SOUND OF MY HEART

Purpose of the Activity:
To learn about sound technologies used from past to present, create their own stethoscope, and listen to the sounds from their organs.

Theme Beyond Disciplinaries:
Who We Are

CURIOUS BOX

INQUIRY CYCLE

TUNING IN

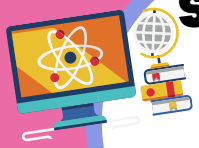
Let's Arouse Curiositym

FINDING OUT

What Should Little Science People Discover?

SORTING OUT

Let's Start Discovering! Scientific Explanation For The Curios, Video



GOING FURTHER

What else can we do?

MAKING CONCLUSIONS

Activity pages, Exit Card

TAKING ACTION

Question of the day?

CURIOUS BOX

SOUND OF MY HEART

Let's Arouse Curiosity

Following questions will be directed to students:

- Can you hear the sounds of your organs?
- How do doctors listen to heartbeats and lung sounds?
- If you were to invent a sound technology product, what would it be?

"Sound plays a vital role in communication, emotional expression, information transmission, and entertainment. Sound technologies have deepened and enhanced cultural interaction by allowing people to control, record, and share sounds. From listening to music, making phone calls, watching television, to conference calls, sound technologies have become an inseparable part of our daily lives. The technological importance of sound is felt across a wide range of fields, from medicine to the entertainment industry. Let's see what we will discover today about sound in our activity."
Then, ask students to take out and examine the activity materials.

Let's Start Discovering!

The activity video is wathced by pausing. Before proceeding with the activity the content of the set is checked. All lid and package opening stages are done at the same time with students.

Content Of The Set

- [ ] Wooden stethoscope template
- [ ] Plastic tubing
- [ ] T-piece connector
- [ ] 2 earphones
- [ ] 1 listening cone
- [ ] "The Sound of My Heart" sticker
- [ ] Scissors (not included in the kit)
- [ ] "Light and Sound" activity page

CURIOUS BOX

How Do We Do It?

1. Cut the plastic tubing into three equal parts using scissors.
2. Attach the plastic tubes to the three ends of the T-piece.
3. Thread the two pieces of the stethoscope template through the T-piece.
4. Stick "The Sound of My Heart" label on the wooden template.
5. Attach the two earphones to the left and right plastic tubes.
6. Attach the listening cone to the middle tube. The stethoscope is ready!
7. Put the earphones in your ears and place the listening cone on someone's heart to listen.

What Should Future Scientist Discover?

The following questions are asked to the students:

- Which sound technologies like telephone, radio, phonograph, record, cassette have you used?
- What functions do voice assistants have today, and how do they interact with people?

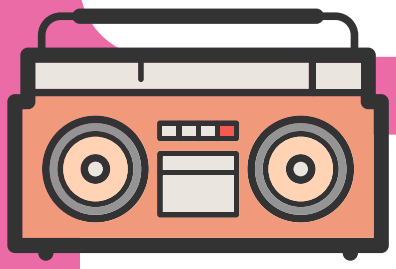
What is the Purpose of Sound Technologies?

Sound is a type of energy made up of vibrating waves in the air. But why can we hear sounds? That's where something amazing comes in: our ears! Our ears detect the sound waves around us and send them to our brain. That way, we can enjoy a concert or hear a friend's voice.
So, what is the purpose of sound technologies? Sound technologies help us record, reproduce, and transmit sound. For example, headphones used while listening to your favorite song or storybook show how amazing sound technologies are.
The first step in sound technology was taken by Alexander Graham Bell. With the invention of the telephone, he was able to transmit sound through wires. Bell's invention inspired other scientists. They worked to improve sound transmission, leading to the invention of the radio and wireless communication. Thomas Edison wanted to record sound and invented a device called the "phonograph."
Thus, the sound technology initiated by Bell continued to evolve and improve over time.

From Past to Present Sound Technologies:

- Telephone: Allows us to communicate over long distances.
- Phonograph: Used to record sound.
- Record: Sounds were engraved into records using crystal needles and could be played back with a gramophone.
- Wireless Communication: A wireless device for communication.
- Cassette: Sound is recorded on a special magnetic tape and played through a rotating mechanism in a cassette player.
- Video Camera: Used to combine sound and video.
- CD/DVD: Capable of recording large amounts of music and video.

Today, we can perform the functions of these sound technologies with a single smartphone. While phones allow long-distance communication, modern smartphones let us record audio, take photos and videos, make video calls, play games, listen to audiobooks, and more.
Thanks to sound technologies, the words we speak are recognized and understood. For example, when we call companies, we often interact with "voice assistants." These assistants understand what we say and make the necessary directions.



What is a Stethoscope, and How Is It Used?

We also benefit from advanced sound technologies in the healthcare sector. Most of us have had doctors use a stethoscope to check us. A stethoscope is a device used to listen to sounds from within the body. With the sounds transmitted to their ears through the stethoscope, doctors can make evaluations and predictions. The sounds of the heart, lungs, and stomach can be listened to with a stethoscope.
A stethoscope consists of three parts. The flat cone-shaped tip is placed on the area to be examined. Sound is transmitted through the tube and reaches the ear.

For the Curious: Scientific Explanation

The following questions are asked to the students:

- What basic information does a stethoscope provide, and why is this information important?
- How is sound heard through a stethoscope, and what are its main parts?

Stethoscopes provide healthcare professionals with important diagnostic information by listening to the internal sounds of their patients. This is why stethoscopes remain one of the fundamental tools in the medical field. Through a stethoscope, doctors can listen to a patient's heartbeats, and the rhythm and speed of the beats give doctors key insights into heart health. Similarly, lung sounds can be listened to and used to assess respiratory health, helping identify issues like asthma or bronchitis.

