at the carnival?

» Sample answers: hot dogs, popcorn, cotton candy

EVALUATIVE—What would you want to do first at the carnival?

» Sample answers: eat; ride the Ferris wheel; play a game

SUPPORT—Play a senses game. Have students point to their ears, eyes, mouth, nose, or hand to answer each question. Tell students they can choose more than one body part.

1. What body part would you use to tell the color of a balloon?
» eye
2. What body part would you use to tell if the clown fell into the dunk tank?
» ear, eye
3. What body part would you use to feel how fuzzy a stuffed animal prize is?
» hand
4. What body part would you use to tell if there is a popcorn stand nearby?
» nose, eye
5. What body part would you use to tell if lemonade is too sour?
» mouth

Page 4–5

Ask students to look at the pictures on pages 4 and 5.

LITERAL—What can Alyssa sense at the carnival?

- » flashing lights, crowd noises, rides

INFERENTIAL—How can Alyssa use her sense of sight at the carnival?

- » She can see where she is walking, see the rides, see the colors, and see the people.

INFERENTIAL—How can Alyssa use her sense of smell at the carnival?

- » She can smell all the different foods.

INFERENTIAL—How can Alyssa use her sense of hearing at the carnival?

- » She can hear people, rides, games, and music.

EVALUATIVE—What sense is most important to use at a carnival and why?

- » Accept all answers. For example, sight is most important so you can see where you are going.

3. Generate questions.

- Present the question board. Draw an eye, ear, nose, hand, and mouth, with space for questions under each picture.
- **Ask students** what questions they have about each of their five senses. Record their questions on the question board. (See **Know the Standards**.)
- Explain that the class will answer some of these questions in this unit and that they can add more questions to the list as they go.

4. Check for understanding.

Activity Page



AP 1.1

Monitor Progress

Summarize the lesson by **asking students** which of their senses they think they use the most and why.

- » Accept all answers. Sample answer: I use hearing the most because there are always noises happening around me.

Formative Assessment

Review student responses in the discussion and on Carnival Senses (AP 1.1) to determine if students understand the following concepts:

- We have five different senses to tell what is happening around us.
- The five senses are sight, hearing, taste, touch, and smell.
- We use our eyes, ears, nose, tongue, and skin to learn more about the world around us.

Know the Standards

TEACHER DEVELOPMENT

SEP 1 Asking Questions: Asking questions in Kindergarten builds on prior experiences and progresses to simple descriptive questions that can be tested. In this unit, students will ask questions about their senses based on observations to learn about their environments.

LESSON 2

Your Sense of Sight

Big Question: How can we tell what is going on at a carnival?

Lesson Question: What is vision, and what body parts allow us to see?

Tie to the Anchoring Phenomenon: Alyssa and her aunt explore a carnival using their sense of sight to read signs, watch people, see movement, and notice colors.

AT A GLANCE

Learning Objectives

- ✓ Define *vision*.
- ✓ Identify and illustrate body parts associated with sight.
- ✓ Describe vision-related adaptive devices.
- ✓ Describe wellness and safety practices for taking care of eyes and vision.

Instructional Activities

- student investigation
- teacher Read Aloud
- question generation

Core Vocabulary

Core Vocabulary: Core Vocabulary terms are those that students should learn to use accurately in discussion and in written responses. During instruction, expose students repeatedly to these terms. However, these terms are not intended for isolated drill or memorization.

eye see sight vision

Language of Instruction: The Language of Instruction consists of additional terms, not considered a part of Core Vocabulary, that you should use when talking about any concepts in this exercise. Students will benefit from your modeling the use of these words without the expectation that students will use or explain the words themselves. A Glossary at the end of this Teacher Guide lists definitions for both Core Vocabulary and Language of Instruction.

blind lens light nerve pupil

Instructional Resources

Student Book



Ch. 2

Student Book, Chapter 2
“Your Sense of Sight”

Activity Pages



AP 2.1

AP 2.2

Activity Pages
Your Eye (AP 2.1)
Helping to See (AP 2.2)

Materials and Equipment

Collect or prepare the following items:

- question board
- simple eye chart
- collection of safety glasses and other adaptive eye equipment, such as eyeglasses, bifocals, goggles, work glasses, binoculars, hand lenses, microscopes, and loupes
- internet access and the means to project images/video for whole-class viewing

THE CORE LESSON 2

1. Introduce Lesson 2.

Read aloud the Lesson Question for students—**What is vision, and what body parts allow us to see?** Then play an eyesight and memory game.

1. Place ten simple items in a place where everyone can see them—for example, a book, marker, pair of scissors, fork, cup, board eraser, ruler, pattern block, stapler, and pencil.
2. Tell students to study the group of items for about thirty seconds.
3. Ask students to close their eyes as you remove the items.
4. Have students open their eyes and as a group see how many they can remember. Bring each item back out as students name it. If students cannot remember some items, give them clues about color, shape, and size.
5. Once all the items have been restored, **ask** these questions:
 - a. How did you know which items were in the group?
 - » I saw them.
 - b. What could you tell about each item by seeing it?
 - » color, size, shape, materials
 - c. What would you have known about the items if you couldn't see them?
 - » nothing
 - d. What body part did you use to see the items?
 - » my eyes

2. Generate questions.

Activity Page



AP 2.1

- Discuss what students know about their eyes by **asking** these questions:
 - What color are your eyes?
 - » Accept all answers.
 - Does the color of your eyes affect your ability to see?
 - » no
 - In what directions can you move your eyes?
 - » up, down, side to side, and around
 - How do your eyes help you?
 - » Accept all answers. Sample answer: They help me find things, avoid falling, and tell the difference between items.

Online Resources



- Play a video about how the eye works. Then look at the questions students have about eyes on the question board. Have students consider those questions, and add any others they have after watching the video.

See the Online Resources Guide for a link to the recommended video.

www.coreknowledge.org/cksci-online-resources

- Discuss what students know about how to take care of their eyes.
 - » Accept all appropriate answers. Sample answers: Eat a healthy diet of fruits and vegetables; take breaks from screen time; wear sunglasses outside; see an eye doctor for checkups; wear eyeglasses if needed.
- Distribute Your Eye (AP 2.1), and ask students to draw one of their eyes.

3. Read together: “Your Sense of Sight.”

Student Book



Ch. 2

While some advanced students may be able to read words on a given page of the Student Book, as a rule students should not be expected or asked to read aloud the text on the Student Book pages. The text in the Student Book is there so that teachers and parents can read it when sharing the Student Book with students.

Read Aloud Support

Pages 6–7

Ask students to turn to pages 6–7 of the Student Book and look at the images as you read aloud. Remind them that the title of this chapter is “Your Sense of Sight,” and tell them to pay special attention to what they see as you read.

Ask students to look at the pictures on pages 6–7. Explain that they are pictures of a carnival game and of Alyssa and her aunt.

LITERAL—What can Alyssa see?

- » balloon dart game, prizes, a sign about how many tickets are needed to play

LITERAL—Why can't they read the sign?

- » It is too far away.

INFERENTIAL—What can you do if you can't see something clearly?

- » Move closer; put on glasses; use binoculars.

CORE VOCABULARY—Explain that the **eye** is a body part that allows people and animals to **see**. **Ask students** to describe the eyes of different animals. Explain that all animals do not see the same way. For example, some animals can see better in the dark. Others can see small objects from very far distances.

Page 8

Ask students to look at the picture on page 8 as you read aloud.

Differentiation

INFERENTIAL—What eye features can you see in the picture?

- » eyelashes, eyelids, eyebrows, a black dot in the center of each eye (pupil), the whites of the eyes, the color of the eyes

EVALUATIVE—How would your life be different if you did not have a sense of sight?

- » Sample answer: You would have to depend on other senses to find your way.

SUPPORT—Discuss how some features of the eye protect it and other features allow you to see. Talk about how eyelids and eyelashes keep things from getting into the eye. Explain that the black dot in the center of the eye, the pupil, takes in light.

CORE VOCABULARY—Discuss the word **sight**, and explain that it is one of the five senses. Challenge students to identify things that sight allows them to do that they would have difficulty doing without it. For example, sight helps them see the following:

- how near or far away things are
- color
- size
- shape

Page 9

Ask students to look at the pictures on page 9 as you read aloud.

LITERAL—What color are the blocks? How can you tell?

- » I can use my eyes to see that they are red, blue, green, orange, and yellow.

INFERENTIAL—Would you be able to tell what color the blocks are if you couldn't see them?

- » no

INFERENTIAL—Can you tell how an object feels without touching it? How?

- » You can look at an object to see whether it looks smooth, wet, rough, or soft.

INFERENTIAL—How do you know if an object is near or far away?

- » I can see an object's position with my eyes.

INFERENTIAL—How can Alyssa sense movement at the carnival?

- » She can see whether something is moving or standing still.

EVALUATIVE—What are some activities your sense of sight allows you to do?

- » Sample answers: read, watch TV, see feelings on people's faces, know what the weather is like outside, do puzzles, draw, color

Pages 10–11

Ask students to look at the pictures on pages 10–11 as you read aloud.

Display a simple eye chart with shapes or animals. Ask students to raise their hands if they can identify each item as you point to it on the chart. Discuss how distance from the chart affects how well you can see it.

CORE VOCABULARY—Explain to students that **vision** describes a person's ability to see. Some people have normal vision. They can see objects clearly at any distance. Other people have blurry vision, or have trouble seeing objects up close or far away. People who are blind have extremely limited vision or cannot see anything at all. (See **Know the Science**.)

EVALUATIVE—What is the difference between normal vision and blindness?

- » If you have normal vision, you can see everything clearly. If you are blind, you can see little or nothing at all.

INFERENTIAL—Why do some people wear glasses?

- » to protect their eyes or to help them see

LITERAL—Why shouldn't you rub your eyes?

- » You can get germs in them that can make you sick.

Know the Science

TEACHER DEVELOPMENT

Blindness: There are varying degrees of blindness. Legal blindness is defined as vision that tests at 20/200 or worse. For example, what a person with 20/20 vision can clearly see at 200 feet, a legally blind person can only clearly see at 20 feet. Many people with blindness can distinguish light and dark, some color, and shape, although some cannot see anything at all. The leading causes of blindness are age-related macular degeneration, cataracts, diabetes, and glaucoma.

4. Facilitate an activity.

Activity Page



AP 2.2

- Discuss how eyeglasses help people see. Ask students if they know anyone who wears glasses or contact lenses. Explain that some people have trouble seeing things up close. Others have trouble seeing things far away. Some people have trouble seeing both near and far. One of America's founders, Benjamin Franklin, had that problem. He invented bifocals.
- Distribute Helping to See (AP 2.2). Identify each item in the activity, and allow students to explore any actual adaptive devices you have available, including eyeglasses, bifocals, hand lenses, microscopes, goggles, and binoculars.
- Have students complete the activity as a class, discussing how each item helps a person see.
- Discuss other items that people may use to enhance their vision, such as contact lenses or night goggles

5. Check for understanding.

Activity Page



AP 2.1

Monitor Progress

- Have students present their work on Your Eye (AP 2.1). Have students identify the parts they drew, such as the whites of the eye, the pupil, eyelashes, eyelid, and eyebrows. Allow students to add to their drawings.
- Summarize the lesson by **asking students** how they use their sense of sight.
 - » Sample answer: to see color, movement, size, shape
- **Ask students** whether they think people and animals need their sense of sight to survive.
 - » Humans can use other senses and adaptive devices to make up for limited sight, but many animals would not be able to survive without it because they could not find food or shelter or defend themselves from danger.

