

ACTIVITY NO. –13- An echo echoes!!

Subject	Science
Class	IX
Chapter/Unit	Chapter -12, Sound
Topic	To calculate the speed of sound in air using the concept of Echo
Time	20 Min
Nature of Activity	Pair work

What will I learn (Learning Outcome)?

To find the speed of the sound in air using the concept of Echo.

Skills: Analyzing and Creating

What I have to do?

To demonstrate an activity to find the speed of sound using the auditorium/a big room of your school

What do I require?

A big room / auditorium, paper and measuring tape.

What do I need to know?

For an echo to be heard, the distance between the sound source and the reflecting surface must be more than 17 meter, so that the time period between hearing the original sound and its **echo** is at least 0.1 of a second(persistence of hearing)

➤ Teacher's Activity

Teacher will :

1. discuss the conditions for echo to be heard.
2. will explain the steps of the activity.
3. make pairs and ensure that each participant in the pair performs the activity .

How will I proceed?

➤ Students activity

1. Student A will stand in a class room and clap and another student B will record how many times the sound of clap was heard by him.
2. Now both the students will measure the length of the auditorium/ a big room in the school.
3. Student A will stand at one corner of the auditorium/ big room and clap. Student B will record how many times the sound of clap was heard by him.

What have I observed?

Length of the auditorium/big room =

S.No	Location of the student when making a sound	Echo heard - Yes or No
1.	In a class room	
2.	In an auditorium	

What have I learnt?

Echo is heard if the minimum distance between the source of sound and the obstacle is _____meter.

What am I curious to learn?

- Measure the time after which echo is heard and hence calculate the speed of sound in air (using the formula $v = 2d/t$).

Let me evaluate myself

Q.1. What do you understand by echo?

Q.2. Explain why an echo is not produced in a small room?

Q.3. If the echo tube is filled with water, will the echo be heard ?Discuss. Given that the speed of sound in water is 1532 m/s, find out the minimum length of tube (filled with water) which can produce an echo.

Q.4.Explain SONAR as an application of echo.

Q.5.A wave passes from one medium to another medium. Mention one property of the wave out of speed, frequency or wavelength (a) which changes, (b)which does not change.
