

SOUND

YEAR 3

SPRING 1



LESSON 3

What are frequency and pitch?



Do Now – Retrieval

1. What are sounds?

Sounds are _____ that spread through the air.

2. What are three ways to create a sound:

S _____

P _____

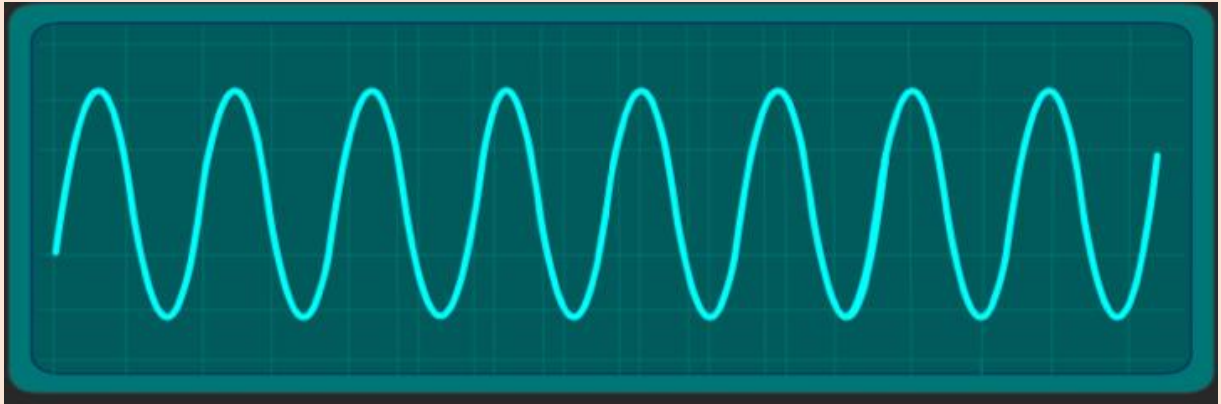
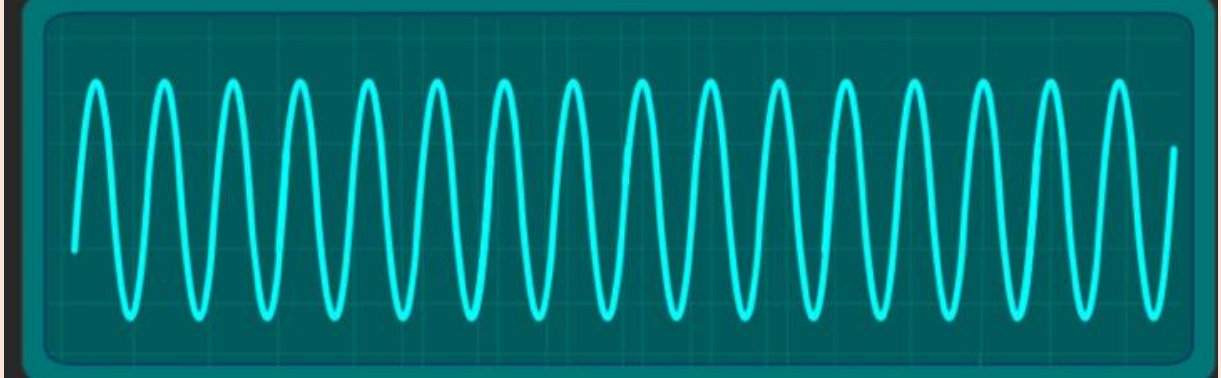
B _____

From last cycle:

3. Pick two objects that are 'synthetic' and two 'raw' materials:

coal | wood | brick | oil | plastic | cotton | paper | wool

Synthetic material	Raw material
_____	_____
_____	_____





Listen to the sounds your teacher makes and put your thumbs up if it is high pitched and your thumbs down if it is low pitched.



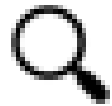
Watch your teacher's demonstration. What do you notice about how the pitch changes with size? (Demonstration of boom whackers)



Read the following comprehension about frequency.