Formative Assessment

Review student responses in the discussion to determine if students understand the following concepts:

- Sight allows people to see color, size, shape, movement, and distance.
- The eye takes in light. The eyebrow, eyelid, and eyelashes protect the eye.
- Many items have been developed to help people improve their vision by helping them see farther, closer, or more clearly.
- People need to maintain and protect their eyes from damage by having checkups, wearing protective glasses, eating good food, not looking directly at the sun or other bright light, and limiting screen time.

LESSON 3

Your Sense of Hearing

Big Question: How can we tell what is going on at a carnival?

Lesson Question: What is hearing, and what body parts enable us to hear?

Tie to the Anchoring Phenomenon: Alyssa and her aunt use their sense of hearing to explore all the sounds of a carnival.

AT A GLANCE

Learning Objectives

- ✓ Define *hearing*.
- ✓ Identify and illustrate body parts associated with hearing.
- ✓ Describe auditory adaptive devices.
- ✓ Describe wellness and safety practices for taking care of ears and hearing.

Instructional Activities

- student investigation
- teacher Read Aloud
- question generation

Core Vocabulary

Core Vocabulary: Core Vocabulary terms are those that students should learn to use accurately in discussion and in written responses. During instruction, expose students repeatedly to these terms. However, these terms are not intended for isolated drill or memorization.

ear hearing sound

Language of Instruction: The Language of Instruction consists of additional terms, not considered a part of Core Vocabulary, that you should use when talking about any concepts in this exercise. Students will benefit from your modeling the use of these words without the expectation that students will use or explain the words themselves. A Glossary at the end of this Teacher Guide lists definitions for both Core Vocabulary and Language of Instruction.

eardrum nerve volume

Instructional Resources

Student Book



Ch. 3

Student Book, Chapter 3
“Your Sense of Hearing”

Activity Pages



AP 3.1

AP 3.2

Activity Pages
Your Ear (AP 3.1)
Helping to Hear (AP 3.2)

Materials and Equipment

Collect or prepare the following items:

- question board
- collection of safety and other adaptive ear equipment, such as headphones, earbuds, earplugs, earmuffs, and hearing aids
- internet access and the means to project images/video for whole-class viewing

THE CORE LESSON 3

1. Introduce Lesson 3.

Online Resources



Focus student attention on Today’s Question—**What is hearing, and what body parts enable us to hear?**

- Play a video with sounds for students to identify. See the Online Resources Guide for a link to a recommended resource. See the Online Resources Guide for a link to the recommended video.

www.coreknowledge.org/cksci-online-resources

- At the end of the video, discuss the following questions:
 - What is your favorite sound?
 - » Sample answers: laughter, waves lapping on a beach, kitten purring
 - What are some sounds that scare you?
 - » Sample answers: thunder, ambulance wailing, crashing sound when something falls, door slamming
 - What are some differences between the sounds in the video?
 - » some are loud or soft, high or low, screechy or smooth
 - How did you hear the sounds?
 - » with my ears

2. Generate questions.

- Discuss what students know about their ears by **asking** these questions:
 - What happens if you put your hands over your ears?
 - » Sounds are muffled.

Online Resources



Activity Page



AP 2.1

- What makes it easier to hear sounds?
 - » if the room is quiet; if there are no other sounds
- How do your ears help you?
 - » Sample answer: They help me have conversations with people, avoid danger, hear instructions, and enjoy music.
- Look at the questions students have about the ear on the question board. Have students consider those questions, and add any others they have.
- Play a video about how the ear works. Discuss what students know about how to take care of their ears.
 - » Sample answers: Avoid loud sounds; don't put anything in your ears; keep your ears clean and dry; wear a hat to keep your ears warm in winter.
- Distribute Your Ear (AP 3.1), and ask students to draw one of their ears. Encourage students to include parts on the inside and the outside.

See the Online Resources Guide for a link to the recommended video.

www.coreknowledge.org/cksci-online-resources

3. Read together: “Your Sense of Hearing.”

Student Book



Ch. 3

While some advanced students may be able to read words on a given page of the Student Book, as a rule students should not be expected or asked to read aloud the text on the Student Book pages. The text in the Student Book is there so that teachers and parents can read it when sharing the Student Book with students.

Read Aloud Support

Pages 12–13

Ask students to turn to pages 12–13 of the Student Book and look at the images as you read aloud. Remind them that the title of this chapter is “Your Sense of Hearing,” and tell them to pay special attention as you read to what the characters might hear at the carnival.

Ask students to look at the pictures on pages 12–13. Remind students that they are learning about experiences that Alyssa and her aunt have at a carnival.

LITERAL—What can a carnival visitor hear in this scene?

- » the carousel’s motor and music, people shouting

INFERENTIAL—What can Alyssa do if she wants to hear the carousel music more clearly?

- » She can move closer; she can cup her ear with her hand.

CORE VOCABULARY—Explain that the **ear** is a body part that allows people and animals to **hear**. **Ask students** to describe or pantomime the ears of different animals. Explain that some animals have much better hearing than people and other animals do. (See **Know the Science**.)

Pages 14–15

Differentiation

Ask students to look at the pictures on pages 14–15 as you read aloud. When you finish reading, ask students to be quiet and listen to the sounds around them for thirty seconds. When time is up, have students identify all the sounds they heard. Write the sounds on the board. Then **ask** these questions:

LITERAL—Look at the pictures on pages 14 and 15 in the Student Book. What is one loud sound? What is one soft sound?

» Sample answer: An emergency vehicle siren is loud; whispers are soft.

EVALUATIVE—How would your life be different if you had no sense of hearing?

» Sample answers: I would have to depend on my other senses more; I would have to use a device to help me hear better.

CORE VOCABULARY—Discuss what **sound** is. Explain that sound is a type of energy made by vibrations that move through air in waves. If your ear is within range, you can hear the sound.

CHALLENGE—Challenge students to identify things that hearing allows them to do that they couldn't do or would have to do differently without it. Examples include the following:

- listen to music
- talk on the phone
- hear a fire alarm
- hear a dog barking

Page 16

Ask students to look at the pictures on page 16 as you read aloud.

LITERAL—What is deafness?

» when a person cannot hear well or at all

LITERAL—What can people who do not hear well do to help them hear better?

» use hearing aids

Know the Science

TEACHER DEVELOPMENT

Hearing Ability in Animals: Moths have keen hearing to help them avoid predators. Owls, bats, elephants, dogs, rabbits, foxes, and cats also have good hearing. The shape and size of an animal's ears relative to its body are clues to how well an animal hears. Animals with large, pointy ears usually have better hearing than animals with smaller ears. A good sense of hearing is beneficial to animals because it helps them find prey and avoid predators.

INFERENTIAL—How can you communicate with someone who has trouble hearing?

- » Speak clearly and look at them when you speak so they can see your lips and face; be prepared to repeat what you said; use sign language.

INFERENTIAL—How can you use your sense of hearing to tell if something is near or far away?

- » Sounds that are close by are louder.

Page 17

Differentiation

Ask students to look at the pictures on page 17 as you read aloud.

LITERAL—What can you do to protect your ears?

- » Stay away from loud noises; wear earplugs or earmuffs; never stick anything in your ear (except for earplugs that are made specially for that purpose).

EVALUATIVE—Which is more important, your sense of sight or your sense of hearing? Why?

- » Accept all reasonable answers.

SUPPORT—Discuss how the outside of the ear protects the inner parts. Explain that the inner ear is very fragile. Show students a simple diagram of the inner parts of the ear to give them a sense of how small and delicate the parts are.

4. Facilitate an activity.

Activity Page



AP 3.2

- Distribute Helping to Hear (AP 3.2).
- Identify each item in the activity, and allow students to explore any actual items you have available. Some items you may wish to include are earmuffs, earbuds headphones, earplugs and hearing aids.
- Complete the activity as a class, and discuss whether each item helps a person hear or provides protection for the ears.
- Facilitate student identification of ways they would know if they have trouble hearing.
 - » Sample answers: trouble hearing on the phone; trouble hearing when there is background noise; difficulty following a conversation when others can; thinking people are mumbling; asking people to repeat themselves

5. Check for understanding.

Activity Page



AP 3.1

Monitor Progress

- Have students present their work on Your Ear (AP 3.1). Have them describe where the sound enters.
- Summarize the lesson by **asking students** how they use their sense of hearing.
 - » Sample answers: to follow conversations, hear alarms, hear people laughing
- **Ask students** if people and animals need their sense of hearing to survive.
 - » Humans can use other senses and adaptive devices to make up for limited hearing. Some animals would not be able to survive without it because they could not find food or defend themselves from danger.

Formative Assessment

Review student responses in the discussion to determine if students understand the following concepts:

- A sense of hearing allows people to understand conversations, hear directions, and avoid danger.
- The outside of the ear captures sound. Inside the ear are unseen parts that enable hearing.
- Many items have been developed to help people improve their sense of hearing by making sounds louder or clearer.
- People need to maintain and protect their ears from damage by wearing protective headphones, earplugs, or earmuffs when near loud noises.

LESSON 4

Your Sense of Smell

Big Question: How can we tell what is going on at a carnival?

Lesson Question: What are scents, and how do we smell them?

Tie to the Anchoring Phenomenon: Alyssa and her aunt explore a carnival using the sense of smell to identify different foods.

AT A GLANCE

Learning Objectives

- ✓ Define *smell*.
- ✓ Identify and illustrate body parts associated with the sense of smell.

Instructional Activities

- teacher Read Aloud
- question generation

Core Vocabulary

Core Vocabulary: Core Vocabulary terms are those that students should learn to use accurately in discussion and in written responses. During instruction, expose students repeatedly to these terms. However, these terms are not intended for isolated drill or memorization.

nose scent smell

Language of Instruction: The Language of Instruction consists of additional terms, not considered a part of Core Vocabulary, that you should use when talking about any concepts in this exercise. Students will benefit from your modeling the use of these words without the expectation that students will use or explain the words themselves. A Glossary at the end of this Teacher Guide lists definitions for both Core Vocabulary and Language of Instruction.

aroma breathe fragrance inhale

Instructional Resources

Student Book



Ch. 4

Student Book, Chapter 4
“Your Sense of Smell”

Activity Pages



AP 4.1

AP 4.2

Activity Pages
Your Nose (AP 4.1)
Scents Sense (AP 4.2)

Materials and Equipment

Collect or prepare the following items:

- internet access and the means to project images/video for whole-class viewing
- items in individual paper cups with opaque lids for students to smell: lemon, banana, mint, onion, vinegar, coffee, pine needles, garlic, rose petals, pencil shavings
- question board

Advance Preparation

For the activity, prepare up to ten paper scent cups. In each cup, place a sample of an item that has a distinct odor. Cover each cup with an opaque lid or piece of paper or foil secured with a rubber band. Poke small holes in the cover so the scent can escape. Number each cup. The first five cups must have the following: lemon, banana, onion, fragrant flower petals, and pencil shavings.

THE CORE LESSON 4

1. Introduce Lesson 4.

Focus student attention on Today’s Question—**What are scents, and how do we smell them?** Then **ask** these questions:

- What smells good to you?
 - » Sample answers: freshly cut grass, cookies baking, flowers, rain
- What smells bad to you?
 - » Sample answers: dead animals, sweaty socks, rotten vegetables, burnt food
- What are some different smells that Alyssa and her aunt might smell at the carnival?
 - » Sample answers: animals; different food smells like cotton candy, corn, or corn dogs
- How can you describe some different smells?
 - » Sample answers: fruity, sweet, minty, flowery, nutty, rotten, smoky
- What body part do you use to smell different scents?
 - » my nose

2. Generate questions.

Activity Page



AP 4.1

- Discuss what students know about their noses by **asking** these questions:
 - What happens if you hold your nose?
 - » You can't smell as well, and you have to breathe through your mouth.
 - What makes things easier to smell?
 - » if they are close; if they have a strong scent
 - How does your nose help you?
 - » Sample answers: I can tell if something is burning; I can tell if fruit is fresh or spoiled.

