

SOUND

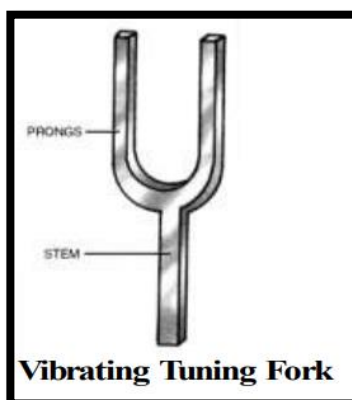
PRODUCTION OF SOUND

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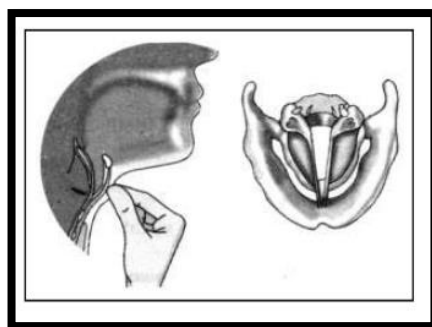
Perform the following activities to produce sound.

Activity

1. Take a plastic scale or ruler from your geometry box. Hold it flat on your desk or table with about half its length protruding (stick out from the surface) over the edge. Now bend it down and release it. It will move up and down rapidly (i.e. it will vibrate) and produce the sound at the same time. The sound will last as long as the vibration (i.e. rapid up and down motion) of the scale continues.

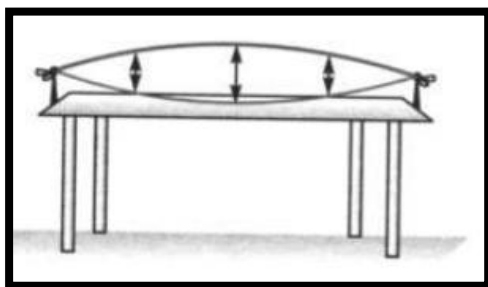


2. Take a tuning fork. Hold it from its stem and strike it with a rubber pad or hammer. You will observe that the prongs of the tuning fork vibrate and at the same time sound is produced (Figure).



3. Place your finger lightly on your throat near the vocal cords as shown in figure. Now say "Ah" for few seconds. You will feel the vibration in your finger as long as you say "Ah".

4. Tie a thin metallic string rigidly at the two ends of a table as shown in figure. Now, pluck the string from the middle and release it. The string begins to vibrate up and down and at the same time, sound is heard.



Conclusion:

From these activities, we come to the conclusion that the sound is produced by the vibrating objects or bodies.

Production of sound in musical instruments

When a drum is beaten, then the skin of drum vibrates and sound is produced. When the strings of a guitar are plucked and released, they vibrate and produce sound. When air is blown into the flute, pipe, clarinet, saxophone etc., it vibrates in the tube of the instrument and hence sound is produced. Sound is also produced when the birds flap their wings during the flight.



Newton's Thought

What do you understand by the term vibration or oscillation? Give some examples of vibration you see in your daily life. Newton's Thought

Explanation

The vibration (or oscillation) of an object is a cycle or a motion that is repeated over and over with the same time interval each time. A vibration is a cycle in which a particle moves to and from about some equilibrium position (mean position). In such a motion, a particle retraces its path again and again in regular intervals of time. Some examples of vibrations or oscillations we see in our daily life are:

- (1) A child swinging on a swing.
- (2) A simple pendulum oscillating about its mean position.
- (3) An oscillating spring that supports a vehicle.