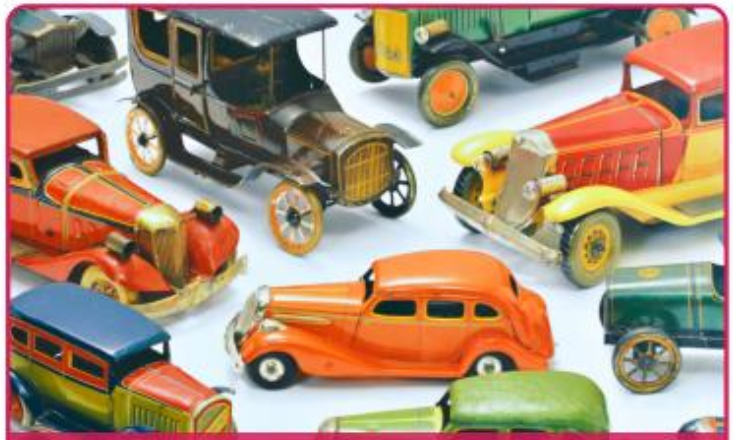
Knowledge Organiser-Mechanical Systems-DT

Mechanical Systems - Slingshot car

Aesthetic	How an object or product looks.
Air resistance	The level of drag on an object as it is forced through the air.
Chassis	The body of a car.
Design	To make, draw or write plans for something.
Design criteria	A set of rules to help designers focus their ideas and test the success of them.
Function	The purpose of an object (for example a chair needs to hold a person when sitting down); or how the product works (for example a torch needs to provide light in a dark space).
Graphics	Images which are designed to explain or advertise something.
Kinetic energy	The energy that causes an object to move.
Mechanism	The parts of an object that move together as part of a machine.
Net	A flat 2D shape, that can become a 3D shape once assembled.
Structure	Something that has been made and put together and can usually stand on its own (eg a building, a bridge, a chair).

Did you know?



Some of the first toy cars were made in 1901, that's over 100 years ago!

Which vehicle has the least **air resistance**?

Key facts

Front view

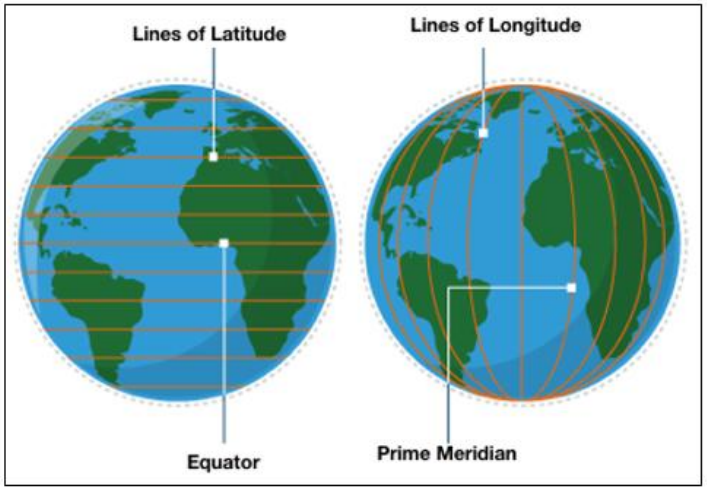
Bird's-eye view

Side view

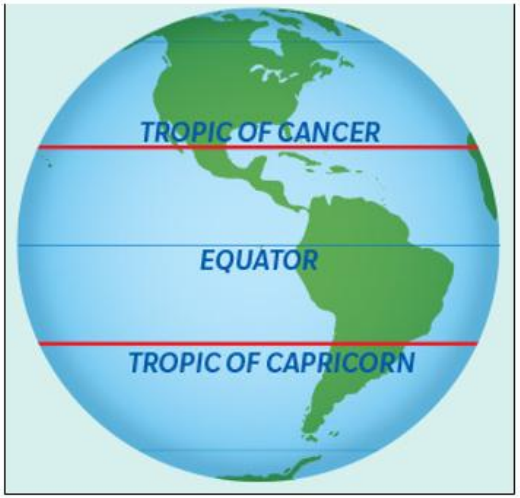
Knowledge Organiser-Spatial Sense-Geography

Key Vocabulary	Definition
Lines of Latitude	Imaginary lines that help us identify how far north or south of the equator a location is.
Lines of Longitude	Imaginary lines that help us identify how far east or west of the Prime Meridian a location is.
Equator	An imaginary line that shows us the locations that are half way between the north and south pole. The Equator divides the earth into the Northern Hemisphere and the Southern Hemisphere.
Prime Meridian	The line of longitude that measures 0º and runs through Greenwich in London.
Tropic of Cancer	The most northern line of latitude where the sun can be directly overhead. Named after the constellation of Cancer.
Tropic of Capricorn	The most southern line of latitude where the sun can be directly overhead. Named after the constellation of Capricorn.
Scale	The representation of distance on a map.

Lines of Longitude and Latitude



Tropics of Cancer and Capricorn



Map Scale

a) (1 centimeter represents 250 meters)

b) 1: 25 000

c) 0 1000 2000 3000 4000 meters

Knowledge Organiser-Incarnation: What is the Trinity?-RE

The Holy Trinity

A key belief of all Christians is the belief in the Trinity - Father, Son and Holy Spirit, who were all present at the creation of the world and who each take on different roles.