Online Resources



- Add any questions students have about the nose and sense of smell to the question board. Then play a video about how the nose works. **Ask students** whether any of their questions were answered in the video. See the Online Resources Guide for a link to the recommended video.

www.coreknowledge.org/cksci-online-resources

- Distribute Your Nose (AP 4.1), and ask students to draw a nose.

3. Read together: “Your Sense of Smell.”

Student Book



Ch. 4

While some advanced students may be able to read words on a given page of the Student Book, as a rule students should not be expected or asked to read aloud the text on the Student Book pages. The text in the Student Book is there so that teachers and parents can read it when sharing the Student Book with students.

Read Aloud Support

Pages 18–19

Ask students to turn to pages 18–19 of the Student Book and look at the images as you read aloud. Remind them that the title of this chapter is “Your Sense of Smell.” Ask them to pay special attention to what the characters in the story smell at the carnival.

Ask students to look at the pictures on pages 18–19. Remind them that they are learning about experiences that Alyssa and her aunt have at a carnival.

LITERAL—What different scents might visitors smell at the carnival?

» snacks, popcorn, caramel apples, pizza

INFERENTIAL—What are other aromas they might smell at a carnival?

» engines of rides, animals, grass

CORE VOCABULARY—Explain that the **nose** is a body organ that allows animals and people to **smell**, or sense the odors of, things in the world around them. Have students describe or pantomime the noses of different animals, such as dogs, elephants, and rabbits. Explain that some animals, such as bears, elephants, dogs, and sharks, have an especially sharp sense of smell. (See **Know the Science 1**.)

Pages 20–21

Ask students to look at the pictures on pages 20–21 as you read aloud. When you finish reading, ask students to be quiet for thirty seconds as they note the smells around them. At the end of thirty seconds, have students identify all the different aromas they smelled. Then **ask** these questions:

LITERAL—How do you smell different scents?

» They are in the air.

EVALUATIVE—How would your life be different if you had no sense of smell?

» Sample answer: You couldn't enjoy good cooking smells or the smell of flowers.

CORE VOCABULARY—Explain that a **scent** is another word for an odor, or aroma. **Ask students** to share their favorite scents with the class.

Differentiation

CHALLENGE—Challenge students to identify how an animal's sense of smell helps it survive. For example, animals can use their sense of smell to do the following:

- find food
- avoid rotten foods
- sense another animal nearby
- sense approaching wildfires, rain, or snow

Pages 22–23

Ask students to look at the pictures on pages 22–23 as you read aloud.

INFERENTIAL—How can you use your senses to tell if a food or drink is rotten?

» It might be a weird color or have mold growing on it; it smells bad.

INFERENTIAL—Have you ever lost your sense of smell? What happened?

» Accept all answers.

EVALUATIVE—What do you think is more important—your sense of sight, hearing, or smell? Why?

» Accept all reasonable answers.

Know the Science

TEACHER DEVELOPMENT

1. Smelling Ability: Bears have among the sharpest sense of smell of all land animals. Bears have been seen traveling up to eighteen miles as they track a food source. Elephants, sharks, snakes, moths, and dogs also have a strong sense of smell. This enhanced sense helps them find food and water and identify family members or mates.

EXTEND—Discuss the other functions of the nose, such as breathing and filtering germs. **Ask students** to describe what happens when they have a stuffy nose and have trouble breathing. Discuss why it is important to never put anything inside your nose.

4. Facilitate an activity.

Activity Page



AP 4.2

- Distribute Scents Sense (AP 4.2). Review the items students will try to recognize to record on the activity: onion, lemon, banana, flower petals, and pencil shavings. You can use other cups with different scents as distractors.
- Explain that students will smell each cup you have prepared without being able to see the contents. If students smell one of the scents on the Activity Page, they should draw a line from the picture to the number on the cup.
- Pass the cups around so that everyone gets a chance to smell each one.
- When students have completed the activity, open the cups and compare the results.

5. Check for understanding.

Activity Page



AP 4.1

Monitor Progress

- Have students to present their work on Your Nose (AP 4.1). Have students identify the parts they drew, such as the outside of the nose, nose hairs, or cartilage. Allow students to add to their drawings using what they have learned in the lesson. Explain that many people study the sense of smell to learn how odors move from the air to the brain. (See **Know the Science 2.**)
- Summarize the lesson by **asking students** how they use their sense of smell.
 - » Sample answers: to smell food to see if it is fresh or rotten; to smell objects in nature, such as flowers; to smell food that is being baked or cooked
- **Ask students** if people and animals need their sense of smell to survive.
 - » Humans can use other senses to make up for lack of a sense of smell, but many animals would not be able to survive without it because they could not find food or water or track other animals.

Formative Assessment

Review student responses in the discussion to determine if students understand the following concepts:

- A sense of smell allows humans to identify good and bad food; sense danger with smoke, gas, or chemicals; and enjoy different pleasant odors.
- The nose captures different smells. Inside the nose are pathways that translate smells so they can be recognized by the brain.

Know the Science

TEACHER DEVELOPMENT

2. Dr. Linda Buck: Dr. Linda Brown Buck was awarded the Nobel Prize in 1991 for her work in studying how odors are detected by the nose and understood in the brain. Her research led to further understanding of genetics and how the sense of smell works.

LESSON 5

Your Sense of Taste

Big Question: How can we tell what is going on at a carnival?

Lesson Question: How do we detect the taste of food?

Tie to the Anchoring Phenomenon: Alyssa and her aunt explore the different foods at a carnival using their sense of taste.

AT A GLANCE

Learning Objectives

- ✓ Define *taste*.
- ✓ Identify and illustrate body parts associated with the sense of taste.

Instructional Activities

- student investigation
- teacher Read Aloud
- question generation

Core Vocabulary

Core Vocabulary: Core Vocabulary terms are those that students should learn to use accurately in discussion and in written responses. During instruction, expose students repeatedly to these terms. However, these terms are not intended for isolated drill or memorization.

taste **tongue**

Language of Instruction: The Language of Instruction consists of additional terms, not considered a part of Core Vocabulary, that you should use when talking about any concepts in this exercise. Students will benefit from your modeling the use of these words without the expectation that students will use or explain the words themselves. A Glossary at the end of this Teacher Guide lists definitions for both Core Vocabulary and Language of Instruction.

bitter **salty** **sour**

Instructional Resources

Student Book



Ch. 5

Activity Pages



AP 5.1

AP 5.2

Student Book, Chapter 5 “Your Sense of Taste”

Activity Pages

Your Tongue (AP 5.1)

Taste Test (AP 5.2)

Materials and Equipment

Collect or prepare the following items:

- internet access and the means to project images/video for whole-class viewing
- finger foods in individual paper cups: tart gummy candy, salty cheese-flavored cracker, raisin, semisweet chocolate chip, cheese cube
- plastic spoons (1 per student)
- question board

Advance Preparation

- Plan on conducting the activity before lunch.
- For the activity, use only prepackaged foods. Avoid touching the food as you place it into each cup.
- Place a bite-sized piece of each food in a cup or bowl for each student. **SAFETY:** Students should have their own cups—make sure they do not share. Provide plastic spoons for students to use to pick up each item. Do not allow students to touch the food with their hands.
- **SAFETY:** Check beforehand that none of your students are allergic to any of the foods. If you have an allergic student, provide safe foods or an alternative activity.

THE CORE LESSON 5

1. Introduce Lesson 5.

Read aloud the Lesson Question for students—**How do we detect the taste of food?** Then **ask** these questions:

- What is your favorite food?
 - » Sample answers: macaroni and cheese, ice cream, apples, grapes, potato chips
- How would you describe the taste your favorite food?
 - » Sample answers: sweet, salty
- What are some foods whose tastes you don't like?
 - » Sample answers: broccoli, peas, brussels sprouts
- How would you describe the taste of the foods you don't like?
 - » Sample answers: bitter, sour, bland
- What body parts allow you to taste different foods?
 - » my tongue and taste buds

2. Generate questions.

Activity Page



AP 5.1

- Discuss what students know about their tongues by **asking** these questions:
 - Have you ever hurt your tongue by biting it or burning it? What happened?
 - » Sample answers: It was sore; it bled a little.
 - Did you ever lose your sense of taste? What happened?
 - » Sample answer: Nothing tasted good.
 - How does your tongue help you?
 - » Accept all answers. For example, it helps me enjoy food and tell if something tastes bad.

Online Resources



- Play a video about how the tongue works. **Ask students** what questions they have about the tongue and sense of taste, and write them on the question board.
- Distribute Your Tongue (AP 5.1), and ask students to draw a tongue. Allow students to work with another student who can stick out their tongue to show details.

See the Online Resources Guide for a link to the recommended video.

www.coreknowledge.org/cksci-online-resources

3. Read together: “Your Sense of Taste.”

Student Book



Ch. 5

While some advanced students may be able to read words on a given page of the Student Book, as a rule students should not be expected or asked to read aloud the text on the Student Book pages. The text in the Student Book is there so that teachers and parents can read it when sharing the Student Book with students.

Read Aloud Support

Pages 24–25

Ask students to turn to pages 24–25 of the Student Book and look at the images as you read aloud. Remind them that the title of this chapter is “Your Sense of Taste.” Ask them to pay special attention to what Alyssa and Aunt Erica taste at the carnival.

Ask students to look at the pictures on pages 24–25. Remind students that they are learning about sensations experienced at a carnival.

LITERAL—What different tastes do Alyssa and Aunt Erica want to try at the carnival?

» something salty, something tart and sweet

LITERAL—What are taste buds?

» bumps on the tongue

CORE VOCABULARY—Explain that the **tongue** is a muscle that allows living things to **taste**, or detect the flavor of, food. Explain that some animals, such as chickens, have a lot fewer taste buds than other animals and people do. Other animals, such as catfish, have a lot more. Their taste buds help them find food even in the bottom of ponds. (See **Know the Science**.)

Ask students to rub their tongues against their teeth and lips to see if they can feel their taste buds. Tell them to move their tongues to explore its muscle movement.

LITERAL—What part of the tongue detects flavors?

» taste buds

Pages 26–27

Differentiation

Ask students to look at the pictures on pages 26–27 as you read aloud, then ask the following questions.

INFERENTIAL—What are some foods you like that are sweet?

» Sample answers: cherries, cookies, candy, grapes

INFERENTIAL—What are some foods you like that are salty?

» Sample answers: chips, peanuts, crackers

CHALLENGE—Show students photos of different foods. **Ask students** to use at least two words to describe the flavor of each one.

Page 28

Ask students to look at the pictures on page 28 as you read aloud. Ask students which of the foods shown they have tried before. Have students share what they thought of the flavors. Then **ask** the following questions. Note that students may use the terms *bitter* and *sour* interchangeably and that they may name foods that are considered bitter as sour and vice versa:

INFERENTIAL—What are some other foods that are sour?

» Sample answers: unripe berries, lemons, some candies, vinegar, cranberries

INFERENTIAL—What are some other foods that are bitter?

