**SOUND ENERGY**

Learners are guided by discussion and demonstration to:

* Define the term sound.
* Identify the main sources of sound.
* Suggest examples of sources of sound.
* Carry out experiments to explain how sound is produced.
* Define the term vibration
* Explain how often other living things produce sound.

**Evaluation activity**

1. What is sound?
2. Write down two main sources of sound.
3. Give two examples of;
4. Natural sources of sound b) Artificial sources of sound
5. What is a vibration?
6. How is sound produced?
7. How do the following animals produce sound?
8. Mammals c) Birds
9. Mosquito d) Grasshopper
10. Why is sound referred to as a form of energy?

**PITCH, VOLUME, FREQUENCY OF SOUND**

* Learners are guided to carry out experiments to explain and define;

1. Pitch of sound
2. Volume of sound
3. Frequency of sound

* Identify the factors that determine the pitch of sound.
* Classify different groups of musical instruments.

**Evaluation activity**

1. Define pitch of sound.
2. What is volume in relation to sound?
3. What is frequency in relation to sound?
4. How is frequency of sound related to pitch?
5. State four factors that affect/determine the pitch of sound.
6. Draw musical instruments in the different classes.

**PRODUCTION OF SOUND IN MUSICAL INSTRUMENTS, TRANSMISSION OF SOUND**

Learners are guided to:

* Explain how sound is produced in different instruments.
* Explain how sound travels.
* Identify factors that affect speed of sound.
* State the speed of sound in different media.
* Experiment on sound transmission.
* Define what an echo is.
* Suggest advantages of echo to (sailors, whales, bats and pilots).

**Evaluation activity**

1. How do the following instruments produce sound?
2. Guitar b) Flute c) Drum
3. How does sound travel?
4. Mention any four factors that affect the speed of sound.
5. In which state of matter does sound travel?
6. Fastest b) Slowest
7. Why doesn’t sound travel through a vacuum?
8. What is an echo?
9. Suggest any three importance of echoes to:
10. Pilots b) Bats c) Sailors
11. How are echoes minimized in theatres or cinema halls?

**STORAGE AND REPRODUCTION OF SOUND ENERGY**

Learners are guided to:

* Identify the methods of storing sound.
* State ways of reproducing stored sound.
* Identify devices used to store sound.
* Mention the devices used to reproduce sound.
* Identify the uses of sound.
* Differentiate between music and noise.

**Evaluation activity**

1. State two ways of storing sound.
2. Mention two devices of reproducing stored sound.
3. Mention two devices of storing sound.
4. State any two uses of sound to animals.
5. Differentiate between music and noise.

**THE HUMAN EAR**

Learners are guided to:

* Draw and label the different parts of the ear.
* Identify the function of each part of the ear.
* Describe the process of hearing.
* State the body system the ear belongs to.
* Explain the proper ways of caring for the ears.

**Evaluation activity**

1. Draw and label the parts of the ear.
2. Write the functions of each part of the ear.
3. State the different ways of proper care of the ear.
4. To which body system does the ear belong?

**TOPICAL QUESTIONS**

1. Apart from hearing, give any other function of the ear.
2. How are echoes minimized in cinema halls?
3. Why is it not advisable to remove ear wax using sharp objects?
4. How does a girl seated 20m hear a bird singing at a tree?
5. Musa shouted and heard a bounced sound often 2 seconds. How far was Musa from the object that produced sound?
6. What name is given to the three bones of the ear?
7. Why light seen before sound is is heard during lightening?
8. How are bats able to find the way in darkness?
9. How is sound produced?
10. In which state of matter does sound travel fastest?
11. Which part of the ear carries sound impulses to the brain?
12. The diagrams below show glass tubes of the same size with water at different levels as indicated. Study them and answer the questions that follow.

Water

Water Water Water

**A B C D**

1. If each tube is blown separately, which one will produce;
2. The highest sound?
3. The lowest sound?
4. What will happen to the sound produced by tube A if water is increased to the level of tube D?
5. What will happen to the sound produced by each of the tubes if water was replaced by the same quantity of milk?
6. The diagram below shows the metallic rings Q, P and T.

**Q P T**

1. Which ring will produce;
2. Sound of a low pitch
3. Sound of a high pitch
4. Name any two devices that can be used to store sound.
5. Define the following terms in relation to sound.
6. Pitch c) Volume
7. Frequency d) Echo
8. Write down two rays of storing sound.