

	Year 3	Year 4	Year 5	Year 6
<p>BIOLOGY</p> <p>Animals including humans</p> <p>Big ideas:</p> <p>1) Humans are animals.</p> <p>2) All living things have these processes (actions) in common: movement, respiration, sensitivity, growth, reproduction, excretion and nutrition.</p>	<p>Humans are animals</p> <p>Animals (unlike plants) cannot make their own food so they must eat to get the nutrition they need to stay healthy.</p> <p>Different foods contain different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre.</p> <p>One piece of food will often provide a mix of nutrients.</p> <p>Humans need the right mix of nutrients to stay healthy.</p> <p>Humans and some animals such as mammals, bird, fish and reptiles have bony skeletons and muscles.</p> <p>Some animals such as insects have a hard outer covering called an exoskeleton. Some animals such as slugs and jellyfish have no skeleton at all.</p> <p>Skeletons help animals (including humans) move and provide protection and support.</p> <p>Some of the main bones in the human skeleton are the: skull, ribs, backbone, pelvis, knee cap, thigh bone, shoulder blades and collar bones</p> <p>The skull protects the brain.</p> <p>The backbone lets us stand upright and protects the spinal nerve</p> <p>The ribs protect the lungs and heart.</p> <p>Muscles allow the body to move.</p> <p>Muscles always act in pairs and they only pull, not push.</p> <p>Muscles are attached to bones by tendons. The bones have joints so the skeleton can move.</p> <p>One muscle gets shorter (contracts) and pulls the bone while the other muscle gets longer (relaxes)</p>	<p>Digestion is the breaking down of food into nutrients that can be used by the body to stay healthy</p> <p>The main parts of the human digestive system are the: mouth, teeth, oesophagus, stomach, small intestine, large intestine, rectum and anus. The liver and pancreas also produce chemicals which help the body to digest food.</p> <p>Food begins to be broken down into nutrients in the mouth by the chewing of the teeth and by saliva from the tongue.</p> <p>The oesophagus carries the food to the stomach where chemicals called enzymes (and strong acid) continue to break it down into nutrients.</p> <p>The small intestine lets the nutrients from the food pass into the blood where they are carried to the parts of the body that need them to stay healthy.</p> <p>The large intestine absorbs any useful water and salts from the mostly digested food.</p> <p>Fibre is not absorbed but it helps food pass through the digestive system.</p> <p>The waste that is left (faeces) is then excreted from the body through the rectum and anus.</p> <p>Humans have three main types of teeth:</p> <p>Incisors to bite off and chew pieces of food.</p> <p>Canines to tear and rip pieces of food.</p> <p>Molars and premolars to grind and crush food</p> <p>[FOOD CHAINS NOW IN HABITATS]</p>	<p>All living things (plants and animals) carry out these seven life processes:</p> <p>Movement - all living things move, even plants</p> <p>Respiration - getting energy from food</p> <p>Sensitivity - detecting changes in the surroundings</p> <p>Growth - all living things grow</p> <p>Reproduction - making more living things of the same type</p> <p>Excretion - getting rid of waste</p> <p>Nutrition - taking in and using food</p> <p>The human life cycle goes through the following stages: foetus in womb; birth, baby, child, adolescent, adult old age.</p> <p>The gestation period of an animal is the length of time that that the parent carries the offspring inside her before it gives birth.</p> <p>Mostly, larger animals have longer gestation periods</p> <p>Human babies grow quickly and their brain develops rapidly.</p> <p>Puberty happens slowly during adolescence. It usually starts around the age of 10 or 11 but can start earlier or later.</p> <p>Puberty is when the human body changes from a child's body to an adult body.</p> <p>It happens so that adult humans can reproduce if they want to.</p> <p>During puberty the following changes happen:</p> <p>Boys: penis and testicles grow; testicles start producing sperm cells; hair grows on the face, under the arms and sometimes on the chest; shoulders grow broader and voice deeper.</p> <p>Girls: Ovaries start producing eggs and monthly menstrual periods start; breasts grow larger and hips grow wider</p> <p>Boys and girls: pubic hair grows; grow taller, skin gets greasier from sebum; emotional mood swings.</p> <p>[SEE ALSO P.S.H.E.]</p>	<p>The circulatory system is how blood moves around the body carrying oxygen, carbon dioxide, nutrients and water to where they are needed. It then removes waste products and carbon dioxide.</p> <p>The main parts of the human circulatory system are the heart, lungs, blood and blood vessels (veins, arteries and capillaries)</p> <p>Nutrients - carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars and water – are absorbed into the blood stream from the small intestine.