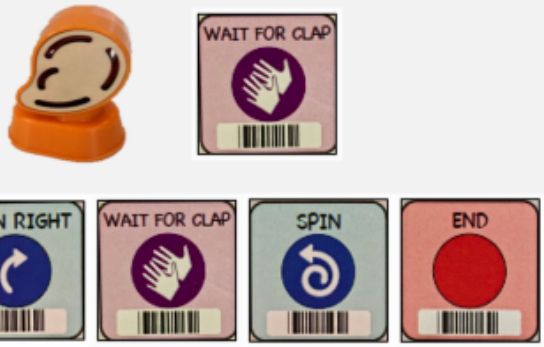
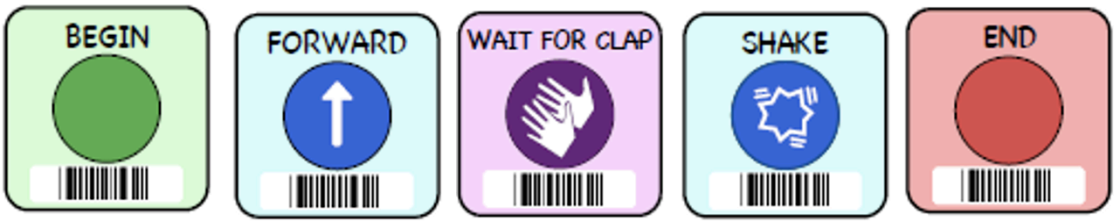
Lesson 21: Can You Hear Me?

Name:	CAL-KIBO Curriculum for PreK
Subject:	Lesson 21
Head Start:	**Approaches to Learning** P-ATL 5. Child demonstrates an increasing ability to control impulses. P-ATL 12. Child expresses creativity in thinking and communication. **Literacy** P-LIT 2. Child demonstrates an understanding of how print is used (functions of print) and the rules that govern how print works (conventions of print). **Language and Communication** P-LC 5. Child expresses self in increasingly long, detailed, and sophisticated ways. P-LC 7. Child shows understanding of word categories and relationships among words. **Scientific Reasoning** P-SCI 1. Child observes and describes observable phenomena (objects, materials, organisms, and events). P-SCI 3. Child compares and categorizes observable phenomena. **Perceptual, Motor and Physical Development** P-PMP 1. Child demonstrates control, strength, and coordination of large muscles. P-PMP 2. Child uses perceptual information to guide motions and interactions with objects and other people.
Powerful Ideas of Computer Science:	● Representation ● Control Structures ● Design Process
Pedagogical Connections:	**Playground (**Collaboration, Content Creation, Communication, Community Building) **Language** (Alphabet and Letter-Sound Correspondence, Characterization, Sequencing, Literary Devices) **Bridge** **Palette of Virtues** (Curiosity, Patience)
Lesson Objectives:	Students will be able to... ● Compare human senses to robot sensors ● Attach the KIBO Sound Sensor to the KIBO body ● Write a KIBO program including the Wait for Clap block, including understanding that the program will need the Sound Sensor to run
Preparation for Teachers: *Estimated Prep Time: 5-15 minutes*	❏ Read lesson plan ❏ Gather KIBO kits ❏ Have a song playlist ready for Activity 1
Vocabulary:	Clap - bring your hands together to make a sound Sense - take in information from the surroundings Sensor - device that can sense something

Activity 1: Freeze Dance *Whole Group*	Freeze Dance is a great game to get students moving and engage their creativity. When music plays, students dance and when the music pauses, they must freeze immediately. As the teacher, control the music and press pause periodically to make students freeze. Remember to reinforce class norms around safety and being cautious with their bodies. Explain to students that today they will learn a new block that will keep KIBO "freeze" until it hears a loud sound like a clap.
Activity 2: Block of the Day: Wait For Clap *Whole Group*	Take out KIBOs and blocks. Show the Wait for Clap block and the Sound sensor and create an example program together. Ask students: *What does the Sound sensor look like? (Hold it up to your ear) What do you think it does?* Explain to students that a **sensor** allows KIBO to take in information from its surroundings. A Sound sensor allows KIBO to sense loud sounds like a clap. Run a sample program with the Wait for Clap block and Sound sensor, and have students discuss what the robot is doing. When KIBO gets to the instruction "Wait for Clap", KIBO listens for a sound (using its Sound Sensor!) before it goes to the next block instruction. Remind students that KIBO will not be able to continue its program after the Wait for Clap block if it does not have the Sound sensor attached. Remember, KIBO follows its instructions in order, so pay close attention to where the Wait for Clap block is placed in the program. As you demonstrate using the Sound sensor, ask students to follow along with the blocks so they know when to clap! **What is the Sound Sensor?** KIBO's **Sound Sensor** is shaped like an ear and senses sounds from the environment. It is programmed using the Wait for Clap block. In the example program, KIBO will turn right, wait for a loud sound (like a clap) before it spins and ends. 

Activity 3: Free Play *Small Group*	Take out KIBOs and blocks and have students engage in free play. Free play can be individual or in small groups. By the end of this activity, students should feel comfortable adding the Sound sensor to their KIBO and the Wait for Clap block to their programs.
Opportunities for Differentiation:	**Activity 3:** For students who are comfortable adding the Sound sensor and Wait for Clap block to their KIBO and programs, ask: *What happens when the Wait for Clap block is right after the Begin block? What happens when the Wait for Clap block is in the middle of the program? What happens when the Wait for Clap block is at the end of the program?* Encourage students to test out different programs and use the Debugging Strategies anchor chart to help them solve any issues they come across. If the Wait for Clap block is at the beginning of the program, KIBO will not do any actions until it hears a clap.  If the Wait for Clap block is in the middle of the program, KIBO will pause at that point in the program and wait for the clap to continue.  If the Wait for Clap block is at the end of the program, KIBO will not appear to do anything because the only instruction for KIBO to follow after the block is END.