We learned previously that sounds can be described as high pitched (like a mouse's squeak) or low pitched (like a cow's moo). How high or low pitched a sound is known as a frequency. To make a high-pitched sound, you have to create a very fast vibration. The smaller the object, the easier it often is to create

a fast vibration that makes a high-pitched sound. This is partly why smaller objects may make a higher-pitched sound (like a mouse). To make a low-pitched sound (or sound with a lower frequency) we do not want the vibrations to be as quick. This frequency is measured in Hertz after a famous scientist. 20 Hz means 20 vibrations each second.



Use the text above to answer the questions.

1. What kind of vibration makes a high-pitched sound?

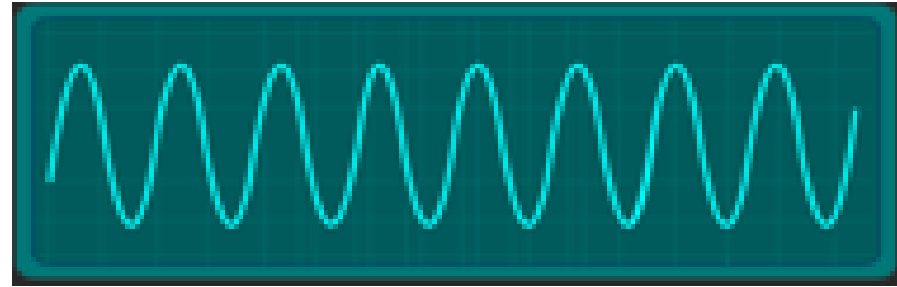
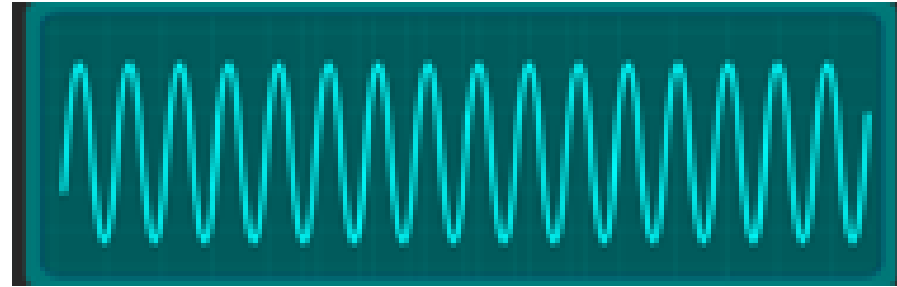
2. Do smaller or bigger objects make a higher pitched sound?

3. What do we measure frequency in?



Read the following comprehension about frequency range.

The range that different people can hear sound depends on the person. Young people can hear up to about 20,000Hz and as most humans can hear as low as 20Hz but older people will have a much lower limit to the highest frequency they can hear.



🔍 What is the lowest frequency that most humans can hear? _____



Listen to the sounds produced by the [frequency generator](http://onlinetonegenerator.com/). Put a tick next to the frequencies that you can hear.

(<http://onlinetonegenerator.com/>)

Frequency (Hz)	Can you hear it?
50	
150	
500	
1000	
2000	
5000	
10 000	
15 000	
18 000	
20 000	



Look carefully at the table below that shows the hearing range of different animals.

Animal	Lower frequency hearing range (Hz)	Higher frequency hearing range (Hz)
Elephant	16	12 000
Dog	50	50 000
Mouse	1000	100 000
Bat	3000	120 000
Dolphin	1000	130 000

1. Which animal can hear the lowest frequency? _____
2. Which animal can hear the highest frequency? _____
3. Which animal has the greatest hearing range? _____

⊕ Re-write the table ranking the animals from biggest to smallest.

Animal	Lower frequency hearing range (Hz)	Higher frequency hearing range (Hz)
Biggest:		
Smallest:		



Do you notice any patterns? Are there any exceptions?



Write a sentence explaining one thing you have found out from this table.



If a mouse and a turtle found a language they could both speak, they wouldn't be able to hear each other! What does this tell you about the hearing range and vocal range of a turtle?



Return to page 3 to complete the learning review