Key Vocabulary

Christians	Christians are people who believe that Jesus Christ is the Son of God, and who follow his teachings through the Bible.
God	Christians believe God is the creator and ruler of the universe and guides them on how to live their lives
Holy Spirit	Christians believe the Holy Spirit is God's power in action, his active force.
Trinity	A group of three people or things. For Christians, this is the three persons of God; Father, Son, and Holy Spirit.
Gospel	The record of Christ's life and teaching in the first four books of the New Testament.
Incarnation	This word means putting on a body. In Christianity, this is the appearance of God in earthly form as Jesus.
Glory	Used to express the ideas of importance, greatness, honour, splendour and power.

Incarnation

The incarnation is the Christian belief that God took human form by becoming Jesus. Incarnation literally means 'to take on flesh'. For Christians, the incarnation shows that Jesus was fully God and fully human. It is an essential part of belief in the Trinity, and in many ways it forms the basis of Christianity.

Knowledge Organiser-Sound-Science

Knowledge organiser

Sound

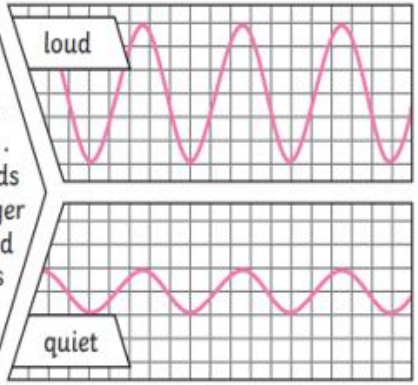
A type of energy that can be heard.

Key Vocabulary	
vibration	A quick movement back and forth.
sound wave	Vibrations travelling from a sound source.
volume	The loudness of a sound.
amplitude	The size of a vibration. A larger amplitude = a louder sound.
pitch	How low or high a sound is.

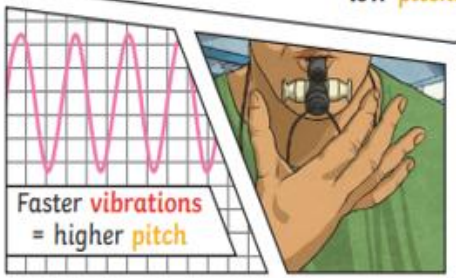
Key Knowledge

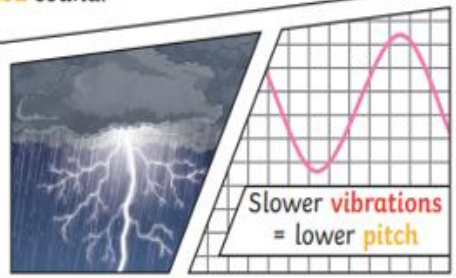
Sound is a type of energy. Sounds are created by vibrations. The louder the sound, the bigger the vibration.

The size of the vibration is called the amplitude. Louder sounds have a larger amplitude, and quieter sounds have a smaller amplitude.



Pitch is a measure of how high or low a sound is. A whistle being blown creates a high-pitched sound. A rumble of thunder is an example of a low-pitched sound.





You can change the pitch of a sound in different ways depending on the type of instrument you are playing.

For example, if you are playing a xylophone, striking the smaller bars with the beater causes faster vibrations and so a higher pitched note. Striking the larger bars causes slower vibrations and produces a lower note.

Key Vocabulary	
ear	An organ used for hearing.
particles	Solids, liquids and gases are made of particles. They are so small we are unable to see them.
distance	A measurement of length between two points.
soundproof	To prevent sound from passing through.
absorb sound	To take in sound energy. Absorbent materials have the effect of muffling sound.
vacuum	A space where there is nothing. There are no particles in a vacuum.
eardrum	A part of the ear which is a thin, tough layer of tissue that is stretched out like a drum skin. It separates the outer ear from the middle and inner ear. Sound waves make the eardrum vibrate.

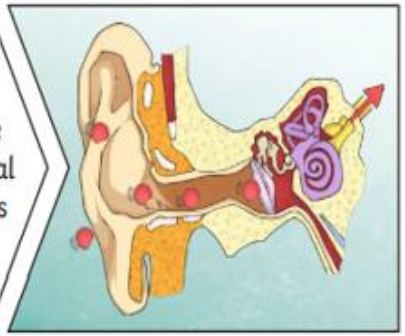
Key Knowledge

Sound can travel through solids, liquids and gases. Sound travels as a wave, vibrating the particles in the medium it is travelling in. Sound cannot travel through a vacuum.

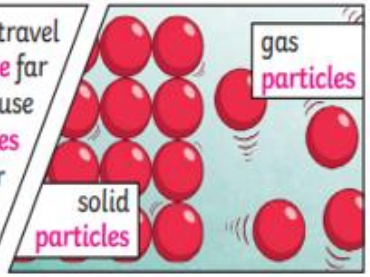
When you hit the drum, the drum skin vibrates. This makes the air particles closest to the drum start to vibrate as well.

The vibrations then pass to the next air particle, then the next, then the next. This carries on until the air particles closest to your ear vibrate, passing the vibrations into your ear.

Inside your ear, the vibrations hit the eardrum and are then passed to the middle and then the inner ear. They are then changed into electrical signals and sent to your brain. Your brain tells you that you are hearing a sound.



Sound energy can travel from particle to particle far easier in a solid because the vibrating particles are closer together than in other states of matter.



If you throw a stone in a pond, it will produce ripples. As the ripples spread out across the pond, they become smaller. When sound vibrations spread out over a distance, the sound becomes quieter, just like ripples in a pond.