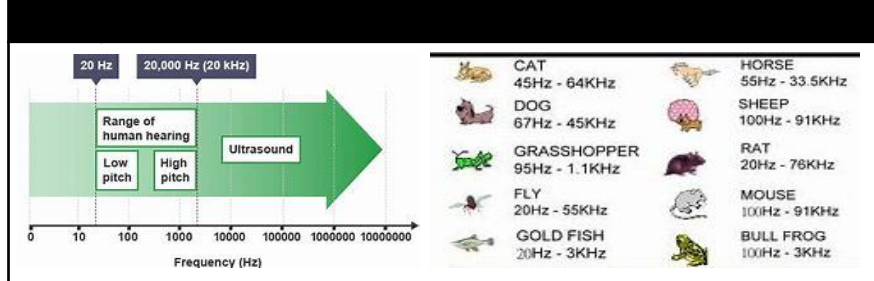


1.	Key Words	Definition
1	Vibration	A back and forth motion about a point.
2	Pitch	How low or high a sound sounds. A low pitch sound has a low frequency. A high pitch sound has a high frequency.
3	Amplitude	The distance from the middle to the maximum vibration of the wave– units – metres (m)
4	Volume	How loud or quiet a sound is – units = decibels (dB)
5	Frequency	The number of complete waves produced in one second – units = Hertz (Hz)
6	Vacuum	A space in which there is no particles of matter.
7	Wavelength	The distance between two identical points on a wave – units = metres (m)
8	Ultrasound	Sound at a frequency greater than 20000 Hz, above the range of human hearing.

**2. Command Words**

1	Define	State or describe exactly the nature, scope, or meaning of something / establish the character of something; mark out the boundary or limits of something
2	Summarise	Give a brief statement of the main points of something.
3	Suggest	Used with another command word, e.g. Suggest an explanation. Suggest tells you that you need to apply your knowledge to a new situation, and in this case to give a possible explanation
4	Why	Giving a reason or explanation to support the answer of the question.
5	Interpret	Ascribe meaning.
6	Evaluate	Look at the information in the question and bring it together to make a decision and come to a conclusion with evidence from the question. You may be asked to give a personal response.

**3. Frequency and range of hearing in animals**



**4. How we hear and range of hearing in animals**

1	The vibrations in the air make the eardrum vibrate.	<p>Humans can only hear sounds of certain frequencies, called the audible range. This is 20-20000 Hz. Different species have different audible ranges.</p> <p>As you get older, you lose the ability to hear very high and very low pitched sound.</p> <p>Your ear is the organ in your body which detects sound waves. See diagram below for the parts of the ear.</p>
2	These vibrations are passed through to the three small bones (called ossicles).	
3	Vibrations are passed along to a spiral structure called the cochlea.	
4	Signals are passed from the cochlea (sound energy to electrical energy) to the brain through the auditory nerve-	
5	Our brain interprets these signals as sound	

**5. Loudness, Decibels and Sound speeds**

1	Volume is measured in decibels (dB). An increase of 10 dB means a sound is 10 times louder. A 40 dB sound is 100 times louder than a 20 dB sound.		
2.	<b>Statement</b>	<b>Light</b>	<b>Sound</b>
	Speed in a vacuum	299 800 000 m/s	0 m/s
	Speed in air (at 20 °C)	299 700 000 m/s	343 m/s
	Speed in water	225 000 000 m/s	1500 m/s
	Speed in steel	0 m/s	5100 m/s
	Speed in glass	200 000 000 m/s	2000–6000 m/s
	Can it transfer energy	Yes	Yes

**6. Materials, mediums and sound proofing**

1	An insulating material can be used to sound proof and absorb sound waves.
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▲ Sound waves can be reflected off a material, absorbed by it or transmitted through it.