</p> <p>Nutrients are transported in the blood stream to all the parts of the body that need them to stay healthy.</p> <p>Water is transported around the body to cells which need it to stay healthy. The human body is 60% water.</p> <p>A healthy diet helps the body work properly because a healthy diet is the right balance of <i>all</i> the different nutrients: carbohydrates for energy; proteins for growth and repair; fats as a store of energy and for the brain; vitamins for special jobs eg Vitamin A for eyesight; minerals for special jobs eg calcium for teeth and bones</p> <p>Exercise is important for a healthy body because it strengthens joints and muscles; makes the heart and lungs work better and improves mental health.</p> <p>Sleep is important for a healthy body because it improves concentration and mental health.</p> <p>Good personal hygiene is important for a healthy body because it prevents the spread of harmful micro-organisms which could cause disease.</p> <p>Some drugs, smoking and too much alcohol are bad for health because they can cause problems with the lungs, heart, brain, liver and many other organs of the body.</p> <p>[SEE ALSO P.S.H.E.]</p>

	Y3	Y4	Y5	Y6
<p>BIOLOGY</p> <p>Living things and their habitats</p> <p>Big ideas:</p> <p>1) Evolution: living things have adapted (changed) over time to compete, survive and reproduce in interconnected habitats.</p> <p>2) Form follows function: all the parts of all living things are shaped the way they are so the parts can do certain jobs that help the living thing survive.</p> <p>FROM Y6</p>	<p>Plants have these parts:</p> <p>Leaves that use sunlight, water, minerals and carbon dioxide (from the air) to make food for the plant (photosynthesis).</p> <p>Stems or trunks that support the plant and transport water and minerals from the roots to the rest of the plant.</p> <p>Roots that anchor the plant in the ground and that absorb water and minerals from the soil.</p> <p>Flowers that help plants reproduce.</p> <p>Pollination is when pollen is produced by the male part of the flower and it is then transferred to the female part of the same - or a different – flower.</p> <p>This pollen then fertilises the female part of the flower and creates seeds.</p> <p>Sometimes the seeds are surrounded by berries or fruits and these can be dispersed by animals. Other plants disperse their seeds by using the wind. These seeds have shapes that let them travel easily on the wind e.g sycamore seeds.</p> <p>Seeds need to disperse so they do not compete with the parent plant for water and nutrients.</p> <p>If there is enough water and warmth, the seed will start to germinate.</p> <p>Different plants in different habitats need different amounts of water and heat to grow e.g. cacti in deserts.</p>	<p>Living things can be grouped (classified) in different ways according to their features eg if they have a backbone or not.</p> <p>Classification keys can be used to identify and name living things by asking yes/no questions about a feature.</p> <p>Living things live in a habitat which provides an environment to which they are suited. Some local habitats include trees, grass, leaf litter and soil [SEE CHEMISTRY & EARTH SCIENCES].</p> <p>Wider habitats include deserts, jungles, mountains, oceans and ice regions.</p> <p>These environments may change naturally e.g. through flooding, fire, earthquakes etc. Humans also cause the environment to change.</p> <p>This can be in a good way i.e. positive human impact, such as setting up nature reserves.</p> <p>This can be a bad way i.e. negative human impact, such as littering.</p> <p>These environments also change with the seasons; different living things can be found in a habitat at different times of the year.</p> <p>A food chain shows how plants and animals get their energy.</p> <p>A food chain always starts with a producer. This is an organism that makes its own food. Most food chains start with a green plant, because plants can make their food by photosynthesis.</p> <p>A living thing that eats other plants and animals is called a consumer.</p> <p>A predator is an animal that eats other animals. The animals that predators eat are called prey. Predators are found at the top of a food chain.</p>	<p>Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Animals, including humans, have offspring which grow into adults.</p> <p>In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults.</p> <p>Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis.</p> <p>Plants reproduce both sexually and asexually. Asexual reproduction makes exact copies of the parent. Sexual reproduction mixes genes from both parents so the offspring are not exact copies.</p> <p>Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. Gardeners may force plants to reproduce asexually by taking cuttings.