Lever House Primary School
Science Progression Map

EYFS

Understanding the World - The Natural World

Autumn

Learning Questions: -What colour leaves can I see during Autumn? -What happens to the leaves during Autumn? -What does Autumn look like? -What does Autumn feel like? -How do animals behave during Autumn?	**Sticky Knowledge** -Leaves begin to fall off the trees in Autumn, -Some leaves turn yellow, orange, red and brown. -It starts to feel colder outside. -Some animals like hedgehogs hibernate during Autumn.
Key Vocabulary: *Autumn, hibernate, leaf*	

Winter

Learning Questions: -What happens to trees during winter? -What does winter feel like? -What does winter look like? -Why is it icy during winter? -How can I keep safe in winter?	**Sticky Knowledge** -Some trees lose all of their leaves during winter. -Winter is the coldest time of the year. -It sometimes snows and frost can appear on the ground and plants. -Water turns to ice when the weather is cold. -Hats, scarves, gloves and coats help to keep you warm when it is cold outside.
Key Vocabulary: *Frost, ice, winter*	

Spring

Learning Questions: -What do trees look like during spring? -What happens to plants during spring? -What does spring feel like? -Which animals have babies during spring? -What special events happen during spring?	**Sticky Knowledge** -Trees that have lost their leaves start to grow them back. -Some plants begin to grow in the spring. -Spring feels warmer than winter. -Chicks, lambs and piglets are born during spring.
Key Vocabulary: *Blossom, leaf, spring*	

Summer

Learning Questions: -What does summer look like? -What does summer feel like? -What grows during summer? -How can I keep safe during summer? -What do people do during the summer?	**Sticky Knowledge** -Trees have the most leaves on them during summer. -Grass becomes long and green. -It feels warm during summer. -Some fruits and berries are ready to be picked during summer. -Wearing suncream, sun hats and light clothing keeps us safe during summer. -Water keeps your body cool when it is warm.
Key Vocabulary: *Berries, bush, summer*	

Key Stage 1	
Seasonal Changes	
The four seasons and months associated with them are: ● Spring - March, April and May ● Summer - June, July and August ● Autumn - September, October and November ● Winter - December, January and February Weather: ● Spring is usually mild and wet, ● Summer is usually warm and drier, ● Autumn is cool and wet, ● Winter is usually cold with showers.	Environmental Changes: ● Spring - new shoots and spring flowers, animals wake from hibernation. ● Summer- trees are full of leaves, flowers in full bloom and more animals are out. ● Autumn - plants begin to die, leaves change colour (brown, yellow, red) and fall, animals prepare for winter. ● Winter- plants die or are dormant, grass does not grow, deciduous trees are bare and some animals hibernate. ● There are fewer daylight hours in winter than summer.

