Lesson Plan Template

Grade Level	Kindergarten, Grade 1
Topics Covered	Keywords sound, vibration, ear, anatomy, pitch, volume, timbre
Objectives	General: • The overall goal of the activity is to give students the opportunity to explore the above concepts through play-based, hands-on learning and to develop their oral language around these concepts. Grade-Specific Prescribed Learning Outcomes (BC Curriculum): • Kindergarten • Processes of Science • use the five senses to make observations (hearing) • share with others information obtained by observing • Physical Science • describe properties of materials, including colour, shape, texture, size, and weight • identify materials that make up familiar objects • Grade 1 • Processes of Science • communicate their observations, experiences, and thinking in a variety of ways (e.g. verbally, pictorially, graphically) • classify objects, events, and organisms SWBAT (students will be able to): 1. Compare objects for: volume: loud vs quiet pitch: high vs low 2. Understand that the ear has three sections (outer, middle, inner) and that it is connected to the brain 3. Make their own observations and use oral language to describe these observations. 4. Understand that different materials make different sounds (ie. soft objects make quiet sounds, metal objects make loud sounds…)
Materials	– slinky, coffee can, plastic wrap, rice, foldable ear (cut-out), foldable ear template – one per student, plastic containers with objects (18), glass bowl, ceramic bowl, metal bowl, tin pie plates, measuring cups, scoops, beans, plastic containers with lids, pennies, beads, Lego, pasta, foam, boxes, elastic bands, jars, water, tin plates, chop sticks, metal forks, – Ask classroom teacher to borrow: scissors (4- 5 pairs), pencils, and pencil crayons/crayons

Preparation Beforehand	Teacher Contact: - E-mail the teacher beforehand and provide the following information: - the session will start on the carpet (sitting in a circle is best), move to the tables for the hands on centers and then move back to the carpet for reflection and closing - students need to be divided into four groups for the hands on activity - One of the activities involves pouring beans so it is helpful to have a broom handy for spills! This activity is based on Selma Wasserman's "Play, Debrief, Play" model. Wasserman's "Play, Debrief, Play" model is another way to assess and deepen student learning. In her model students play, debrief with the teacher and then continue to play. According to Wasserman, this time of debriefing is when learning becomes concrete for the student. The language that the teacher uses in these debriefing sessions is very powerful and shapes student learning. The teacher has the option of paraphrasing what the student says, responding in a way which requires the student to analyze her thinking, and responding in a way that challenges student thinking. Debriefing can be used to examine big ideas (Wasserman 1990).

Concepts

Sounds have a source (A sound can be tracked to its source)

Sound is caused by vibration.

An action has to happen to make a sound.

Different objects make different sounds.

Sounds vary in three ways:
volume (loud or soft)
pitch (high or low)
timbre (quality)

A sound becomes louder when the force of the action that is creating the sound is increased(for example, when you hit a drum harder). A sound becomes softer, or quieter, when the force is decreased.

Definitions

noise: a discordant or unpleasant sound

sound: vibrations in air or water that stimulate the auditory nerve and produce the sensation of hearing

vibration: a movement back and forth

volume: the degree of loudness

pitch: the quality of sound determined by the frequency of sound waves when they reach the ear; a high frequency will have a high pitch

timbre: the quality of sound that allows an observer to tell the difference between different musical instruments; timbre is determined by the harmonics of the sound

vocal cords: two pairs of membrane-like cords in the larynx

inner ear: the innermost section of the ear, containing the cochlea and the semi-circular canals

middle ear: the middle section of the ear, containing the eardrum and the three ear bones

outer ear: the outermost section of the ear including the pinna and the auditory canal

Time	Introduction	Materials
	Have students gather on the carpet in a circle. Introduce yourself. Tell them that today they are going to be examining sound.	
	Ask the following questions.	
5 min	**What is Sound?**	
	Ask students what sound is? Ask them to discuss sounds that they know.	Slinky
	How is Sound Made?	
	"Air is all around you. You cannot see it, but you feel it when you feel a breeze or the wind. Breezes and wind are moving air. Air is made up of huge numbers of tiny particles called molecules. When an object vibrates or moves back and forth quickly, the air molecules around it also vibrate. Each molecule bumps into its neighbours and make them vibrate. In this way, the vibrations spread. When air molecules in your ears start vibrating, you hear sounds.	
	Show the students the slinky to demonstrate vibration	
5 min	**Demonstration: Vibrating Rice** Show students the can with the plastic wrap and the rice on top. Tell them that you can move the rice without touching it. Ask them to predict how you can do this.	Coffee can plastic wrap rice
	Beat the drum softly and loudly to demonstrate this.	
	How can we use our bodies to make sound?	
5 min	Ask students how they can use their bodies to make sounds. Let them demonstrate and have fun. Have them put their fingers on their vocal chords while they speak so that they can feel the vibration that these make to produce sound.	
	Thunderstorm	
5 min	Have the class make a thunderstorm together by doing the following actions. You start and have everyone in the circle go one-by-one. When the action gets back to you switch to the next one.	
	rubbing hands together snapping clapping tapping legs clapping snapping rubbing hands	