» Sample answers: unripe brussels sprouts, cabbage, radishes, citrus peel, green tea, dandelion, coffee

Page 29

Differentiation

Ask students to look at the pictures on pages 29 as you read aloud.

INFERENTIAL—What kinds of things are dangerous for you to taste or eat?

» plants and berries that are growing in the wild, liquid soap or cleaners, animal food

Know the Science

TEACHER DEVELOPMENT

Taste Ability: Taste and smell are clues to animals about whether a plant or other animal is good or safe to eat. Sweet things, such as fruits, signal an edible source of energy, while a bitter taste can be a sign that a food source is unripe, dangerous, or poisonous. Different animals have different taste buds that react to certain foods. Cows have taste buds that help them tell if a plant is unsafe to eat.

EVALUATIVE—Why is it important not to taste or eat things that adults don't give you?

- » Sample answers: It might be dangerous to eat; it might be good for an animal or have another purpose, but it could make me sick.

CHALLENGE—Help students use the internet to find other examples of symbols that mean that a product is not safe to eat or drink.

EXTEND—Make a list of foods that cause allergic reactions in people, for example, peanuts, soy, wheat, shellfish, raw fruits, milk, and sesame seeds. Discuss the symptoms of a food allergy, including swelling of the throat, difficulty breathing, rapid pulse, and dizziness.

4. Facilitate an activity.

Activity Page



AP 5.2

- Distribute Taste Test (AP 5.2). Read the labels aloud for students. Review the different foods students will try to match to the correct description (tart gummy candy, salty cheese-flavored cracker, raisin, semisweet chocolate chip, cheese cube).
- Explain that students will taste each item in the cup you have prepared and then draw it in the box under the word that best describes its taste.
- Remind students to use spoons, rather than their hands, to taste each food.
- When students have completed the activity, discuss and compare the results.

5. Check for understanding.

Activity Page



AP 5.1

Monitor Progress

- Have students to present their work on Your Tongue (AP 5.1). Have students identify the parts they drew, such as the line in the middle of the tongue and the taste buds. Allow students to add to their drawings.
- Summarize the lesson by **asking students** what it means to taste something and what words they can use to describe certain flavors.
 - » To taste means to detect the flavor of something. Words to describe flavors include salty, sweet, sour, bitter, chocolatey, and fruity.
- **Ask students** if people and animals need their sense of taste to survive.
 - » Human sense of taste is essential for survival because it keeps us from eating poisonous things. Also, it tells us when fruits are ripe. Other animals also depend on the sense of taste to find food and avoid poisonous foods, which affects their ability to survive.

Formative Assessment

Review student responses in the discussion to determine if students understand the following concepts:

- A sense of taste allows humans to identify good and bad food and distinguish among different tastes.
- The tongue has taste buds that capture different tastes, which are recognized by the brain.

LESSON 6

Your Sense of Touch

Big Question: How can we tell what is going on at a carnival?

Lesson Question: How do our bodies sense contact?

Tie to the Anchoring Phenomenon: Alyssa and her aunt explore a carnival using the sense of touch to identify sensations such as temperature, soft and hard objects, and smooth and rough textures.

AT A GLANCE

Learning Objectives

- ✓ Define *touch*.
- ✓ Identify and illustrate body parts associated with the sense of touch.

Instructional Activities

- student investigation
- student discussion
- teacher Read Aloud
- question generation

Core Vocabulary

Core Vocabulary: Core Vocabulary terms are those that students should learn to use accurately in discussion and in written responses. During instruction, expose students repeatedly to these terms. However, these terms are not intended for isolated drill or memorization.

feel pain press pressure

touch

Language of Instruction: The Language of Instruction consists of additional terms, not considered a part of Core Vocabulary, that you should use when talking about any concepts in this exercise. Students will benefit from your modeling the use of these words without the expectation that students will use or explain the words themselves. A Glossary at the end of this Teacher Guide lists definitions for both Core Vocabulary and Language of Instruction.

cold cool firm hot

hurt soft warm

Instructional Resources

Student Book



Ch. 6

Activity Page



AP 6.1

Student Book, Chapter 6
“Your Sense of Touch”

Activity Page
Touch (AP 6.1)

Materials and Equipment

Collect or prepare the following items:

- internet access and the means to project images/video for whole-class viewing
- balls with different textures: tennis ball, table tennis ball, marble, rubber ball, golf ball, billiard ball, baseball
- short pieces of string
- question board

Advance Preparation

If there are enough balls, prepare empty tissue boxes or opaque paper bags with a set of each ball in the bag. Alternatively, for the activity, divide students into groups, and provide each group with a set of balls. Students should wash their hands after completing the activity.

THE CORE LESSON 6

1. Introduce Lesson 6.

Focus students’ attention on the Lesson Question—**How do our bodies sense contact?** Then **ask students** the following questions:

- How do your clothes feel on your skin?
 - » Sample answers: smooth, rough, warm, cool, fuzzy
- Touch something hard near you, and tell us what it is.
 - » Sample answers: desk, floor, chair, book
- Touch something smooth near you, and tell us what it is.
 - » Sample answers: pencil, desk, floor, chair, block, eraser
- What parts of your body can sense when something is hot or cold?
 - » my fingers; my feet; my skin

2. Generate questions.

Activity Page



AP 6.1

Discuss what students know about their sense of touch by **asking** these questions:

- How can you tell if an object is hot or cold?
 - » I can touch it with my hand.

- Can you sense that something is hot or cold on other parts of your body?
» yes.
- What parts of your body can feel different textures?
» my hands; my feet; my skin
- How does your sense of touch help you?
» Accept all answers. For example, it tells me about the temperature, and it keeps me from touching hot or sharp objects.

Online Resources



- Play a video about how the sense of touch works. Then **ask students** what questions they have about fingers, skin, and the sense of touch. Write them on the question board. See the Online Resources Guide for a link to the recommended video.
www.coreknowledge.org/cksci-online-resources
- Distribute Touch (AP 6.1), and ask students to draw a body and then label the parts that allow the sense of touch. Have students circle the parts that they think are most sensitive. (See **Know the Science**.)

3. Read together: “Your Sense of Touch.”

Student Book



Ch. 6

While some advanced students may be able to read words on a given page of the Student Book, as a rule students should not be expected or asked to read aloud the text on the Student Book pages. The text in the Student Book is there so that teachers and parents can read it when sharing the Student Book with students.

Read Aloud Support

Pages 30–31

Ask students to turn to pages 30–31 of the Student Book and look at the images as you read aloud. Remind them that the title of this chapter is “Your Sense of Touch,” and tell them to pay special attention to what the characters might feel as you read.

Ask students to look at the pictures on pages 30–31. Remind them that they are learning about experiences that Alyssa and her aunt have at a carnival.

LITERAL—What different sensations does Alyssa feel?

» cool, warm, itchy, hard, smooth, heavy, cool, fluffy

Know the Science

TEACHER DEVELOPMENT

Touchable: The most sensitive parts of the body are found in the areas that are not typically covered with body hair, such as the palms, lips, tongue, soles of the feet, fingertips, and eyelids. There are more nerve endings in these parts of the body than in others, resulting in higher sensitivity to touch and sensation.

CORE VOCABULARY—Explain that **touch** and **feel** can mean the same thing when it comes to talking about senses. Both words can refer to putting your hand, finger, or some other part of your body on an object to sense its temperature and texture.

Pages 32–33

Ask students to look at the pictures on pages 32–33 as you read aloud.

LITERAL—How do you feel different textures?

» I touch them with my fingers; I feel them with my skin.

INFERENTIAL—How could you tell the difference between a tennis ball and a table tennis ball without looking at them?

» Sample answers: A tennis ball is fuzzy; a table tennis ball is smooth; a tennis ball is larger and weighs more than a table tennis ball.

INFERENTIAL—What kind of information can you learn about an object when you touch and hold it?

» temperature, size, weight, texture

EVALUATIVE—What are some words you would use to describe how your favorite blanket feels?

» Sample answers: soft, fuzzy, warm, smooth

Page 34

Ask students to look at the pictures on page 34 as you read aloud.

Differentiation

INFERENTIAL—How do you tell if things are heavy or light?

» Accept all reasonable answers. For example, I pick them up.

INFERENTIAL—How can you tell what shape an object is?

» Accept all reasonable answers. For example, I feel all around it for edges and curves.

CORE VOCABULARY—Explain that **pressure** happens when one object **presses** on another one. Tell students that they may have felt pressure from a seat belt in the car or from a bike helmet on their head. Have students gently press a small, blunt object such as an eraser against their arm and then slowly increase the pressure. Discuss how it feels.

EXTEND—Have partners test to see what parts of the body are most sensitive to the touch of a soft piece of string. Give each pair a piece of string. Ask one partner to close their eyes. Then have the other partner touch the partner in different places of the body using the same amount of pressure: first the top of the hand, then the palm, finger, arm, leg, back of neck, forehead, and earlobe. Discuss if the feeling was the same on each body part. Did each part feel the same temperature and pressure from the string? Compare student responses.

CORE VOCABULARY—Explain that **pain** is the result of too much pressure on a part of the human body. Pain can also be caused when something that is too hot or too cold touches the skin.

LITERAL—What causes pain?

» too much pressure; too much cold; too much heat

INFERENTIAL—Describe the last time you felt pain.

» Accept all answers. Sample answers: I fell off my bike; I got stung by a bee.

EVALUATIVE—What are some ways you can avoid feeling pain?

» Sample answers: I can be more careful when I am running and walking; I can make sure not to touch things that are too hot or too sharp.

4. Facilitate an activity.

- Distribute the container of balls you prepared for each student or group. Explain that you will say a word that describes texture or weight. Students will then take turns reaching into the bag to find a ball that fits the description and hold it up for the class to see. After each round, have students explain why they chose that ball as an example. Some words you may use include the following:
 - **rough** ◦ **heavy** ◦ **soft**
 - **smooth** ◦ **bumpy** ◦ **warm**
 - **light** ◦ **hard** ◦ **cool**
- When students have completed the activity, discuss why some answers were the same and others were different.

5. Check for understanding.

Activity Page



AP 6.1

Monitor Progress

- Have students to present their work on Touch (AP 6.1). Have students name the parts of the body they identified as having the ability to touch. Talk about the parts students circled that they think are most sensitive. Allow students to adjust their answers based on what they have learned in the lesson.
- Summarize the lesson by **asking students** how they use their sense of touch.
 - » to tell whether something is hot or cold; to tell what the texture of something is

Formative Assessment

Review student responses in the discussion and activity to determine if students understand the following concepts:

- A sense of touch allows humans to identify sensations such as temperature, pressure, and texture.
- Some parts are more sensitive than others.

LESSON 7

Science in Action: A Visit to the Eye Doctor

Big Question: How can we tell what is going on at a carnival?

Lesson Question: How can we take care of our senses?

Tie to the Anchoring Phenomenon: After visiting the carnival, Alyssa visits an eye doctor to check her sense of sight.

AT A GLANCE

Learning Objectives

- ✓ Learn about what happens during a typical eye doctor visit.
- ✓ Associate eyeglass lenses with Benjamin Franklin.