YA Au1 **Animals Including Humans (how we grow and stay healthy)**	YA Au2 **Living things and their habitats - Hot**	YA Sp1 and Sp2 **Plants (germination and life cycles)**	YA Sum 1 **Living Things and their Habitats**	YA Sum 2 **Animals - Ocean Habitat**
Learning Questions -How do our bodies change as we get older? -What do humans need to survive? -Why is exercise so important and what does it do to our bodies? -What is a balanced diet? -Is all cereal healthy? -Why is it important to be hygienic? **Sticky Knowledge** Humans have offspring which grow into adults. Humans need water, air and food to survive. Exercise raises your heart rate, strengthens the body and muscles, helps the brain to grow and improves sleep. A balanced diet has carbohydrates, proteins, fruit and vegetables and some fats/sugars. Some cereals are healthy and give us lots of energy. Some cereals are better to have as a treat because they have more sugar in them. Being hygienic, by washing clothes and bodies, keeps us healthy. ***Key Vocabulary*** *balanced diet, carbohydrates, hygiene,*	**Learning Questions** -What is a desert habitat? -Which animals live in a desert habitat? -How do animals adapt to survive in the desert? -Why can only some plants survive in the desert? -Can desert animals survive in a colder habitat? **Sticky Knowledge** A desert is a hot, dry habitat. Some deserts are sandy. Camels, snakes, meerkats, geckos and scorpions live in the desert. Camels store fat in their humps to use as food and can survive for 7 months without water. Most plants need regular water to survive but cacti can store water for a long time to use when it needs it. **Key Vocabulary:** *Habitat, cacti, sand dunes, store*	**Learning Questions** -What do seeds need to germinate? -What is the difference between a seed and a bulb? -What is the life cycle of a plant growing from a bulb? -How do seeds change over time? -What happens to plants when we change the conditions they grow in? -How is a bulb different to a seed? -What does a bulb need to germinate? - What is the life cycle of a bulb? - What happens to a bulb over time? - Do all plants grow back each year? **Sticky Knowledge** Seeds need water, soil and warmth to begin to grow healthily When seeds germinate, a shoot appears and begins to grow upwards towards the light. Plants will not stay healthy if the conditions are not right. A seed will only germinate once in its lifecycle but the plant may produce a new seed that can be replanted. A bulb can lay dormant (rest) during winter and grow back in spring, when the conditions (temperature) are right. A bulb will grow back each year. Bulbs need water, soil and the correct temperature to grow. A bulb is a storage structure that holds everything a plant needs to grow inside of it. When a bulb germinates a shoot will appear and grow towards the sunlight. **Key Vocabulary:** *bud, bulb, dormant, germinate, seed.*	**Learning Questions:** -What things are living, dead and never been alive? -What is a habitat? -Which habitats are local to our area? -What lives in a microhabitat? -How are living things adapted to their habitats? -What is a food chain? **Sticky Knowledge** All living things need water, food and air to survive Things that are dead no longer need water, food or air. Things that have never been alive do not need water, food or air. There are many habitats in our school grounds such as: trees, ponds, bushes and under logs. Worms, snails and other insects live in microhabitats. All animals and plants depend on each other for a source of food. **Key Vocabulary:** *adapted, food chain, habitat, microhabitat, predator and prey.*	**Learning Questions** -What is an ocean habitat? -What lives in an ocean habitat? -How do animals adapt to the ocean habitat? -What is the main predator in the ocean? -What can harm the ocean habitat? **Sticky Knowledge** The ocean is a habitat for many living things such as fish, mammals and plants. Animals such as whales and dolphins need blubber to keep them warm. Fish have gills to help them breathe underwater. Algae grows in the ocean and this is eaten by fish. Orcas and sharks are the main predators who live in the ocean habitat. **Key Vocabulary:** *Ocean, blubber, gills, algae*

