



curious
minds
Discover STEM



Classroom Resource

Explore your
environment
using your senses
series – Hearing



Investigation

Explore your environment using your senses series – Hearing

Class Level - Junior

Curriculum Links

Strand:	Living Things, Energy and Forces
Strand Unit:	Myself, Sound
Curriculum Objectives:	Recognise and or measure physical similarities and differences between individuals; Use all the senses to become aware of and explore environments; Identify and differentiate between high and low sounds, loud and soft sounds
Skills Development:	Questioning Investigating, Observing, Analysing, Recording and communicating, Exploring
New words/vocabulary:	Senses, Vibrations
Focail nua:	Éisteacht (Hearing)
Cross curricular links:	English, Music
Equipment/materials	<ul style="list-style-type: none"> • Non-transparent container • Various foods (cereal, salad leaves, seeds) • A small non-transparent container for each group of learners • Various objects (twigs, LEGO®, pencils, coins) <p>Note: Items need to be placed in the non-transparent container prior to the investigation so learners can predict what is inside, without seeing the contents.</p>





Engage

Prompt questions

- What do we use our ears for?
- Can we identify things using our ears?
- What things are best identified using sound?
- Ask learners to close their eyes, what sounds can they hear in the immediate environment? List out the sounds to make a sound map.

Exploring

Learners are asked to close their eyes while the teacher holds up an item. The learners are asked to identify what the teacher is holding while their eyes are closed - can sound help us to identify items? Ask learners to cover their ears - can they identify a sound being made by the teacher?

Background information

We use our senses to interact with the world and our environment almost entirely by instinct. We use our eyes, ears, and nose to identify danger around us. We often use a combination of senses in everything we do but we tend to focus on one dominant sense when exploring different parts of the world. For example, we focus on how we hear music, but we rarely think about how we feel it (the bass/beat). We focus on the taste of food but consider smell to be secondary. We identify objects by sight but can be easily fooled when using just our sense of touch. By exploring the environment using the senses most people would normally consider secondary (or not at all), we become aware of how important each sense is in our day to day lives.

Sound is made of vibrations that travel through air, solids and liquids and they can be heard when they reach a person's ear e.g. someone talking, a car beeping or music. These vibrations are largely otherwise unnoticeable unless they are very loud or have a lot of bass. When sounds are very loud or have a lot of bass the vibrations in the air can be physically felt in the rest of our bodies (not just our ears).

Real-world application

For society to be more inclusive, everyone's needs have to be considered. Much of our everyday life is still not designed for people with additional needs or disabilities. By investigating the world around us using other senses we can expand our understanding of how someone with impaired hearing, sight, smell, taste or touch navigates the world. This will empower learners to consider factors that impact different people, which they may not have considered. Today's learners are the engineers, leaders and scientists of the future and will determine how well designed our world will be for everyone.



Investigate

Starter question

Our ears are great at telling us what something is when we cannot see it, like an ambulance siren or a dog barking. How good are our ears at identifying something that normally does not create a lot of sound?

Predicting

Time to guess what different objects are by just using our hearing. Listen to the sounds of different objects/foods and predict what they are.

Conducting the investigation

- Present the learners with a sealed non-transparent container containing some of the food e.g. breakfast cereal.
- Shake the container and have the learners predict what the item is before it is revealed.
- Reveal the contents and see how many were correct.
- Now have the learners break into groups and repeat the investigation themselves with different materials.

- Have the learners record how they would describe the sounds of the objects as they are shaken e.g. high, low, loud, soft.
- Once the objects are revealed, ask learners to record words they would use to describe how the objects look.

Sharing data/results

- Create a word cloud of most used words to describe the sounds of objects.
- Do the same but with the descriptive words for how the objects look.
- Do any of the words cross over? How does the sense we use change our perception of the objects?



Take the Next Step

Adapt for home:

Carry out the investigation as described above using different objects or materials found in the home.

Adapt for senior level:

Have the learners take it a step further and alter their materials to see if the same materials can be made to sound completely differently. For example, use loose LEGO® at first, then connect it together to form one solid block. This will completely change the sound while keeping the materials the same.

Follow-up challenge/project/citizen science link:

- Using the ISL (Irish sign language) alphabet, see if each learner can learn to spell out one word or perhaps their name in sign language. This will give them a much better sense of how sign language works.