Time	**The Ear**	Foldable Ear
5 min	Ask students what part of the body they use for hearing/listening. Show them the ear that they will be making. Discuss that the ear has three parts: outer, middle and inner. The bones in the middle ear (hammer, anvil, stirrup) are the smallest in the body. Reinforce the fact that we should never put anything in our ear.	
	Games	
5 min	**What Was That?** Have students close their eyes for 1 minute. Ask them to listen. When they open their eyes ask them to share the noises that they heard.	
10 min	**Mystery noises** Perform the following actions. See if students can guess what sounds they are hearing. Do any other actions that you can think of too. Be creative! 1. Shake pennies or other coins 2. Clap hands 3. Clap chalkboard erasers 4. Tap a pencil or pen on a desk 5. Close a book 6. Crumple up paper or foil 7. Stomp on the floor 8. Tear some paper 9. Close a stapler 10. Bounce a ball	Things to make noise with
	In the Middle (Note: If students are restless skip this game and go on to the next) Blindfold a student and have them sit in the middle of the class. Have the other people form a large circle around the blindfolded person. Point to one of the people in the circle and have him say the seated person's name. The seated person must then try to point in the direction of the voice and identify the name of the person who said his name.	
	Mix and Match Each student is given a sound shaker. Ask them to shake it for a couple of minutes and try to guess what is inside of it. Tell students that there are two of every container. They must try to find the matching sound shaker. Note: Younger kindergarten students may have difficulty finding the matching sound. You can always have them open theirs up first and then find the person who has the same (reinforce that they are using the sense of sight and sound)!	Plastic containers with objects (there are 18 in total)

Time	Centers	Materials
	Instructions Divide students into 4 groups. Students will rotate through the 4 centers. They should be around 10 -15 minutes each. Keep an eye on the ear center – make sure students have cut finished cutting and taping before you move on	
10 min	**Pouring Beans** Ask students to put beans into different containers and make observations: Questions: Which container makes the loudest, quietest, highest sound Is it louder or quieter if you add more than one bean at a time…	glass bowl, ceramic bowl, metal bowl, tin pie plates measuring cups and scoops beans
10 min	**Shake** give students various sizes of containers with lids and things to put in them have students put one or more object in a container, shake and listen guide them to make a loud sound and then a soft one Questions: How does the sound change if you put more/less objects in a container Can you imitate or describe the sound? Can you guess what your friend has in her/his container? Do soft things make a quiet sound or a loud sound? Which objects make the loudest sound…	plastic containers with lids pennies, beads, Lego, pasta, foam…
10 min	**Musical Instruments** Boxes, containers and rubber bands Have students place rubber bands around various containers and pluck them have students drag a stick or pencil over various surfaces – what sounds do they hear put different amounts of liquid in glasses – have children experiment with the different pitches Questions: What words would you use to describe what you are doing What is the highest/lowest pitch you can make. Which jar makes the lowest sound – the one with the least water or the one with the most. Which elastic band makes the highest sound – the thick one or the thin one…	boxes, plastic containers, elastic bands, jars, water, tin plates chop sticks, metal forks slinky
10 min	**Ear** Students will cut out the ear, tape the three sections together, write their name on the back and colour if necessary. Ask the teacher where she would like the students to put their ears when they are finished.	Picture of the ear Tape Scissors and pencils, and pencil crayons (from classroom)

Time	Instructions	Materials
10 min	**Reflection Time:** Have students sit in a sharing circle. Ask them to share an observation they made, a connection, or something they learned. They could also share which center was their favourite but ask them why so as to reinforce their learning as much as possible.	
5 min	**Story** Finish by reading Too Loud Lily	Too Loud Lily
	Include information about how the activity relates to careers in science: audiologist, speech language pathologist, physics	

References:

http://www.bced.gov.bc.ca/irp/course.php?lang=en&subject=Sciences&course=Science_Grade_8&year=2006

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Too Loud Lily by Sofie Laguna

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