Stethoscopes can also be used to listen to sounds from the abdominal region, allowing for the evaluation of digestive system activity. With technological advances, modern devices like digital stethoscopes have also been introduced, which record and analyze sounds with greater precision. This provides more detailed and accurate information, enabling earlier diagnosis and more effective treatment.

What Else Can We Do?

Dear Teacher,

Together with future scientists, we've explored the development of sound technologies from past to present. Now, let's reinforce this activity by conducting the "Sound of Water" activity below:

Suyun Sesi

Materials:

- 5 water glasses
- A small amount of water

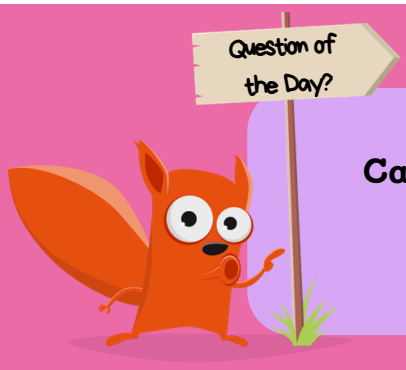
1. Fill the glasses with different amounts of water.
2. Hold the glasses up to your mouth and blow on them in turn.
3. Measure the intensity of the sounds heard.
4. Why do you think the sounds are different?

What Happened?

Sound needs a medium (solid, liquid, or gas) to travel. Liquids consist of particles. Since the water in the glasses occupies different amounts of space, the sound produced by the particles also differs.

What Did We Discover? / Exit Card

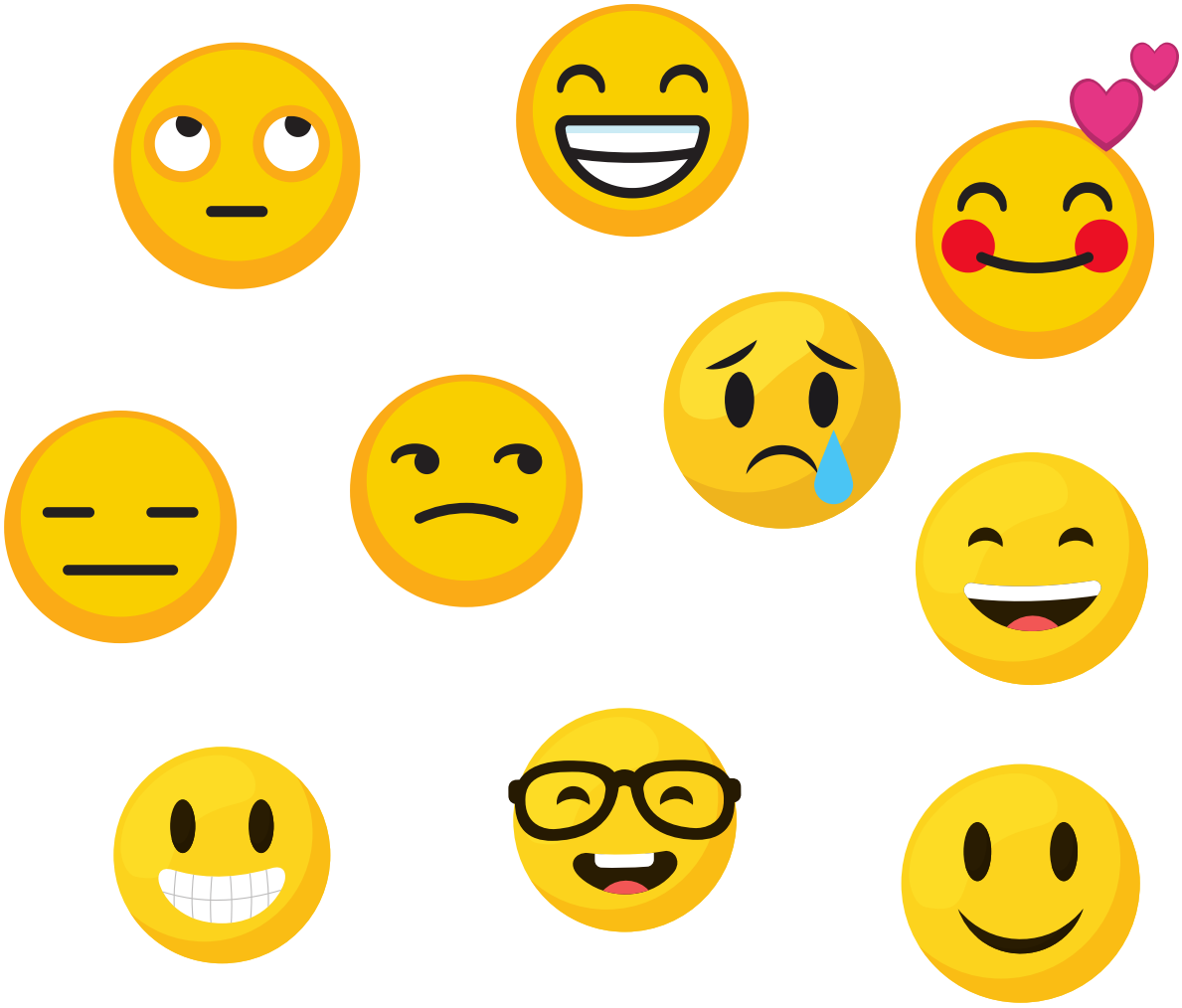
Today we explored the evolution of sound technologies from past to present, made our own stethoscopes, and listened to the sounds from our hearts and organs. How did you feel during this activity?



Can animals hear the same sounds as humans?

Exit Card

Mark how you feel with this experiment!



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