YB Aut 1 **Plants (Identification and Classification)**	YB Aut 2 **Everyday Materials**	YB Sp 1 **Uses of Everyday Materials (2)**	YB Sp 2 **Animals Including humans (Human focus only) (1)**	YB Sum 1 **Animals Including humans (Animal focus only) (1)**	YB Sum 2 **Animals Including humans (Animal Offspring/needs) (2)**
Learning Questions: -How are plants and trees different? -What is the difference between a deciduous and evergreen tree? -What is a common garden plant? -What is a wild flower? -What variety of trees grow in our school grounds? **Sticky Knowledge** -Trees have roots, trunk, branches, leaves, crown and some have flowers (blossom) or fruit (berries). -Plants usually have a flower head, petals, leaves, stem/stalk and roots. -Pine, holly and cedar trees are evergreen trees -Oak, horse chestnut and ash trees are deciduous. -Daffodils, roses, sunflowers and poppies are common plants. -Dandelions, buttercups, nettles and daisies are wild flowers. ***Key Vocabulary:*** ***common plants, crown, deciduous, evergreen, trunk, wild flower.***	**Learning Questions:** -What is a material? -Which materials are natural? -How are materials different? -How is an object different from a material? -How can we sort materials? -Which material would be best for a tent and why? **Sticky knowledge:** -Wood, plastic, metal, glass, paper, stone and fabric are all materials. -Wood and stone are natural materials. Some fabrics are natural too. -Materials have different properties. They can be hard, soft, rough, smooth, strong, shiny and dull. -All objects have a job and they can be made out of different materials. e.g. a table is made out of wood. -Materials that are waterproof would make the best tents. ***Key Vocabulary:*** ***man made, materials, natural, properties, waterproof.***	**Learning Questions** -Are materials suitable for more than one purpose? -Can objects be made out of more than one material? -How do materials change shape? -What makes a material suitable for a purpose? -Which materials will be best for Paddington's suitcase? **Sticky Knowledge** -Materials can be used for more than one purpose. e.g. metal is used for coins, cans and cars. -Some objects can be made out of different materials e.g. spoons can be made out of plastic, wood and metal. -Some materials will break when manipulated and some will keep their shape. ***Key Vocabulary:*** ***Flexible, purpose, suitability, transparent***	**Learning Questions:** -What are the parts of my body called? -Which body part gives us the sense of touch? -What do I use my eyes for? -Why are my ears important? -What body part do I use to smell? -What can I taste with my tongue? **Sticky Knowledge** -Most humans have body parts; arms, legs, knees, feet, toes, hands, elbows, fingers, eyes, nose, mouth and ears. -My five senses are touch, sight, hearing, taste and smell. -Your skin gives you the sense of touch. You can feel hot, cold, wet, rough and soft. -Eyes help me to see and understand the world around me. -My ears can hear different sounds. -I use my nose to smell and compare unpleasant and nice smells. -Different parts of my tongue allows me to taste sour, bitter, salty and sweet food. ***Key Vocabulary:*** ***Bitter, body parts, senses***	**Learning Questions:** -What are the 5 main animal groups? -What is a mammal? -How do birds and reptiles differ? -How are fish and amphibians similar? -Do all animals have the same diet? **Sticky Knowledge** -Animals can be classified into fish, amphibians, reptiles, birds and mammals. -Mammals are animals that breathe air and have hair or fur on their body. -Mammals are animals that breathe air and have hair or fur on their body. -Birds have wings, feathers and some can lay eggs. -Reptiles have a body covered with scales or hard parts and are cold blooded. -Fish are animals that live in water and have gills on the side of their head to help them breathe. Some fish lay eggs. -Amphibians are cold blooded animals that can live on land and in water. Some amphibians can lay eggs.	**Learning Questions:** -What is an animal offspring? -What do animals need to survive? -Which animals hatch from an egg and how do they change? -Which animals' features change completely when they grow? -Which animals are born with all their features in place? **Sticky Knowledge** -An animal offspring is the young of an animal.. -Animals need water, food and air to survive. -Birds, snakes and some insects lay eggs.. -An ostrich begins life in an egg. It becomes a hatchling, then a juvenile before becoming an adult. -A moth starts life as an egg, it becomes a larva and then a moth. -Some animals give birth to animals with all their features like elephants and lions. ***Key Vocabulary:*** ***adult, features, hatch, larva***

				-Carnivores eat other animals, herbivores eat plants and omnivores eat both animals and plants. ***Key Vocabulary:*** ***classify, diet, scales***	