Instructional Activities

- teacher Read Aloud
- question generation

Core Vocabulary

Core Vocabulary: Core Vocabulary terms are those that students should learn to use accurately in discussion and in written responses. During instruction, expose students repeatedly to these terms. However, these terms are not intended for isolated drill or memorization.

blurry **eyeglasses** **health** **healthy**

Language of Instruction: The Language of Instruction consists of additional terms, not considered a part of Core Vocabulary, that you should use when talking about any concepts in this exercise. Students will benefit from your modeling the use of these words without the expectation that students will use or explain the words themselves. A Glossary at the end of this Teacher Guide lists definitions for both Core Vocabulary and Language of Instruction.

bifocal **lens** **optometrist**

Instructional Resources

Student Book



Ch. 7

Student Book, Chapter 7
“Science in Action: A Visit to the Eye Doctor”

Materials and Equipment

Collect or prepare the following items:

- internet access and the means to project images/video for whole-class viewing
- simple eye chart

THE CORE LESSON 7

1. Introduce Lesson 7.

Online Resources



Focus student attention on the Lesson Question—**How can we take care of our senses?**

Discuss the following with students:

- Take a survey of how many students either wear corrective lenses, such as contacts or eyeglasses, or know someone who does.
- Discuss why people need corrective lenses.
- Discuss how students can protect their eyes.
- Talk about the challenges that people with vision impairment or blindness face on a daily basis. Play a video that shows how different the world looks to people with poor vision.

See the Online Resources Guide for a link to the recommended video.

www.coreknowledge.org/cksci-online-resources

2. Read together: “Science in Action: A Visit to the Eye Doctor.”

Student Book



Ch. 7

While some advanced students may be able to read words on a given page of the Student Book, as a rule students should not be expected or asked to read aloud the text on the Student Book pages. The text in the Student Book is there so that teachers and parents can read it when sharing the Student Book with students.

Read Aloud Support

Pages 36–37

Ask students to turn to pages 36–37 of the Student Book and look at the images as you read aloud. Remind them that the title of this chapter is “Science in Action: A Visit to the Eye Doctor.” Tell them to keep in mind what they learned about the sense of sight in Lesson 2.

Ask students to look at the pictures on pages 36–37. Remind students that they have been learning about Alyssa and her aunt and their senses.

LITERAL—How could Aunt Erica tell that Alyssa was having trouble with her vision?

- » She was squinting when she was watching television.

LITERAL—How do glasses help your vision?

- » They make everything look sharper and clearer.

INFERENTIAL—What happens at an eye doctor visit?

- » The eye doctor gives you different tests to measure your vision.

CORE VOCABULARY—Explain that **eyeglasses** are lenses that are designed to correct eye problems. Compare eyeglasses to other ways that vision can be enhanced. Binoculars help you see far away. A microscope or hand lens helps you see close up.

Pages 38–39

Online Resources



Ask students to look at the pictures on pages 38–39 as you read aloud. After reading, play a video that shows what a child can expect during a pediatric eye exam. See the Online Resources Guide for a link to the recommended video.

www.coreknowledge.org/cksci-online-resources

LITERAL—How did the doctor check Alyssa’s eyes?

- » using an eye chart and a machine with different lenses

INFERENTIAL—What are the two parts of eyeglasses?

- » the lenses and the frames that hold the lenses in place

EVALUATIVE—What are some clues that you might need glasses?

- » Sample answers: I might not be able to see the board; I might have trouble reading; I might have trouble seeing things up close or far away.

CORE VOCABULARY—Explain that you have **healthy** eyes if your vision is normal without corrective lenses and you don’t have any eye diseases. The **health** of your eyes is important so you can see clearly. If your vision is **blurry**, or fuzzy, and you can’t read or see details like leaves on trees without straining, you may need glasses.

Differentiation

EXTEND—Use a simple eye chart to demonstrate how to check vision. Have a few volunteers take turns standing the same distance from the chart and read each line.

Page 40

Differentiation

Ask students to look at the pictures on page 40 as you read aloud.

LITERAL—What causes a person to need bifocals?

- » They have trouble seeing things both up close and far away.

CHALLENGE—Explain to students that the prefix *bi-* means “two.” **Ask students** how they think bifocals got their name. Then have students think of other words they know of that contain the prefix *bi-*, such as *bicycle*.

Page 41

Ask students to look at the pictures on page 41 as you read aloud.

INFERENTIAL—Why did Benjamin Franklin invent bifocals?

» He had trouble seeing far away and when he was reading.

INFERENTIAL—How do bifocals work?

» The top half of the lens helps you see far. The bottom half helps you see close up so that you can read and do work. You can use the same pair of glasses to help with both problems.

EVALUATIVE—How would you know that you might need bifocals?

» If things look blurry when you try to read or do schoolwork and also when you look at something at a distance.

3. Check for understanding.

Monitor Progress

- Review what students have learned about each of their senses: sight, hearing, smell, taste, and touch. Summarize the unit by **asking students** how they can protect each of the body parts they use for senses and keep them healthy.
 - » **Sight:** Don't strain your eyes; wear sunglasses in bright light.
 - » **Hearing:** Wear ear covers or earplugs to protect against loud noises, and never put anything other than soft earplugs in your ears.
 - » **Smell:** Stay away from strong odors; don't put anything up your nose; keep your body healthy so that you don't get colds that make your nose stuffy.
 - » **Taste:** Don't eat foods that are too hot; never put anything in your mouth that was not given to you by someone you trust.
 - » **Touch:** Do not touch hot or sharp objects.
- Discuss with students which sense they think is most important for survival.

Review student responses in the discussion to determine if students understand the following concepts:

- Human senses allow people to experience sights, sounds, smells, tastes, and physical sensations. Certain body parts enable people to use their senses.
- Body parts and muscles that help us use our senses need to be protected and cared for so they remain healthy and provide as much information as possible.
- Adaptations like eyeglasses and hearing aids help people improve their senses.

Teacher Resources

Activity Pages

- Carnival Senses (AP 1.1) 50
- Your Eye (AP 2.1) 51
- Helping to See (AP 2.2) 52
- Your Ear (AP 3.1) 53
- Helping to Hear (AP 3.2) 54
- Your Nose (AP 4.1) 55
- Scents Sense (AP 4.2) 56
- Your Tongue (AP 5.1) 57
- Taste Test (AP 5.2) 58
- Touch (AP 6.1) 59

Activity Pages Answer Key: *Our Five Senses* 60

Name _____

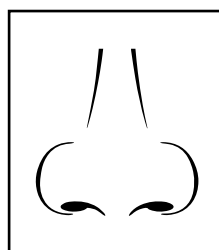
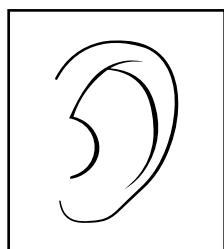
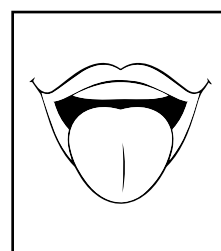
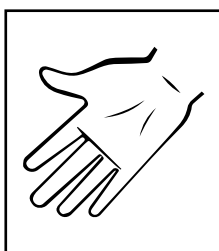
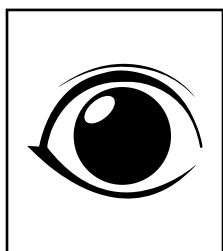
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Activity Page 1.1

Use with Lesson 1

Carnival Senses

Draw what you would sense at a carnival with each body part.



Name _____

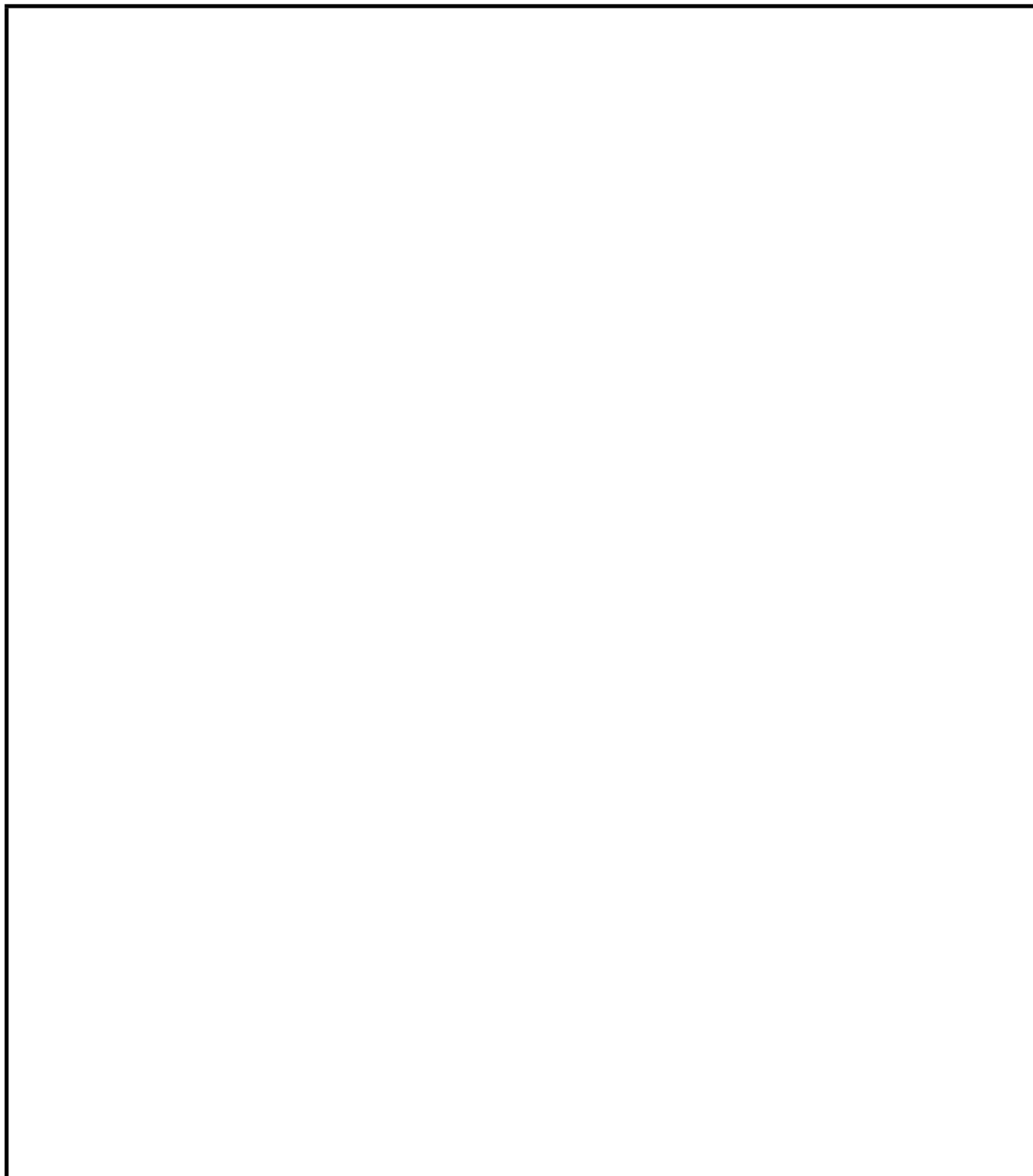
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Activity Page 2.1

Use with Lesson 2

Your Eye

Draw a picture of your eye.