</p> <p>In sexual reproduction in plants, the life cycle has different stages.</p> <p>Pollination is when pollen is produced by the male part of the flower called a stamen and it is then transferred to the female part of the same - or a different – flower called the carpel. Plants that are pollinated by animals usually have brightly coloured petals, strong scents or produce sweet nectar to attract the pollinators. Wind pollinated plants have long stamens to catch the wind e.g. grasses. Fertilisation happens when a male pollen grain sticks to the top of the female carpel (called the stigma). A pollen tube then grows down and fertilises the female ovules (eggs).</p> <p>Seeds are then created by fertilisation. Sometimes the seeds are surrounded by berries or fruits and these can be dispersed by animals. Other plants disperse their seeds by using the wind. These seeds have shapes that let them travel easily on the wind e.g. sycamore seeds. Some plants disperse their seed by explosion or by using water. Seeds need to disperse so they do not compete with the parent plant for water and nutrients. If there is enough water and warmth, the seed will start to germinate.</p> <p>Plants can make their own food whereas animals cannot. Plants can be divided broadly into two main groups: flowering plants; and non-flowering plants.</p>	<p>Evolution</p> <p>Fossils give us evidence of what lived on the Earth millions of year ago and provide evidence to support the theory of evolution.</p> <p>All living things have offspring of the same kind, as features in the offspring are inherited from the parents.</p> <p>Due to sexual reproduction, the offspring are not identical to their parents and so they vary from each other by having different characteristics.</p> <p>Some of these characteristics give the offspring an advantage and they are better suited (adapted) to their environment.</p> <p>If the environment changes rapidly, some variations of a species may not suit the new environment and will die.</p> <p>If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics on to their young. Over time, these inherited.</p> <p>Scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics.</p> <p>Living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other living things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics. Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms.</p>

	Y3	Y4	Y5	Y6
<p>CHEMISTRY & EARTH SCIENCES Properties and changes of materials including rocks</p> <p>Big ideas:</p> <p>1) All of the matter – or material - in the Universe is made of very small particles.</p> <p>2) The way these particles are arranged affect both the properties of the materials and how the materials can change.</p> <p>FROM Y3</p> <p>FROM Y4</p> <p>FROM Y5</p>	<p>Rock is a naturally occurring material. Some common types of rock are: sandstone, limestone, slate, granite Rocks can be compared and grouped according to their appearance or physical properties: Rocks can be hard like marble, flint or granite. Rocks can be soft and easily scratched like chalk or talc. Rocks can be porous or permeable and absorb water (let it soak through them) e.g chalk, sandstone and limestone Rocks can be non-porous or impermeable and not absorb water e.g. slate and marble Rocks can have different sizes of grain or crystal eg marble has interlocking grains that fit tightly together but sandstone has rounded grains that don't fit so tightly. Rocks can be dull or shiny depending on the crystals within them. Rocks can be different shapes and sizes (stones, pebbles, boulders). Rocks can have low or high density eg pumice v granite</p> <p>Everything is made of materials (matter). Materials can be grouped into solids, liquids or gasses. These are called states of matter. Solids keep their shape and stay in one place. They can also be held, cut and shaped. Liquids take the shape of the container they are in. They flow, can be poured and are not easy to hold. Gasses do not have a fixed shape. They spread out to fill any space or container they are in.</p> <p>Materials can be compared and grouped according to their properties. Materials can be: Hard or soft Rigid or flexible Strong or weak Can be compressed or stretched. Magnetic or non-magnetic [AS PART OF MAGNETS & FORCES] Thermal insulators or conductors How a material is used depends on its properties eg a flexible T shirt v a rigid brick wall; a heat conducting metal pan with a heat insulating wooden handle Different types of test can prove this.