Lower Key Stage 2					
Light	**Animals inc humans**	**States of matter**	**Plants**	**Forces and Magnets**	**Animals inc humans**
Learning Questions -What is light and where does it come from? -Why do we need light and what is darkness? -Which surfaces does light reflect from? -How can I protect my eyes from the sun? -how are shadows created? -What affects the size of a shadow? **Sticky Knowledge** -Light is a type of energy that comes from a natural or man made source. -The sun is a natural source of light. Other light sources include candles, fireworks, torches and car headlights. -Darkness is the absence of light and without light we cannot see things. -Light reflects from some surfaces, these include foil, mirrors and cats eyes. -The light from the sun can be dangerous and we must not look directly at it. We can protect our eyes by wearing sunglasses or a sunhat. -Shadows are created when an opaque object blocks the light from the light source.	**Learning Questions** -How does a skeleton help us? -What are the main bones that humans have and what do they do? -What do our muscles do? -Are all animal groups born with a backbone? -How are animal skeletons similar? **Sticky Knowledge** -A skeleton supports the body, protects organs and allows movement. -Some of the key bones in the human body are; skull, ribcage, pelvis, tibia, fibula, femur, vertebral column, humerus and radius. -Muscles are attached to the skeleton and work in pairs to help us move. -Mammals, birds, reptiles, amphibians and fish are vertebrates and have a backbone. Insects are invertebrates and do not have a backbone. -All vertebrates will have a backbone and some animals will have a skull.	**Learning Questions** -What are the 3 states of matter? -What are the particles like in a solid, liquid and gas? -How can the state of some materials be changed? -At what temperature(s) does the liquid water change state? -How does water change state during the water cycle? **Sticky Knowledge** -The 3 states of matter are solid, liquid and gas. -Solids have a fixed size and shape particles. Liquids can pour and take the shape of the container in which they are put. Gases fill the container in which they are put. -Materials can change state by heating and cooling. -Water boils at 100C and freezes at 0C -Water changes state through the evaporation and condensation processes. **Key vocabulary** *Matter, solid, liquid, gas, evaporation, condensation*	**Learning Questions** -What do all plants need to grow healthily and is this the same for all plants? -Do all parts of a plant have a function? -How do plants transport water? -How do plants reproduce? -How are seeds dispersed? -What is the life cycle of a flowering plant? **Sticky Knowledge** -Most plants need air, light, water, nutrients from soil, and room to grow in order to grow healthily. -Each part of a plant has a job. The roots take up water and nutrients from the soil.The stem carries water and nutrients to different parts of the plant. The leaves make food for the plant. The flower produces new seeds. -The roots absorb the water from the soil and it is transported to different parts of the plant through tiny tubes in the stem.	**Learning Questions** -What is a force? -How do objects move on different surfaces? -What are magnets and how do they work? -Which materials are magnetic? -How are magnets used in everyday life? **Sticky Knowledge** -A force is a push and a pull. There are 2 main types of forces - contact and non-contact. -Objects move at different speeds on different surfaces due to the level of friction. The rougher (more bumpy) a surface, the higher the friction becomes. -A magnet is a piece of iron or other materials that have a North pole and a South pole. -Opposite poles (North and South) on magnets attract each other. -The same poles (South and South, North and North) repel -Some metals are attracted to magnets. These are magnetic materials. **Key Vocabulary:** *Attract, friction, magnetic, pole, repel*	**Learning Questions** -Which body parts are part of the digestive system? -How does the digestive system work? -Why are teeth different shapes? -Which drink causes the most tooth decay? -How can we look after our teeth and gums? -How do carnivore and herbivore food chains differ? **Sticky Knowledge** -The mouth, oesophagus, stomach and intestines make up the digestive system. Digestion starts in the mouth and then the food passes down the oesophagus to the stomach where it is broken down. Following that the food travels through the small and large intestines before leaving the body. Teeth are different shapes because they have different jobs to do. Molars grind food and canines rip and tear our food. Sugary drinks cause the most tooth decay.