Name _____

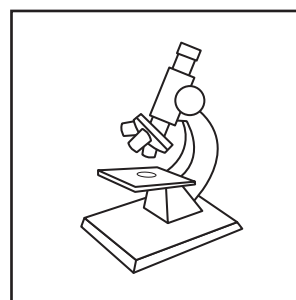
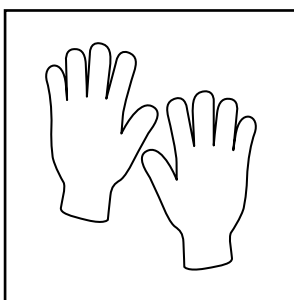
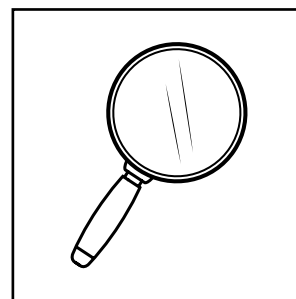
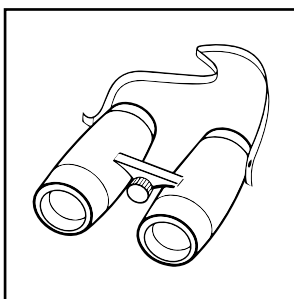
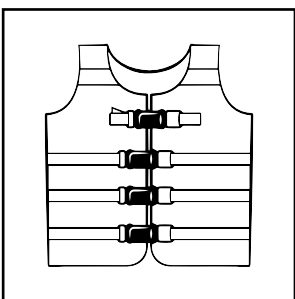
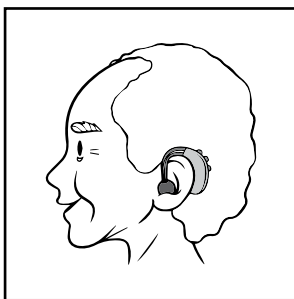
Date _____

Activity Page 2.2

Use with Lesson 2

Helping to See

Circle the items that help people see or protect their eyes.



Name _____

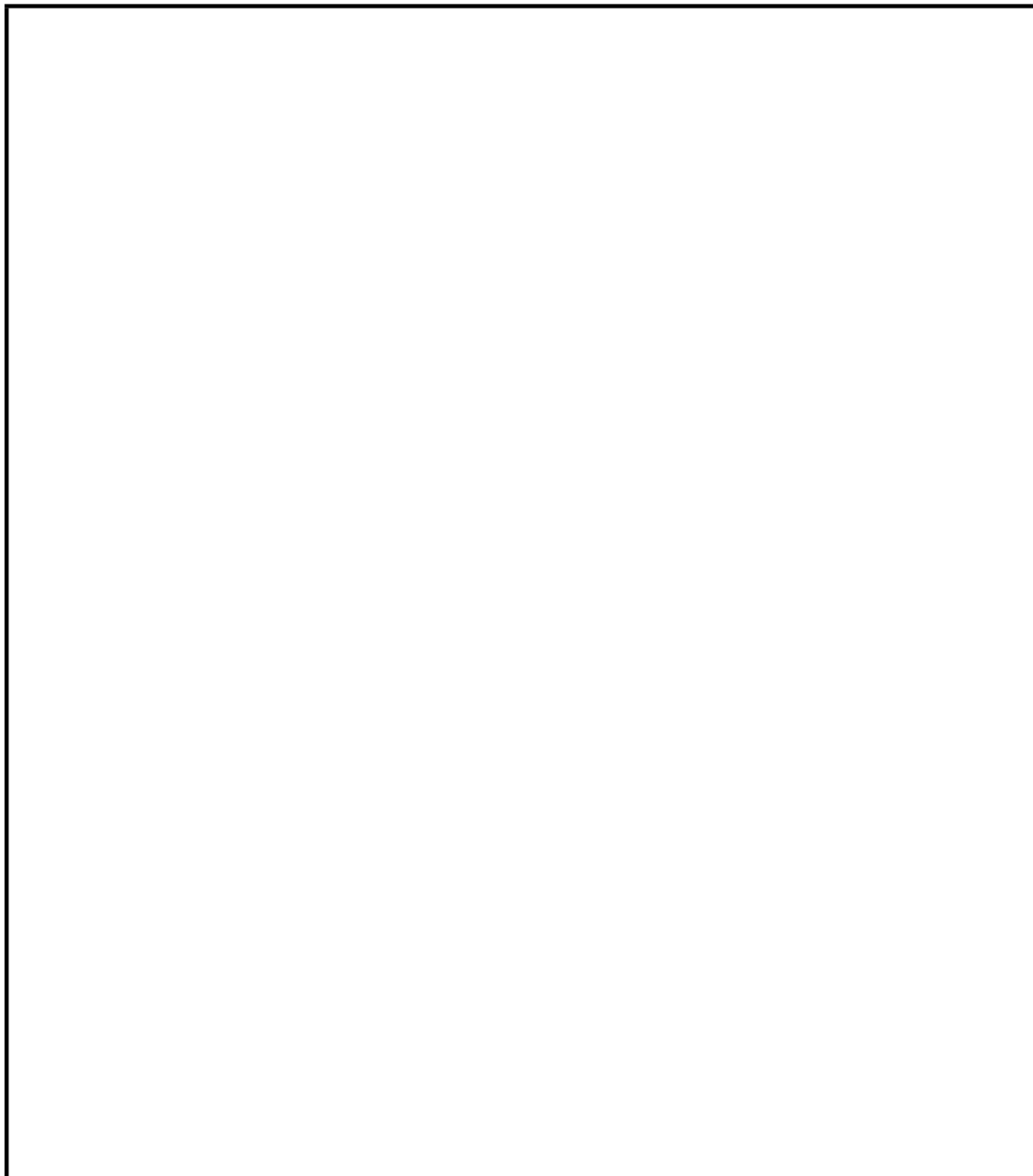
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Activity Page 3.1

Use with Lesson 3

Your Ear

Draw a picture of an ear. Show the outside and where the sound enters.



Name _____

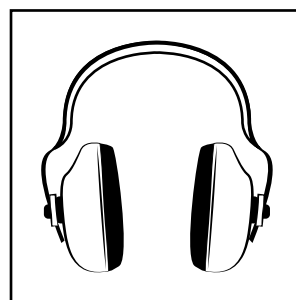
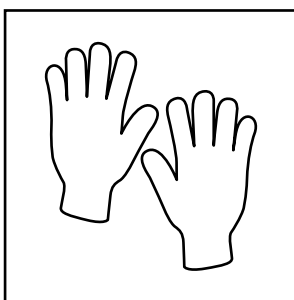
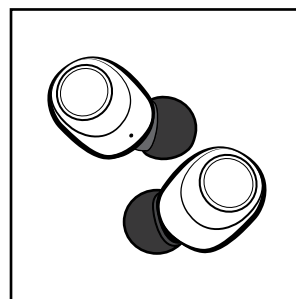
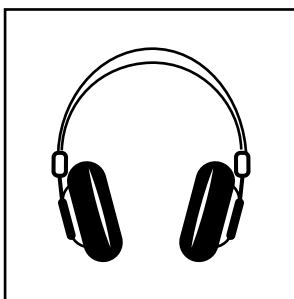
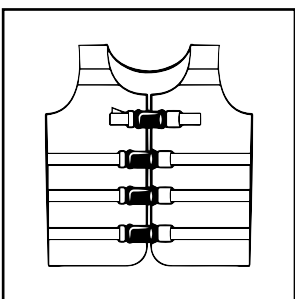
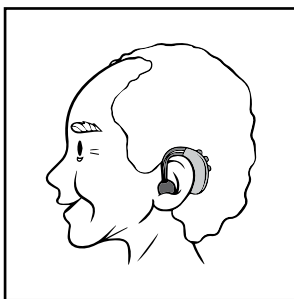
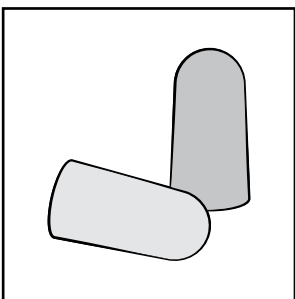
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Activity Page 3.2

Use with Lesson 3

Helping to Hear

Circle the items that help people hear or protect their ears.



Name _____

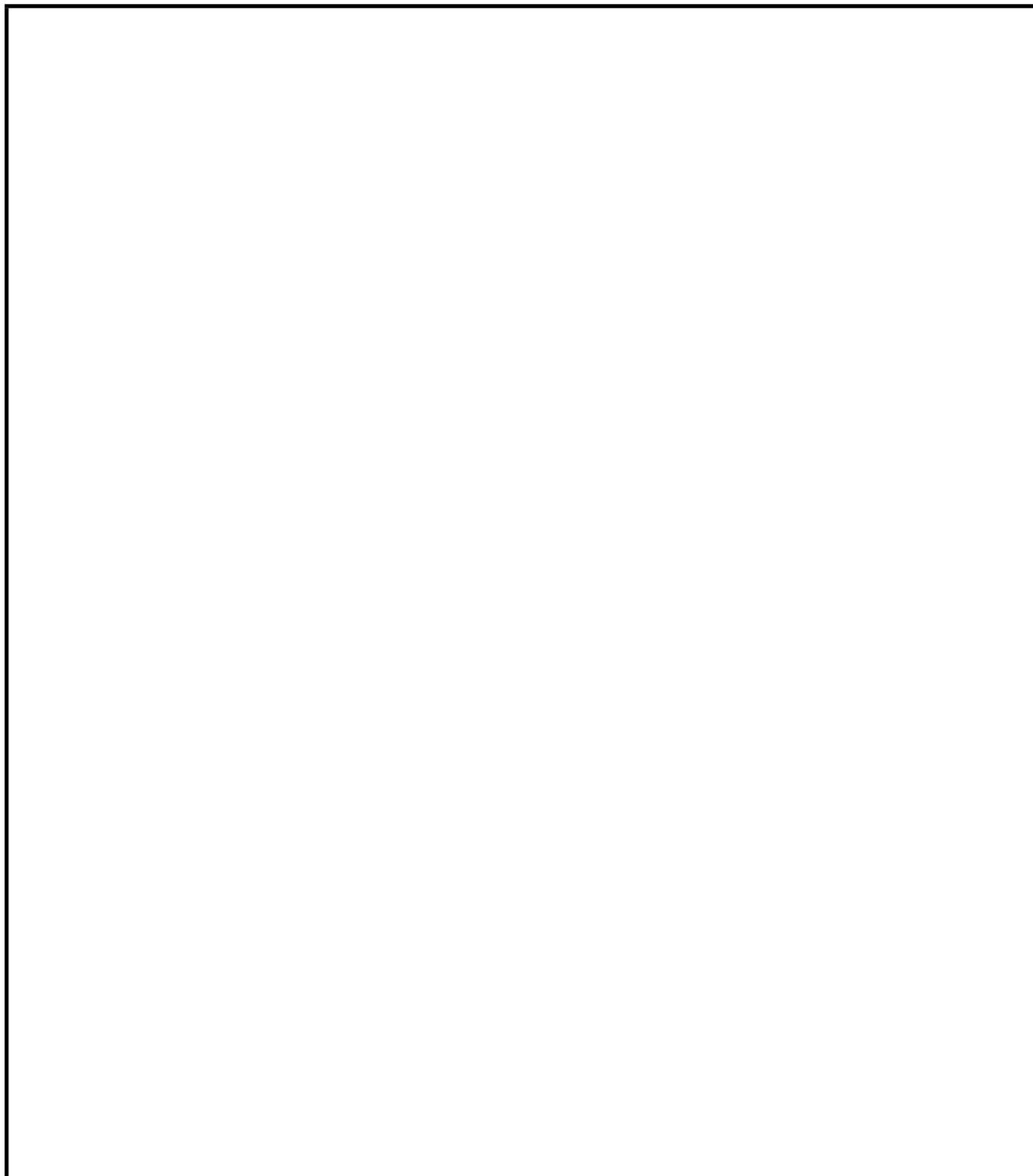
Date _____

Activity Page 4.1

Use with Lesson 4

Your Nose

Draw a picture of a nose.