</p>	<p>Soils are a local habitat for many living organisms eg worms, insects and bacteria. They are also needed for plants to grow so soil is vital for life on Earth. Soil is made from worn down rock, humus - dead or rotting organic material- air and water. [TEACH IN HABITATS]</p> <p>Materials (matter) are made of tiny particles. The state of the matter (material) is a solid liquid or gas depending on how strongly the particles stick together in a regular pattern. This depends on the material, the temperature and the pressure. Solids have a definite volume and are dense. They are not easily compressed (squashed). Liquids have a definite volume but take the shape of the container they are in. They have medium density and are not easily compressed. Gasses have no definite volume and always fill the container or space they are in. They have low density and are easily squashed. Materials can be compared and grouped according to their properties. Materials can be: Transparent, translucent or opaque [AS PART OF LIGHT & SOUND] Electrical conductors or insulators [AS PART OF ELECTRICITY]</p> <p>Some materials can change their state of matter. This is a reversible or physical change because no new materials are created. The only change is in the way the particles are arranged eg closer in a solid compared to freer in a liquid. Heating or cooling causes this because they both affect the energy of the particles. Investigations can show examples of this eg boiling point of water. The water cycle is an example of reversible changes of state: Evaporation is when heat (from the Sun) changes the state of liquid water into a gas called water vapour. This lighter gas rises upwards into the air. This water vapour then cools and changes state again back into liquid water droplets. This is called condensation. When these water droplets join and get heavy enough, they fall back to Earth as precipitation (e.g. rain or snow) and the cycle continues.</p>	<p>There are different types of soil with different properties The type of rock, size of rock pieces and the amount of organic matter affect the properties of the soil, which affects their uses. Sandy soil is light and dry. It has large particles which create big air gaps so water drains through it quickly and it feels dry. These soils drain well but dry out quickly. Clay soil is heavy and usually sticky. It has small particles which means fewer air gaps so water does not drain quickly through it. These soils can get waterlogged but they do hold nutrients. Loam soil is a mixture of clay and sandy soils and has a combination of both sets of properties. Loamy soils are the best for growing most plants.</p> <p>Materials can be mixed together in different ways. Physical mixing means no new material is created so these changes are reversible. The particles of each part of the mixture are still separate even though it does not always seem this way. Two solids can be mixed - e.g. sand and rocks- then separated by sieving. A solid and a liquid can be mixed but are clearly separate –e.g. soil and water – then separated by filtering. Materials can be soluble or insoluble Some solids seem to disappear when mixed with a liquid - e.g. salt in water – but the salt is still there. It has dissolved. Soluble salt has dissolved in the water to create a solution. These mixtures can be separated by evaporation as happens in the water cycle. Investigations can demonstrate all of these changes.</p>	<p>Some sedimentary rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water. [TEACH AS PART OF EVOLUTION]</p> <p>Some materials are changed so completely new materials are formed. These changes are irreversible because the particles of the material have changed completely into new materials. Burning is an irreversible change because the burned material is changed into ash and smoke. Adding acid on to bicarbonate of soda is an irreversible change because this mixture has changed into carbon dioxide gas and other materials. Some irreversible changes are useful e.g. cooking ; burning fuel for heat or light; using a kiln to create glass or ceramics</p>

	Y3	Y4	Y5	Y6
<p>PHYSICS</p> <p>Forces</p> <p>Big ideas:</p> <p>1) Forces cannot be seen but their effects can.</p> <p>2) Sometimes forces affect things at a distance (magnetism and gravity) and sometimes they affect though contact (friction).</p> <p>3) Unbalanced forces cause changes in objects.</p> <p>4) Forces can be magnified by machines</p> <p>FROM Y5</p>	<p>A force is nearly always a push or a pull. Forces cannot be seen but the effects of a force – like making things change direction - can be seen.</p> <p>For some forces to act, there must be contact e.g. a hand opening a door, the wind pushing the trees.</p> <p>Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts or repels. The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole.</p> <p>If two like poles, e.g. two north poles, are brought together they will push away from each other – repel.</p> <p>If two unlike poles, e.g. a north and south, are brought together they will pull together – attract.</p> <p>Materials can grouped into magnetic and non-magnetic.</p> <p>A magnet only attracts magnetic material such as iron, nickel and other metals containing these, e.g. stainless steel.