-The size of a shadow can be changed by moving the object closer or further away from the light source. **Key Vocabulary:** *Dark, Light source, opaque, reflect, shadow, silhouette, sunlight.*	**Key Vocabulary** *Invertebrate, muscle, skeleton, vertebrate.*		-Pollen is moved from a male part of a plant to the female part of a plant through wind or animals. Then a seed starts to grow. -Seeds are dispersed through explosion, wind, water and animals. **Key Vocabulary:** *Nutrients, pollination, seed dispersal, seed formation.*		Regular brushing, a sensible diet, visiting the dentist and fluoride help keep our teeth and gums healthy. Herbivore food chains have a producer (plant) which the animal eats, while carnivore food chains need to contain other animals too. **Key Vocabulary:** *Digest, nutrition, decay*

Rocks	Living things and their habitats (Animals)	Living Things and their habitats (Plants)	Sound	Electricity
Learning Questions - What are the 3 states of matter? - What are the particles like in a solid, liquid and gas? - How can the state of some materials be changed? - At what temperatures(s) does the liquid water change state? - How does water change state during the water cycle? **Sticky Knowledge** - Materials can be solids, liquids or gases and this state can be changed. - Solids have a fixed size and shape. - Liquids can pour and take the shape of the container in which they are put. - Gases fill the container in which they are put and can be made smaller by squeezing/pressure. - Liquids and gases can flow. - Water boils at 100C and freezes at 0C - The part played by evaporation and condensation in the water cycle. **Key Vocabulary:** *Matter, solid, liquid, gas, evaporation, condensation, precipitation.*	**Learning Questions** -Are all animals vertebrates? -How can vertebrates be grouped? -What is a classification key? What three elements does a food chain need? **Sticky Knowledge** -Mammals, reptiles, birds, amphibians and fish are vertebrates. -Insects such as beetles and slugs are invertebrates. -Vertebrates can be grouped by their body temperature, body covering and their appearance. -A classification key helps to sort animals into groups using yes or no questions. -A food chain needs a producer, a predator and prey. **Key Vocabulary:** *Characteristics, classification, Invertebrates, predator, prey, producer, vertebrates.*	**Learning Questions** -Do all plants flower? -Which animals live in a rainforest? -How does deforestation affect the environment of living things? -Are there any benefits from deforestation? **Sticky Knowledge** -Ferns and mosses are non-flowering plants. -Daisies, grasses and roses are flowering plants. -Toucans, jaguars and emerald tree boas live in the rainforest. -Deforestation causes animals to lose their habitats and food sources. -Deforestation can create space for agriculture like beef or soybeans to feed cattle. **Key Vocabulary:** *Endangered species,environment, extinct, sensitivity*	**Learning Questions** -How are sounds made? -What are sound vibrations and how do they travel? -How do objects affect the pitch of a sound? -What happens to the vibrations when the volume changes? -How does distance affect sound volume? -Which materials best absorb sound? **Sticky Knowledge** -Sound is created when something vibrates and sends a wave of sound vibrations into our ears. -The vibrations travel through the air or another medium (solid, liquid or gas) to the ear. -Smaller objects usually produce higher pitch sounds. -When the volume is lower, the vibrations are smaller. When the volume is loud, the vibrations are bigger. -Sounds decrease in volume the further they have to travel. -Soft, pliable materials that have air pockets in, like a sponge absorb sound the best. **Key Vocabulary:** *Pitch, soundwaves, source, vibrating, volume*	**Learning Questions** -Which appliances need electricity to work? -How can I make a simple circuit and how does it work? -Will the bulb light? -How do switches affect a circuit? -Which materials conduct electricity and which materials insulate it? **Sticky Knowledge** -Appliances such as washing machines and mobile phones need electricity to work. -A simple circuit has a cell, wires, bulbs, switches and buzzers. -To light a bulb, the circuit needs to be part of a complete loop with a battery. -Switches open and close circuits. This can complete or incomplete a circuit. -Metals such as copper and steel are good conductors. Wood, plastic, glass, fabric rubber and paper are insulators. **Key Vocabulary:** *Appliance, battery, cell, circuit, conductor, electricity, insulator*