Name _____

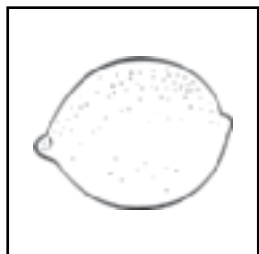
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Activity Page 4.2

Use with Lesson 4

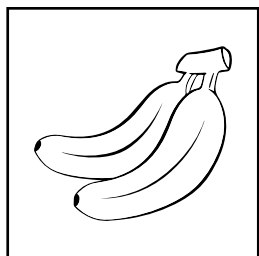
Scents Sense

Draw a line from the item you smelled to the number on the cup.



1

2



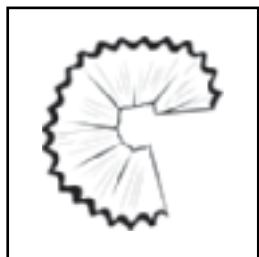
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4



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6



7

8



9

10

Name _____

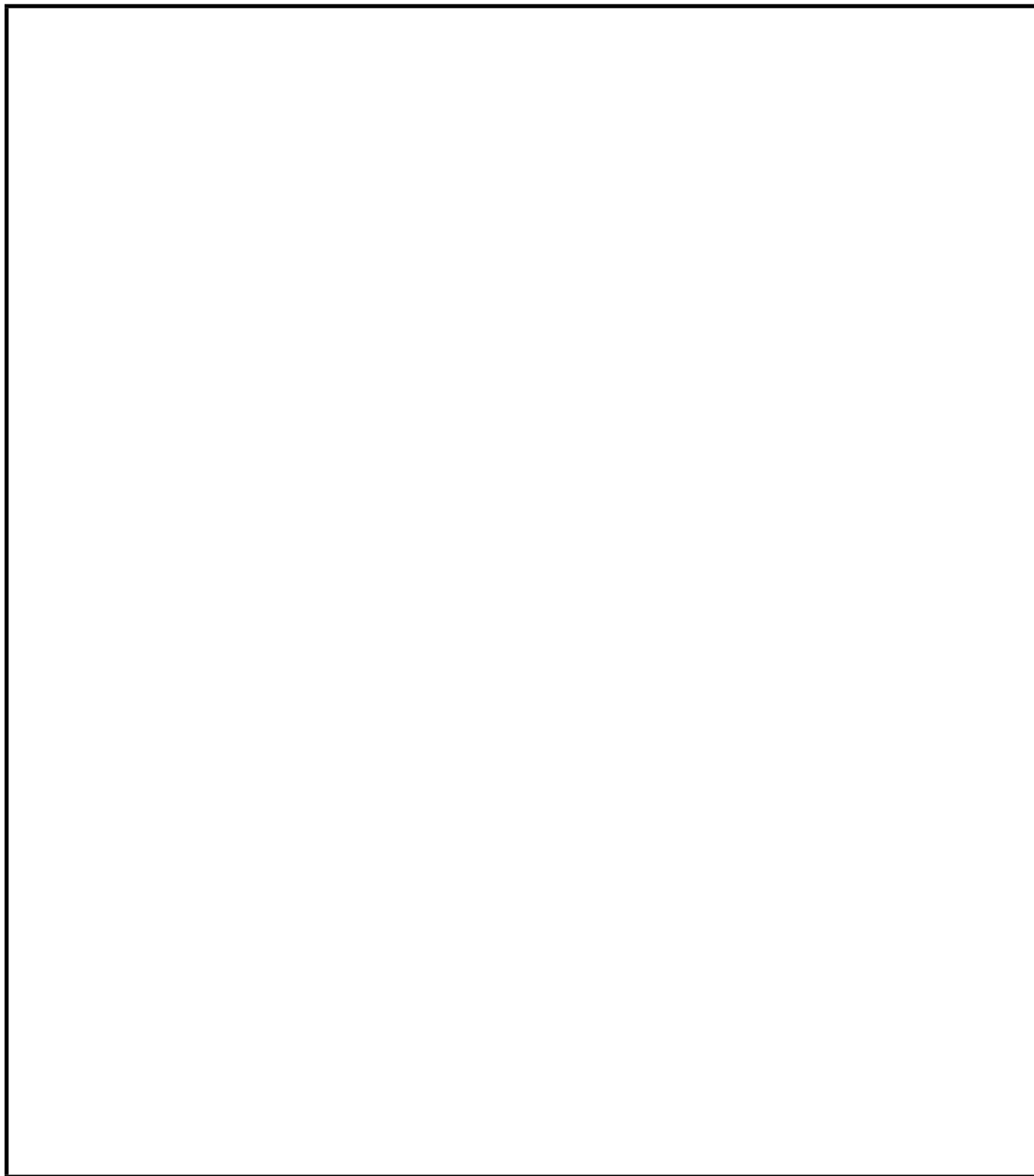
Date _____

Activity Page 5.1

Use with Lesson 5

Your Tongue

Draw a picture of a tongue.



Name _____

Date _____

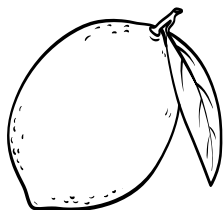
Activity Page 5.2

Use with Lesson 5

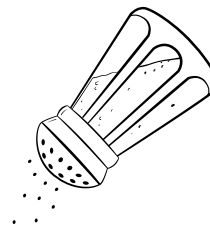
Taste Test

Draw a food you tasted that has a similar taste to each of these.

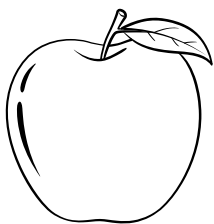
Sour like a lemon



Salty like table salt



Sweet like an apple



Bitter like a coffee bean



Name _____

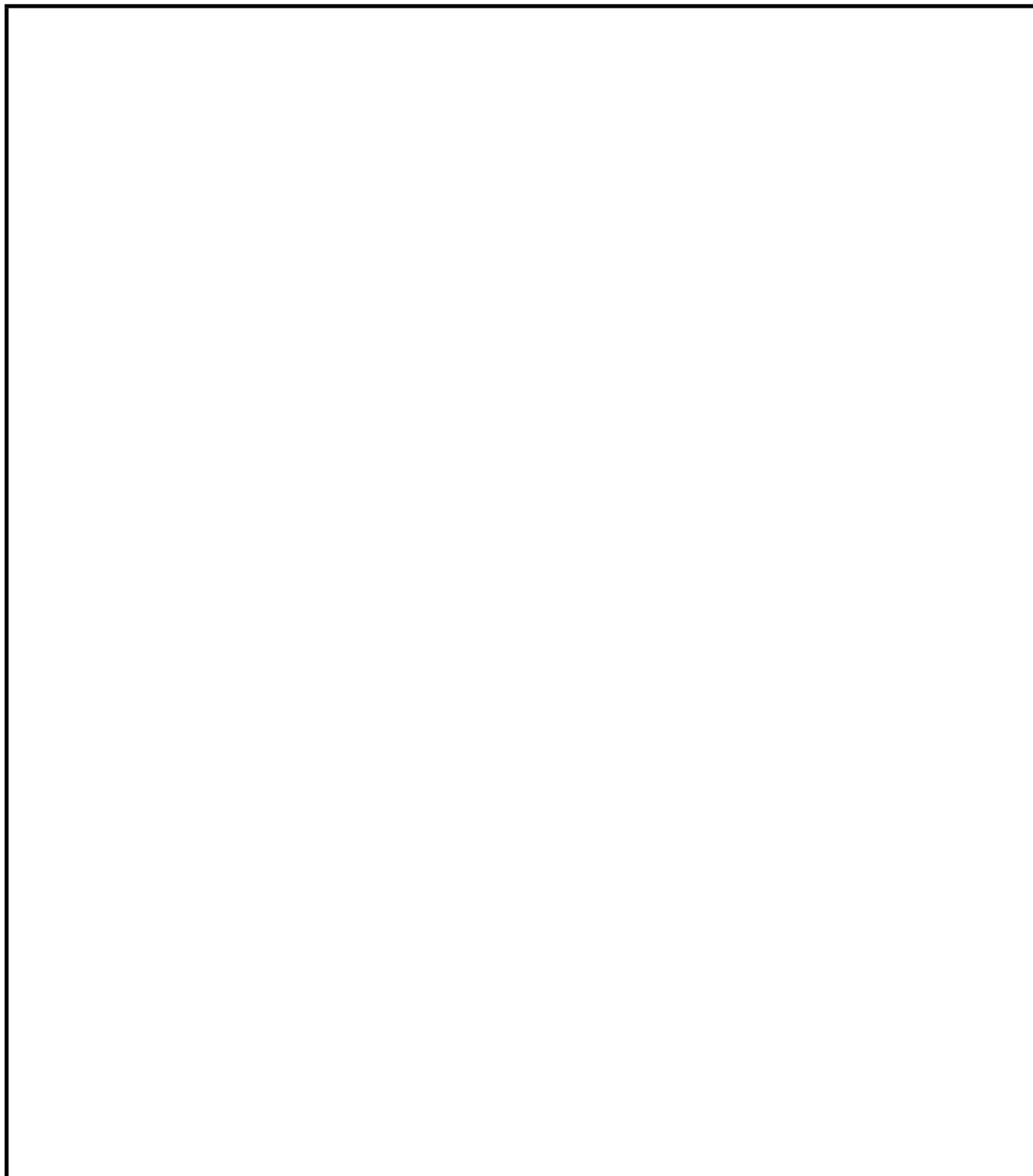
Date _____

Activity Page 6.1

Use with Lesson 6

Touch

Draw a picture of a body. Color the parts that can touch or feel.



Activity Pages Answer Key: Our Five Senses

This answer key offers guidance to help you assess your students' learning progress. Here you will find descriptions of the expected key understandings, correct answers, and desired observations for each Activity Page of this unit. At this grade level, students' written responses are not expected to reflect the specificity shown here, and students should not be evaluated on refined drawing ability. Use the answers below, not as direct models for ideal student responses, but as keys to what to look for in evidence of student learning.

Carnival Senses (AP 1.1) **(page 50)**

Students should draw all five body parts sensing something found at a carnival.

Your Eye (2.1) **(page 51)**

Students should draw a picture of their eye.

Helping to See (AP 2.2) **(page 52)**

Students should circle goggles, sunglasses, binoculars, hand lens, and microscope.

Your Ear (AP 3.1) **(page 53)**

Students should draw a picture of the outside of an ear.

Helping to Hear (AP 3.2) **(page 54)**

Students should circle earplugs, person wearing hearing aid, earbuds, earmuffs and headphones.

Your Nose (AP 4.1) **(page 55)**

Students should draw a picture of a nose.

Scents Sense (AP 4.2) **(page 56)**

Verify student responses against the samples as you have numbered them.

Your Tongue (AP 5.1) **(page 57)**

Students should draw a picture of a tongue.

Taste Test (AP 5.2) **(page 58)**

Check for classification based on your tasting samples.

Touch (AP 6.1) **(page 59)**

Students should draw a picture of a body and color the parts that can touch or feel.

Glossary

Green words and phrases are Core Vocabulary for the unit. **Bold-faced words and phrases** are Language of Instruction, additional vocabulary terms related to the unit that you should model for students during instruction. Vocabulary words are not intended for use in isolated drill or memorization.

