

Dear Parents,

Over the next term we will be following a unit of work on a theme that focuses on 'Can they see us, can they hear us?'. During this unit we will be focusing on History, Music , Technology and Global.

Children will be reading, researching, writing, illustrating, working on their own and working in groups. We will be checking to see how well your child has learned through particular activities and asking children to explain their work, perhaps to you. In addition the children will complete a quiz on the key vocabulary and powerful knowledge . You can see in advance what we will be asking the children (quiz) and what they need to know ( knowledge organiser) ,they are attached in this booklet.

We already know the interest you take in your child's work. If you can, please discuss with your child the work they have done as the term progresses and let them teach you. If your child has some work to research, please help them, but without actually doing the work. If you have the chance to further their interest in the ideas of this theme please take it, but your enthusiasm and interest is most important. By the end of the unit, we hope your child has achieved all of the learning targets. We hope they have had an enjoyable time in the classroom. And we hope you have enjoyed seeing your child work with enthusiasm. If you have any comments or questions about your child's learning, please get in touch.

**In Science we'll be finding out:**

How we hear sounds and see light

How the human ear and eye works

How sound and light waves travel

How a string telephone works

How we can change the pitch of sounds

About echoes and acoustics

**In Technology, we'll be finding out:**

How to make an elastic band guitar

**In Music we'll be finding out**

How to play our homemade instruments

**In Global we'll be finding out**

About sound and light pollution



## Powerful knowledge **Geography, History, Science, Computing, PE/Arts,**

Sound is a form of kinetic energy and is defined as vibrations travelling through the air as sound waves. Sound waves are caused by the vibrations of objects and radiate from their source in all directions. For example when a mobile phone rings, a wave of sound occurs by the surrounding air molecules becoming compressed (squeezed closer together) and then rarefied (pulled further apart). This wave of energy radiates outwards from the phone. We hear the phone ringing when the sound waves reach our ear drum and make our inner ear vibrate.

Sound is used by many species for predation, in order to navigate, detect danger, and as a means of communication. Some animals such as bats and hares have larger, rounder outer ears that allow them to receive higher quantities of sound waves than the human ear.

The speed of sound is around 768 miles per hour (1,236 kilometres per hour) through dry air. Supersonic jets travel faster than the speed of sound so they fly past you before you can hear them.

A sonic boom or big bang is heard when they catch up with their own sound waves.

Light travels faster than sound so sometimes you will see things before you can hear them, e.g. we see lightning before we hear thunder; and we see a cricketer strike the ball before we hear the sound.

When we play a musical instrument we are creating a pattern of sound waves. Each note we play has a particular pitch or frequency.

A piano can produce both high and low-pitched notes. On the left of a piano keyboard, the keys are lower-pitched and on the right they are higher-pitched. When people compose music they use sounds of different pitches. A scale is a series of sounds arranged from low to high pitch – doh, ray, me, far, so, la, tee, doh.

We can turn sound energy into electrical signals that can be stored or recorded. When we play back the sound recording the electrical signals are turned back into sound waves.

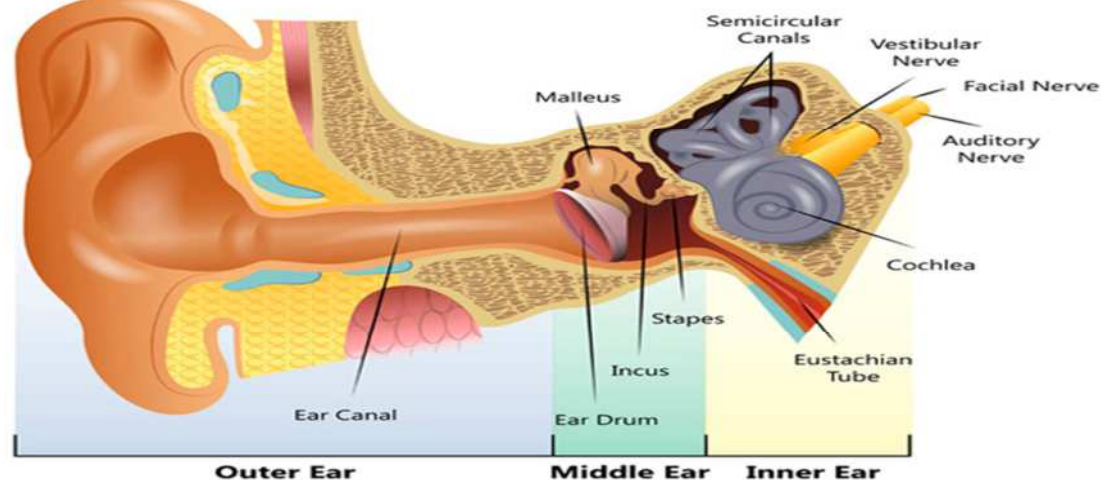
### Powerful vocabulary

**Tier 1** vocabulary are words (nouns, adjectives, verbs) found in early literacy that occur frequently in everyday conversation. These words are simple because they are commonly heard making them easy to acquire and typically do not have more than one meaning

**Tier 2** vocabulary are words that require a higher level of thinking and understanding. They are found in adult conversations and literature. These words appear in the curriculum across a range of subjects. This level of vocabulary is important for reading comprehension, contains multiple meanings and is indicative of a student's progress in school (Hutton, 2008). Since these words will be heard less frequently in everyday conversation, explicit teaching and learning and exposure to this tier of vocabulary at home is vital.

