Science K-2: Do You Hear What I Hear?

Intended Audience: Students with significant cognitive disabilities

# **Standards:**

SC.K.L.14.1 Recognize the five senses and related body parts.

SC.K.N.1.4 Observe and create a visual representation of an object which included its major features.

SC.K.N.1.5 Recognize that learning can come from careful observation.

SC.1.L.14.1 Make observations of living things and their environment using the five senses.

SC.1.N.1.2 Using the five senses as tools, make careful observations, describing objects in terms of number, shape, texture, size, weight, color, and motion, and compare their observations with others.

SC.2.L.14.1 Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic function.

SC.2.N.1.2 Compare the observations made by different groups using the same tools.

# **Learning Objectives:**

 1. Students will show how sound travels through the ear to the brain.

 2. Students will identify common sounds in their environment.

 3. Students will recognize the brain as an important body part in the hearing process.

# **Vocabulary:**

1. hearing: the ability to understand sound

2. ear canal: the tube-shaped passage of the outer ear

3. ear drum: helps to move sound to the middle ear

4. hammer, anvil, stirrup: bones in the middle ear

5. cochlea: a snail-shaped tube in the inner ear with nerves, the main organ of hearing

6. nerves: carry information to your brain

**Materials:**

* Book: Shhhh: A Book about Hearing by Dana Meachen Rau, illus. by Rick Peterson
* Book available as an online read aloud: [Shhhh: A Book About Hearing](https://www.youtube.com/watch?v=YPN3CeMdNfU)
* Prepare prior to instruction: visual supports for academic content in the read aloud
* Prepare/gather prior to instruction: sound clips of familiar sounds

# **Essential/Guiding Questions:**

 1. How does sound travel to the brain?

 2. How can we remember familiar sounds in our environment?

 3. What are some common sounds in our environment at school and at home?

**Lesson Presentation:**

**Activating Prior Knowledge:**

1. Play students a series of pre-recorded familiar sounds. Ask students what they heard. Jot answers on chart paper.

2. Ask students what sense they used. (hearing) Have students point to their ear and explain that this is only part of what helps us hear sounds.

3. Tell students that they are going to learn more about different sounds and how we are able to hear with some help from our brain!

**Modeled instruction:**

1. Show students the book, Shhhh: A Book About Hearing or show the book online: [Shhhh: A Book About Hearing](https://www.youtube.com/watch?v=YPN3CeMdNfU)

2. Preview vocabulary with visual supports.

3. Take a picture walk through the book prior to reading, asking students what they see on each page. Identify vocabulary and review meaning.

4. Read the book and tell students that they will experience some sounds throughout this lesson that they might not have heard before.

5. Pay close attention to the parts of the ear; show an image of all of the parts of the ear or draw a simple diagram showing how the sounds gets from the outer ear to the brain.

**Supported/Guided instruction:**

1. Review vocabulary and reread Shhhh: A Book About Hearing.

2. Have students listen to 10 sounds. What sound is this? What helps you remember this sound? Is this pleasant or unpleasant?

3. List each sound on chart paper. Provide a visual for each by drawing a picture or using an image associated with each object paired with the word.

4. Ask students what qualities this sound has? (soft, loud, thump, squeal, dog bark, ring, clang, etc.)

5. Ask students what organ in the body helps the ears hear sounds? (brain) Refer back to the book or video, if necessary.

**Independent Work:**

1. Students will work in pairs to identify and describe common sounds heard at school and at home.

2. Provide students with a list of descriptive words, including visual supports.

**Small Group Suggestions:**

1. Students needing enrichment may read additional information about the five senses (See Additional Resources).

2. Students can match a sound to a picture or a sound to a word.

3. Students can record sounds at home and bring them recording in for other students to identify.

**Assessment:**

1. Students will describe and name common sounds in their environment.

2. Teachers should utilize district created rubrics to score student work.

**UDL:**

**Multiple means of representation:**

1. For students with hearing impairments, show a picture/image of what is making the sound and give them a textured item to feel that helps describe what the sound is.

2. Students can identify fewer sounds and have textured items to “show how they sound”.

3. Students can match words instead of picture supports.

4. Students can work individually, in pairs, or in a small group.

5. Students can work independently with peer or adult supports.

**Multiple means of expression:**

1. All students should have access to expressive language/technology that is appropriate for their specific need.

2. Expression may come in the form of verbal responses, signed responses, pointing/gestures, eye gaze, or through the use of a low or high tech device.

3. Text to speech options are available for computers on the Word app, iPads and other hand held devices. Google Chrome offers free extensions, such as Selection Reader and Select and Speak-Text to Speech, and apps, such as Text to Speech, Text to Speech with Google Drive, and TTS Reader- Unlimited Text-to-Speech.

4. Speech to text options are also available from Google. Extensions include Voice Note II-Speech to Text, Online speech recognition, and Co: Writer Universal. Voice Note II is also available as an app; Speech notes-Speech to Text Notepad is available as well. Microsoft Word also has speech to text options.

5. Additional information about text to speech and speech to text options are available through your district Assistive Technology Department.

**Multiple means of engagement:**

1. Provide students with headphones to listen to sounds.

2. Provide students with ipads, computers and other electronics to listen to recordings.

3. Students can use the book about hearing or an online version of the book for additional reference.

4. Encourage collaboration with peers in partners or small groups.

5. Allow students to work independently.

6. Allow students to be positioned for maximum learning engagement.

**Assistive Technology Recommendations:**

1. All students should have a means of expressive communication and a way to be actively engaged in learning.

2. Response modes may include, but are not limited to: eye gaze, gesturing or pointing to pictures/words/phrases, signing, low tech devices (GoTalks, etc.), or dynamic devices (iPad, etc.)

3. Lesson vocabulary, photos/pictures and graphic representations should be created and/or printed prior to the lesson to provide all students with an opportunity to be engaged in discussion.

4. When possible, provide students with text to speech options. Articles and passages from Readworks.org have this option.

5. If students are writing in response to text or writing as a means of sharing information, provide students with alternates to pencils. Speech to text and alternative pencils should be considered. Find more information about alternative pencils here: [Alternative Pencils](http://alternativepencils.weebly.com/)

**Technology Needed:**

* Smartboard, doc camera (optional, for showing text in the book)

**Additional Resources:**

* From readworks.org: [Your Five Senses](https://www.readworks.org/article/Your-Five-Senses/7a624ee8-7178-42b8-86d3-4fdb78609773#!articleTab:content/)
* From the schoolrun.com: [Our Senses- ideas for homework and extensions](https://www.theschoolrun.com/homework-help/our-senses)
* The Dr. Binocs Show: [The Five Senses](https://www.youtube.com/watch?v=q1xNuU7gaAQ)
* [Five Senses Rap](https://www.youtube.com/watch?v=iA1uLc1uEbI)
* [The Five Senses Video](https://www.youtube.com/watch?v=bMybpK7j8MM)  (with quiz)
* District-provided science resources