</p> <p>[LINKS TO MATERIALS]</p>	<p>Friction is a force between two surfaces that are moving, or trying to move, across each other. For example, when you try to push a book along the floor, friction makes this difficult.</p> <p>Force is measured in Newtons (N) using a force meter, also called a Newton meter</p> <p>Friction always works in the direction opposite to the direction in which the object is moving, or trying to move. Friction always slows a moving object down.</p> <p>The amount of friction depends on the materials from which the two surfaces are made. The rougher the surface, the more friction is produced. Friction also produces heat.</p> <p>Friction can be a useful force e.g. it prevents our shoes slipping on the pavement when we walk and stops car tyres skidding on the road. This friction acts to grip the ground and prevent sliding.</p> <p>Sometimes we want to reduce friction. For example, we use oil to reduce the friction between the moving parts inside a car engine so they don't wear out as quick.</p>	<p>Gravity is a force that acts at a distance between any two objects. It is only noticeable when the mass of one object is much larger than the other object. Wherever it is on Earth, everything is pulled to the centre of the Earth by gravity. Gravity causes unsupported objects to fall. Gravity holds the Earth and the other planets in orbit around the Sun. The force gravity on the Moon is less than on Earth because the mass of the Moon is smaller.</p> <p>[LINKS TO EARTH & SPACE]</p> <p>Unbalanced forces causes an object to start moving, stop moving, speed up, slow down, change direction or change shape.</p> <p>Arrows can be used to represent the size and direction of a force.</p> <p>Air resistance and water resistance are friction contact forces that act between moving surfaces.</p> <p>The object may be moving through the air or water, or the air and water may be moving over a stationary object.</p> <p>Streamlined shapes cause less air or water resistance because they have a smaller surface area to make contact with e.g. front of a ship or aeroplane.</p> <p>The greater air or water resistance caused non-streamlined shapes with a larger surface area can sometimes be useful e.g. parachutes or swimming flippers.</p>	<p>A mechanism – or simple machine -is a device that allows a small force to be increased to a larger force.</p> <p>The pay back is that it requires a greater movement: the small force moves a long distance and the resulting large force moves a small distance, e.g. a bottle top remover or a pulley.</p> <p>Pulleys, levers and gears are all mechanisms, also known as simple machines that make work easier to do.</p> <p>The closer the pivot (or fulcrum) of a lever is to the load, the less force is needed to move the load.</p> <p>The longer the lever, the less force is needed to lift the load.</p> <p>A single pulley wheel makes lifting a load slightly easier because gravity is helping. A pulley with more than one wheel makes lifting a load even easier but the pull is over a greater distance.</p> <p>A driver gear wheel turns a follower gear wheel in the opposite direction.</p> <p>In gearing up, a larger gear wheel moves a greater distance and makes a smaller gear wheel turn more quickly.</p> <p>In gearing down, a smaller gear wheel moves a smaller distance and turns a larger gear wheel more slowly. This means less force is needed.</p>

	Y3	Y4	Y5	Y6
<p>PHYSICS Energy (Light and sound)</p> <p>Big ideas: 1) Electricity, light, sound and heat are all types of energy. 2) Energy cannot be created or destroyed but it which can be transferred between things to make processes happen.</p> <p>FROM Y3</p> <p>FROM Y4</p> <p>FROM Y6</p>	<p>We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Objects are easier to see if there is more light. Some objects, for example, the sun, light bulbs and candles are sources of light. Some objects (e.g. the Moon) and some surfaces (e.g. mirrors) reflect light. Objects are easier to see when there is less light if they are reflective. Some surfaces absorb light and are less easy to see. The light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light.</p> <p>Sounds are made when something vibrates. Sometimes you can see the object vibrating (e.g. drum) and sometimes you can't (e.g. air in a bottle). The volume of a sound is how loud it is. The stronger the vibration, the louder the sound.</p>	<p>Light cannot pass through opaque materials. Light does pass through transparent materials. Only some light passes through translucent materials. Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface. The closer the object to the light source, the larger the shadow.</p> <p>A sound produces vibrations which travel through a medium (e.g. air) from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound.</p> <p>The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source.