A

aroma, n. a smell that is distinct and pleasant

B

bifocal, adj. having two parts, one to correct near vision and one to correct distant vision

bitter, adj. having an unpleasant and sharp taste

blind, adj. unable to see

blurry, adj. unclear, out of focus

brain, n. an organ in the skull that is part of the nervous system and where information is received, interpreted, and transmitted

breathe, v. to take air into the lungs and expel out of the lungs

C

cold, adj. at a low temperature, or not warm

cool, adj. in between warm and cold in temperature

D

detect, v. to discover or determine something

E

ear, n. a body part that allows people and animals to hear

eardrum, n. a membrane in the middle of the ear that vibrates in response to sound waves

environment, n. surroundings

eye, n. a body part that allows people and animals to see

eyeglasses, n. lenses that are used to correct eye problems

F

feel, v. to sense by touch

firm, adj. having a solid or hard aspect

fragrance, n. a scent, generally a pleasant one

H

health, n. the condition of the mind and body

healthy, adj. in good health

hearing, n. the ability to hear sound

hot, adj. high in temperature

hurt, v. to have pain or harm in or on the body

I

inhale, v. to breathe in

L

lens, n. a transparent object that focuses a light beam

light, n. a natural source of illumination that makes things visible

N

nerve, n. a group of fibers in a body that carries sensory signals

nose, n. a body part that allows animals and people to smell

O

optometrist, n. a person or practitioner who specializes in vision and vision corrections

P

pain, n. an unpleasant or distressing sensation in a part of the human body

press, v. to apply a pushing force on something

pressure, n. a pushing force applied on something

pupil, n. the black opening of the iris in the eye

S

salty, adj. containing or tasting of salt

scent, n. a specific odor or aroma

see, v. to perceive something visually with the eyes

sense, n. the way the human body takes in information through seeing, smelling, hearing, tasting, and touching

sight, n. the ability to perceive objects by using the eyes

smell, v. to sense the odors by using the nose

soft, adj. easily molded by touch, not firm or hard

sound, n. the perception of vibration as detected by the sense of hearing

sour, adj. having an acidic taste

surroundings, n. the environment or conditions around something or someone

T

taste, v. to detect the flavor of food

tongue, n. a muscle that allows living things to taste

touch, v. to come in contact with something

V

vision, n. the ability to see

volume, n. the amount and degree of sound

W

warm, adj. characterized by a producing a moderate sensation of heat

Classroom Safety for Activities and Demonstrations

In the Core Knowledge Science program (CKSci), activities and demonstrations are a vital part of the curriculum and provide students with active engagement related to the lesson content. The activities and demonstrations in this unit have been selected and designed to engage students in a safe manner. The activities and demonstrations make use of materials and equipment that are typically deemed classroom safe and readily available.

Safety should be a priority when engaged in science activities. With that in mind, observe the following safety procedures when the class is engaged in activities and demonstrations:

- Be aware of students who have food allergies, and adjust related activities or make materials substitutions as necessary. Check the ingredients of all food to make sure known allergies are not listed. Students with food allergies can still be affected even if they do not ingest the food item. Some common food allergies are peanuts, tree nuts (e.g., almonds, walnuts, hazelnuts, etc.), and cow's milk (rice milk is a good nut-free alternative).
- Report and treat any injuries immediately.
- Check equipment prior to usage, and make sure everything is clean and ready for use.
- Clean up spills or broken equipment immediately using the appropriate tools.
- Monitor student behavior to ensure they are following proper classroom and activity procedures.
- Do not touch your eyes, ears, face, or mouth while engaging in an activity or demonstration.
- Review each step of the lesson to determine if there are any safety measures or materials necessary in advance.
- Wear personal protective equipment (e.g., safety goggles, aprons, etc.) as appropriate.
- Check for allergies to latex and other materials that students may have, and take appropriate measures.
- Secure loose clothing, hair, or jewelry.
- Establish storage and disposal procedures for chemicals as per their Safety Data Sheet (SDS), including household substances such as vinegar and baking soda.

Copy and distribute the Student Safety Contract, found on the next page. Have a read-along, and have students agree to the expectations for students when engaged in science activities prior to the start of the first unit.

Online Resources



For additional support for safety in the science classroom, follow the links in the Online Resources Guide for this unit:

www.coreknowledge.org/cksci-online-resources

Student Safety Contract

When doing science activities, I will do the following:

- Report spills, breakages, or injuries to the teacher right away.
- Listen to the teacher for special instructions and safety directions. If I have questions, I will ask the teacher.
- Avoid eating or drinking anything during the activity unless told to by my teacher.
- Review the steps of the activity before I begin. If I have questions, I will ask the teacher.
- Wear safety goggles when working with liquids or things that can fly into my eyes.
- Be careful around electric appliances and unplug them, just by pulling on the plug, when a teacher is supervising.
- Keep my hands dry when using tools and devices that use electricity.
- Be careful to use safety equipment like gloves or tongs when handling materials that may be hot.
- Know when a hot plate is on or off and let it cool before touching it.
- Roll or push up long sleeves, keep my hair tied back, and secure any jewelry I am wearing.
- Return unused materials to the teacher.
- Clean up my area after the activity and wash my hands.
- Treat all living things and the environment with respect.

I have read and agree to the safety rules in this contract.

_____ / ____ / ____ / ____

Student signature and date

Print name

Dear Parent or Guardian,

During science class, we want to create and maintain a safe classroom. With this in mind, we are making sure students are aware of the expectations for their behavior while engaged in science activities. We are asking you to review the safety rules with your student and sign this contract. If you have any questions, please feel free to contact me.

_____ / ____ / ____ / ____

Parent or guardian signature and date

Strategies for Acquiring Materials

The materials used in the Core Knowledge Science program (CKSci) are readily available and can be acquired through both retail and online stores. Some of the materials will be reusable and are meant to be used repeatedly. This includes equipment such as scales, beakers, and safety goggles but also items such as plastic cups that can be safely used again. Often these materials are durable, can be cleaned, and will last for more than one activity or even one school year. Other materials are classified as consumable and are not able to be used more than once, such as glue, baking soda, and aluminum foil.

Online Resources



The Material Supply List for this unit's activities can be found online. Follow the links in the Online Resources Guide for this unit:

www.coreknowledge.org/cksci-online-resources

Ways to Engage with Your Community

The total cost of materials can add up for an entire unit, even when the materials required for activities and demonstrations have been selected to be individually affordable. And the time needed to acquire the materials adds up too. Reaching out to your community to help support STEM education is a great way to engage parents, guardians, and others with the teaching of science, as well as to reduce the cost and time of collecting the materials. With that in mind, the materials list can be distributed or used as a reference for the materials teachers will need to acquire to teach the unit.

Consider some of the following as methods for acquiring the science materials:

- **School Supply Drive**—If your school has a supply drive at any point in the year, consider distributing materials lists as wish lists for the science department.
- **Open Houses**—Have materials lists available during open houses. Consider having teams of volunteers perform an activity to show attendees how the materials will be used throughout the year.
- **Parent-Teacher Organizations**—Reach out to the local PTO for assistance with acquiring materials.
- **Science Fair Drive**—Consider adding a table to your science fair as part of a science materials drive for future units.
- **College or University Service Project**—Ask service organizations affiliated with your local higher education institutions to sponsor your program by providing materials.
- **Local Businesses**—Some businesses have discounts for teachers to purchase school supplies. Others may want to advertise as sponsors for your school/programs. Usually you will be asked for verifiable proof that you are a teacher and/or for examples of how their sponsorship will benefit students.

Remember: If your school is public, it will be tax exempt, so make sure to have a Tax Identification Number (TIN) when purchasing materials. If your school is private, you may need proof of 501(c)(3) status to gain tax exemption. Check with your school for any required documentation.

Advance Preparation for Activities and Demonstrations

Being properly prepared for classroom activities and demonstrations is the first step to having a successful and enriching science program. Advance preparation is critical to effectively support student learning and understanding of the content in a lesson.

Before doing demonstrations and activities with the class, do the following:

- Familiarize yourself with the activity by performing the activity yourself or with a team, and identify any issues or talking points that could be brought up.
- Gather the necessary materials for class usage. Consider if students will gather their materials at stations or if you will preassemble the materials to be distributed to the students and/or groups.
- Identify safety issues, such as food allergies, that could occur during an activity or demonstration, and plan and prepare how to address them.
- Review the Teacher's Guide before teaching, and identify opportunities for instructional support during activities and demonstrations. Consider other Support and/or Challenge opportunities that may arise as you work to keep students engaged with the content.
- Prepare a plan for postactivity collection and disposal of materials/equipment.

While engaged in the activity or demonstration, do the following:

- Address any emergencies immediately.
- Check that students are observing proper science safety practices as well as wearing any necessary safety gear, such as goggles, aprons, or gloves.
- When possible, circulate around the room, and provide support for the activity. Return to the Teacher Guide as students work, to utilize any Support and Challenge opportunities that will make the learning experience most meaningful for your students.

After the activity or demonstration, do the following:

- Use your plan for students to set aside or dispose of their materials as necessary.
- Have students wash their hands after any activity in which they could come in contact with any potentially harmful substances.

When engaging students in activities and demonstrations, model good science practices, such as wearing proper safety equipment, never eating during an investigation, etc. Good science practices at a young age will lead to students observing good science practices themselves and being better prepared as they move into upper-level science classes.

What to Do When Activities Don't Give Expected Results

Science activities and experiments do not always go according to plan. Microwave ovens, super glue, and X-rays are just some of the discoveries made when people were practicing science and something did not go according to plan. In your classroom, however, you should be prepared for what to do when activities don't give the expected results or when an activity doesn't work.

When going over an activity with an unexpected result, consider these points in discussion with your students:

- Was there an error in following the steps in order? You or the student may have skipped a step. To help control for this, have students review the steps to an investigation in advance and make a check mark next to each step as they complete it.
- Did students design their own investigation? Perhaps their steps are out of sequence, or they missed a step when performing the activity. Review and provide feedback on students' investigation plan to ensure the work is done in proper sequence and that it supports the lesson segment's guiding question.
- When measurements were taken, were they done correctly? It is possible a number was written down incorrectly; a measurement was made in error, such as a wrong unit of measure or quantity; or the starting or ending point of a measurement was not accurate.
- Did the equipment or materials contribute to the situation? For example, chemicals that have lost their potency or a scale that is not measuring accurately can contribute to the success or failure of an activity.

One of the greatest gifts a student can learn when engaged in science is to develop a curiosity for *why something happened*. Students may find it challenging or frustrating to work through a problem during an activity, but guiding them through the problem to figure out *why* something happened will help them to develop a better sense of how to do science.



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Core Knowledge **SCIENCE™**

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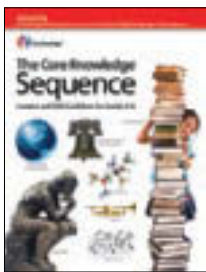
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CKSci™

Core Knowledge SCIENCE™

Our Five Senses

Core Knowledge Science K



What is the Core Knowledge Sequence?

The *Core Knowledge Sequence* is a detailed guide to specific content and skills to be taught in Grades K–8 in language arts, history, geography, mathematics, science, and the fine arts. In the domains of science, including Earth and space, physical, and life sciences, the *Core Knowledge Sequence* outlines topics that build systematically grade by grade to support student learning progressions coherently and comprehensively over time.



For which grade levels is this book intended?

In general, the content and presentation are appropriate for students in the early elementary grades. For teachers and schools following the *Core Knowledge Sequence*, this book is intended for Kindergarten and is part of a series of **Core Knowledge SCIENCE** units of study.

For a complete listing of resources in the
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visit www.coreknowledge.org.

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