School Curriculum drivers covered in this unit shaded red;  
**Enterprise, Possibilities, Inquiry, Community**

Key image 1: How our ears work

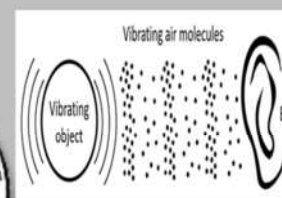


Key image 2: Light travels in straight lines

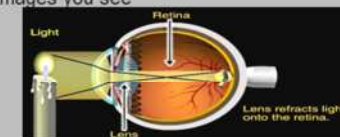


Key dates and additional tasks for home; Exit task

Key image 3: Sound is caused by vibrations travelling through the air and creating sound waves.



Key image 4: When light hits the retina, special cells called photoreceptors turn the light into electrical signals. These electrical signals travel from the retina through the optic nerve to the brain. Then the brain turns the signals into the images you see



## Knowledge Organiser Leopards Summer term 1 and 2

### Learning priority in red

Ear, eye, sound, light, travel, straight, volume, bright, music, materials, patterns

collaborate, contribute, participate, compose, generate, record, enhance, present, experiment, quantify

At the end of the summer term the children will be creating a Sound and Light show. Parents will be invited into school during the penultimate week. Can you make any musical instruments at home? Do you already know how to play a musical instrument and can you bring it in to school to play for us?

## The Science of Sound Magic Square

**Directions:** Find the number of the answer that matches with each clue. Write the answer on the line in the square. To check your work, the sum of each row, the sum of each column, and the sum of each diagonal should be equal.

_____ is the number of peaks of waves in a certain time period.	_____ is sound that has a lower frequency than human ears can detect.	An _____ is something that reduces the intensity of a sound.
_____	_____	_____
Sound is caused by a series of _____.	The intensity of sound is measured in _____.	An _____ is something that increases the intensity of a sound.
_____	_____	_____
The frequency of sound is measured in _____.	The distance between two peaks of waves is called _____.	_____ is sound that has a higher frequency than human ears can detect.
_____	_____	_____

1. wavelength
2. frequency
3. amplifier
4. insulator
5. decibels
6. hertz
7. vibrations
8. ultrasound
9. infrasound



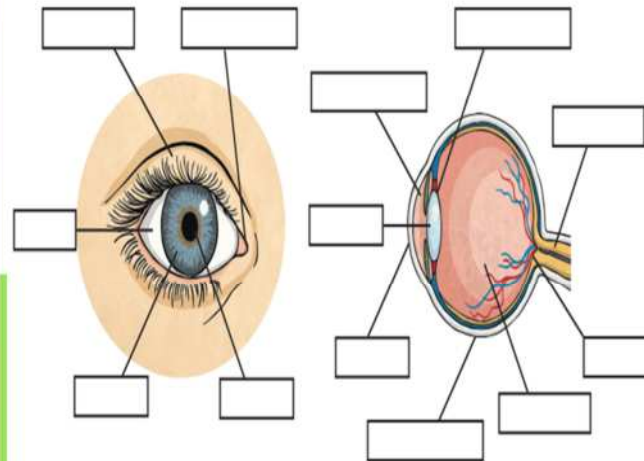
3.56 Know how sounds are changed by altering the nature and frequency of the vibrations

Write a definition for each of these light related words:

Reflection-  
Refraction-  
Absorption-

3.53 Know that light can be reflected, refracted or absorbed

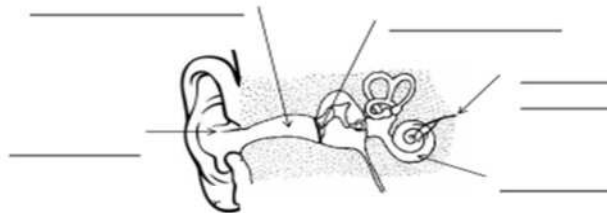
Can you label the parts of the eye in the diagrams below?



3.16 Know the functions of the major internal and external parts of the human body

### Know the parts of the ear and how we hear sounds

Auditory canal    Auditory nerve    Ear-drum    Cochlea    Outer ear



- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_

**Low stakes quiz**  
This is how we will assess the knowledge and the wider impact of our intended curriculum. We will also

### Travelling Sound

3. Which travels faster? Sound or light?

4. Which one of these statements is true most of the time? Tick the correct answer:

- ☐ a) You hear thunder before you see lightning.  
☐ b) You see lightning before you hear thunder.  
☐ c) You hear thunder and lightning at exactly the same time.

5. Which one of these statements is true? Tick the correct answer:

- ☐ a) Sound travels faster in water than in air.  
☐ b) Sound travels faster in air than in water.  
☐ c) Sound travels at the same speed in water and in air.

Explain your reasoning for ticking your answer:

6. Why can't sound travel in space?

3.57 Know that vibrations from sound sources travel through a medium to reach the ear

Fill in the blank space in this sentence:

Light travels in a \_\_\_\_\_ line from a light source to an object.

What happens to the pupil in your eye if a room gets darker?

3.52 Know that light travels in a straight line until it strikes an object

Join up these words to the correct explanation:

Word	Explanation
Transparent	Lets <b>some</b> light pass through but you can't see clearly through it.
Translucent	Does not let light pass through at all.
Opaque	You can see clearly all the way through.

3.54 Know that light travels through some materials and not through others