Upper Key Stage 2

Light	Electricity	Living Things and their Habitats	Animals, including humans	Properties and Changes of Materials	Evolution and Inheritance
Learning Questions -What direction does light travel? -How are we able to see objects? -Why do shadows have the same shape as the object that cast them? -How does refraction affect how we see objects? -What can we investigate about light? **Sticky Knowledge** -Light waves travel out from sources of light in straight lines. These are often called rays or beams of light. -Objects are seen because they give out or reflect light into the eye. -A shadow is always the same shape as the object that casts it because the opaque object blocks the light rays that hit it, while the rest of the light can continue travelling around it. -Refraction can cause objects to look bent or distorted.	**Learning Questions** - Who are the key figures who helped with the major discoveries in electricity? -Can you construct a simple circuit? - What are the scientific circuit symbols and how can I draw a circuit using them? - Can you investigate the effects of differing volts in a circuit? - Can you plan a detailed investigation including variables and controls? - Can you carry out a fair investigation, analyse the results and use these to write a conclusion? - Can you generate a relevant question to test and set it up fairly? -Can you write a scientific report? **Sticky Knowledge** - There are different types of circuits: series and parallel. - A series circuit is a circuit that has only one route for the current to take If more bulbs or buzzers are added, the power has to be shared and so they will be dimmer or quieter. If just one part of this series circuit breaks, the circuit is broken and the flow of current stops.	**Learning Questions** - How can you classify animals based on their similarities and differences? - Why are living things classified into groups? - Which microorganisms are helpful or harmful? - What are the characteristics of different types of microorganisms? - How can you classify organisms found in your local habitat? **Sticky Knowledge** - Living things are classified into micro -organisms, plants and animals according to common observable characteristics . - Vertebrates can be grouped as fish, amphibians, reptiles, birds and mammals. - Invertebrates can be grouped as snails and slugs, worms, spiders and insects. - Plants can be grouped as flowering plants (incl. trees and grasses) and non -flowering plants (such as ferns and mosses).	**Learning Questions** - What are the three main parts of the circulatory system? - What are the important jobs of the blood vessels and blood? - How does exercise affect the heart? - How does diet and exercise affect the body? - What is the impact of drugs and alcohol on the body? **Sticky Knowledge** - The main parts of the human circulatory system are the heart, blood vessels and blood. - Diet, exercise, drugs and lifestyle have an impact on the way bodies function. - Nutrients and water are transported within animals, including humans. - The heart is a major organ and is made of muscle that pumps blood around the body through vessels and this can be felt as a pulse. - The heart pumps blood through the lungs in order to obtain a supply of oxygen.	**Learning Questions** - How can I compare materials according to their properties? - What are thermal conductors and insulators? - Which materials dissolve? - How can we separate mixtures of materials? - What is an irreversible chemical change? **Sticky Knowledge** ▪ You can compare and group together everyday materials on the basis of their properties. ▪ You can use hardness, strength, flexibility, solubility, transparency, thermal conductivity, electrical conductivity to compare materials and their usefulness. ▪ Heat always moves from hot to cold. ▪ Some materials (insulators) are better at slowing down the movement of heat than others. ▪ Some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. ▪ Mixtures can be separated, including through filtering, sieving and evaporating. ▪ Changes can occur when different materials are mixed.	**Learning Questions** - What is inheritance? - How are animals and plants adapted to suit their environment? - What are the key ideas of the theory of evolution? - How have humans evolved? - How does human intervention affect evolution? **Sticky Knowledge** - Living things have changed over time and that fossils provide information about the past. - Living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. - Animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **Key Vocabulary:** *Offspring, inheritance, variations, characteristics, adaptation, habitat, environment, evolution, natural selection, fossil, adaptive trait, inherited traits.*