</p>	<p>Light appears to travel in straight lines so the light rays cannot curve around an object. Objects that block light (opaque or translucent) will cause shadows. The shape of the shadow will be the same as the outline shape of the object. The length and position of a stick's shadow will change over a day as the position of the Sun in the sky changes.</p> <p>Sounds can be absorbed by some materials called sound insulators. Fair tests show that these sound insulators reduce the volume of the sound that we hear.</p>	<p>Light appears to travel in straight lines (rays), and we see objects when light from them goes into our eyes. We see some objects (e.g. the Sun) because the light comes directly from light sources to our eyes. For other objects some light must be reflected from the object into our eyes for the object to be seen. Light is reflected when light rays bounce back from a shiny surface such as a mirror. With a flat mirror, the angle at which light rays hit the mirror is the same as the angle at which the light rays are reflected back. This is a useful property because you can arrange mirrors to move light in all directions e.g. in a periscope. White light is a mixture of colours. Light refracts (bends) when it travels through different transparent mediums.</p> <p>Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds. Tuned musical instruments are designed to produce sounds of different pitches</p>
<p>PHYSICS Energy (Electricity)</p> <p>FROM Y4</p>	<p>Many household devices and appliances that make our lives easier run on electricity. Some that use a lot of energy plug in to the mains e.g. a cooker Others that need less energy run on batteries e.g. a torch. Batteries store electrical energy but it eventually gets used up. Mains electricity is dangerous and could kill you so plugs are made of plastic to insulate against electric shock. An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, the component will not work.</p>	<p>Electrical circuits containing a cell or battery connected using wires to component – such as bulbs and buzzers - can be built and tested to show they work. The circuit needs to be complete for the components to work. Experiments can show how a break in the circuit, a loose connection or a short circuit will all stop a component from working because the circuit is not complete. A switch can be added to control the flow of electricity and complete or break the circuit.</p>	<p>Metals are good electrical conductors so they can be used as wires in a circuit. Non-metallic solids are electrical insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity. [AS PART OF MATERIALS]</p>	<p>You can use recognised circuit symbols to draw simple circuit diagrams. Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. If you use a battery with a higher voltage, the same thing happens. Adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Making the wires in a circuit longer will also make a bulb dimmer, buzzer quieter and motor slower. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well.</p>

	Y3	Y4	Y5	Y6
<p>PHYSICS Astronomy</p> <p>Big ideas:</p> <p>1) The Sun and the eight planets (including Earth) that orbit it, make up our solar system.</p> <p>2) The movements of the Earth and its moon are where our different time periods (day, month, and year) come from.</p> <p>FROM Y5</p>	<p>The Earth <i>seems</i> flat but is approximately spherical. Lots of evidence – like satellite images or sailing west but ending up back where you started – proves this fact.</p> <p>The Moon and the Sun are also approximately spherical.</p> <p>The Earth is about four times bigger than the Moon. The Sun is about 100 times bigger than the Earth.</p> <p>The Moon and the Sun <i>seem</i> to be about the same size because the Sun is <i>much</i> further away.</p>	<p>The Sun is a star. It is at the centre of our solar system.</p> <p>It seems as though the Sun moves around the Earth and this is what people thought for many years.</p> <p>However the Earth orbits around the Sun once every 365 $\frac{1}{4}$ days. This gives us the time period of one year.</p> <p>There are eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune that travel around the Sun in different fixed orbits.</p>	<p>The Earth's moon is a natural satellite. It orbits the Earth once every 28 days. This gives us the time period of one month.</p> <p>The moon seems to change shape at different times in the month. These are called Moon phases and are caused by us seeing different amounts of sunlight reflected from the Moon depending on where it is in its orbit.</p> <p>Other planets also have moons.</p>	<p>The Earth rotates (spins) on its axis once every 24 hours. This gives us night and day.</p> <p>As Earth rotates, one half faces the Sun (day) and the other half is facing away from the Sun (night).</p> <p>As the Earth rotates, the Sun <i>appears</i> to move across the sky.</p>