Key Vocabulary: *Incident ray, reflected ray, refraction, translucent, visible spectrum.*	- More batteries or a higher voltage create more power to flow through the circuit. - A variable is used in a fair test. A variable is any one of the elements of the test which could be changed. They can change the outcome of an experiment. In a fair test, only one variable is allowed - all others have to be kept the same. **Key Vocabulary:** cell, amps, current, electrons, resistance, voltage, symbol	**Key Vocabulary:** *Characteristics, classify, taxonomist, key, bacteria, microorganism, microscope, species.*	- All medicines are drugs, not all drugs are medicines and that tobacco, alcohol and other 'drugs' can be harmful. **Key Vocabulary:** *Circulatory system, heart, blood vessels, oxygenated blood, deoxygenated blood, drug, alcohol, nutrients.*	▪ Some material changes can be reversed and some cannot. ▪ Some changes result in the formation of new materials, and that this kind of change is not usually reversible. **Key Vocabulary:** *Materials, solids, liquids, gases, melting, freezing, evaporating, condensing, conductor, insulator, transparency.*	

Animals, including humans	Living Things and Their Habitats	Earth and Space	Forces
Learning Questions - Is gestation linked to life expectancy? - What does gestation mean? - What are the changes that take place in old age? - How do babies grow and develop? - What are the stages of human development? **Sticky Knowledge** - Penatal means before birth. This stage of development is from the time of fertilisation to the time of birth. - Infancy is the stage of development from birth to 2 years old. The rate of development is fast at this stage. - Childhood takes place between the ages of 3 and 10. - Adolescence takes place between the ages of 10 and 19. The changes that occur during this time enable reproduction during adulthood. - During old age the body decline in fitness and health. The end of a human life cycle is when a human dies. **Key Vocabulary:** *Fertilisation, prenatal, gestation, reproduce, adolescence, adulthood, life cycle.*	**Learning Questions** - Can I name the reproductive parts of a flower? - How do plants reproduce? - What are the life cycles of different mammals? - What did Jane Goodall discover about chimpanzees? - What are the life cycles of amphibians and insects? - Can I describe the life cycle of birds and compare this to other life cycles I have learnt about? **Sticky Knowledge** - Humans develop inside their mothers and are dependent on their parents for many years until they are old enough to look after themselves. - Amphibians such as frogs lay eggs, then once hatched go through many changes until they become an adult. - Some animals such as butterflies, go through metamorphosis to become an adult. - Birds are hatched from eggs and are looked after by their parents until they are able to live independently. **Key Vocabulary:** *Fertilise, gestation, life cycle, metamorphosis, pollination, reproduction*	**Learning Questions** -How do we know that the Earth, sun and moon are spherical? -How are the planets ordered starting nearest to the sun? -How do the planets move relative to the sun? -Why is there day and night? -Why does the moon seem to change size and shape? **Sticky Knowledge** -The Sun, Moon and Earth are spherical. -The order of planets from the Sun is: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. Pluto is a dwarf planet. -The Sun's gravity pulls the planets towards it. This keeps the planets moving in an orbit. -It is daytime when the Earth, rotating on its axis, tilts towards the sun. It is nighttime when the Earth tilts away from the sun. The Earth rotates on its axis every 24 hours. -The Moon moves around the Earth in a movement called revolution. -Jupiter, Saturn, Uranus and Neptune all have rings. **Key Vocabulary:** *Axis, geocentric model, heliocentric model, moon, orbit, planet, satellite,spherical bodies, star, sun* .	**Learning Questions** -How does gravity and other forces affect objects? -What is friction? -What is the impact of air resistance on objects? -How do we counterbalance the effects of water resistance? -How do mechanisms work? **Sticky Knowledge** - Forces can make an object start and stop moving. - Forces can make an object move faster or move more slowly. - Forces can make an object change direction or change shape. - Water resistance and air resistance are forms of friction. - Pulleys can be used to make a small force lift a lighter load. - The more wheels in a pulley, the less force is needed to lift a weight. - Gears or cogs can be used to change the speed, force or direction of a motion. - When two gears/cogs are connected, they always turn in the opposite direction to each other. - Levers can be used to make a small force lift a lighter load. - A lever always rests on a pivot. **Key Vocabulary:** *Air resistance, buoyancy, Earth's gravitational pull, friction, forces, gravity, mass, mechanism, streamlined, water resistance, weight*