LTP Subject: Science Subject Leads: Gemma Cheesman, Claire Stephens

Year: Reception

Topic/media/program	Skills (from progression of skills)
Animals, including humans	– Know the names of familiar animals (e.g. farm animals, pets and animals seen in storybooks.) – Know the main body parts of common animals (number of legs, wings, fur, tail). – Know that animals need food. – Know that animals, including humans use their senses to explore the world.
Living things and their habitats	– Know that animals and plants move, grow and feed. – Know the difference between things that are living and things that are non-living. – Know that some animals hibernate or store food in winter. – Know that plants and animals live in a range of different places. – Name some different places where animals live on the school site.
Plants	– Know that seeds grow into plants if taken care of. – know plants are alive. – know that seeds need water to grow. – Know the names of some familiar flowering plants (e.g. daisy, rose, sunflower, daffodil).
Forces, Earth and Space	– Know that some trees change in the four seasons. – Know some signs of each season (leaves on the ground, cold weather, daffodils growing and sunny weather.) – Know that some animals hibernate or store food in winter. – Know that the weather changes throughout the year. – Know and compare weather types (rain, sun, snow, wind).
Materials	– Know objects float or sink. – Know some objects move when pushed or pulled. – Know some objects freeze or melt.
Energy	– Know day is light because the sun is in the sky. – Know night is dark because the sun is not in the sky. – Know that shadows are created when something blocks the light. – Know about differences in sounds.

Year: 1

Topic/media/program	Skills (from progression of skills)
Seasons	-Each year we have 4 different seasons -We can see patterns in the weather during the different seasons -The days are longer in the summer and shorter in the winter -The temperature changes during the seasons
Ourselves and other animals	-There are many different animals with different characteristics -Animals have different body parts e.g. legs, fins tails -Thinking about what animals eat helps us sort animals into herbivores, carnivores and omnivores
Sorting and grouping materials	-There are different materials -Materials have describable properties -Different materials have different properties -We can compare and group materials using their properties
Growing plants	-There are lots of different types of wild and garden plants -Plants grow differently -Plants have different parts which vary across species
Sound and hearing	-We hear with our ears. Our hearing can help us to sense danger -We can make sounds in different ways by moving parts of our bodies -There are lots of different ways of making sound. We describe sounds in different ways -Sounds seem louder the nearer you are and fainter the further away from it you are
Senses	-identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Animals have different senses which help them survive. -When animals sense things they are able to respond

Year: 2

Topic/media/program	Skills (from progression of skills)
Health and growth	-Animals need a variety of food to help grow, repair their bodies, be active and stay healthy -Different animals move in different ways to survive -Animals have babies which grown into adults -To survive all animals need water, food and air -Animals grow until they reach maturity and then they can't grow larger
Forces and movement	-A force can make things stop, move faster of move slower -Pushes and pulls are types of forces -Larger masses take bigger pushes and pulls to move or stop them -Pushes and pulls can change the shape of things -Bigger pushes and pulls have bigger effects
Everyday materials	-The same material can be used to make lots of different types of object -Some materials are better suited for particular uses This can be measure through investigations -Materials can be changed by physical force
Living things in their habitat	-Some things are living; some were once living but are now dead and some things have never lived -Different animals and plants live in different places -There is variation between all living things -Living things are adapted to survive in different habitats -Animals find their food in the habitat they live in -Environmental change can affect plants and animals that live there
Plants	-Plants usually grow from seeds and bulbs -Plants need warmth, light and water to grow and survive -Flowering plants make seeds to reproduce and make more plants -Some plants die after producing seeds and others live for many generations
Electricity (Cams Hill)	We can group and sort appliances into those that use the amins ans those that use a battery supply We can test how electrical devices will only work if the circuit is complete Electricity can ber used to make things light up, heat up, produce sounds or move A switch can be used to control a circuit

Year: 3

Topic/media/program	Skills (from progression of skills)
Forces and magnets	-Most forces need control between 2 surfaces, but some are non-contact forces, like magnetism -Different surfaces can affect how far an object moves -Magnets exert attractive forces on some materials -Magnets exert attractive and repulsive forces on each other -Magnetic forces are affected by magnet strength, object mass, distance from object and object material -Magnets have 2 poles. Opposite poles attract and the same poles repel.
Feeding, moving and growing	-Different animals need different types of diet to stay healthy, grow and develop -Animals, including humans, cannot make their own food. We get nutrition from what we eat. -Humans need a balanced diet to stay healthy (children and adults need slightly different diets) -Many animals have skeletons to support their bodies and protect their vital organs -Movable joints connect bones -Muscles are connected to bones and move them when they contract, some work in pairs
Materials (rocks and soils)	-Materials can be divided into solids, liquids and gases -Rocks are a solid that have a range of physical properties which can be used to group them -Different types of rocks can be used for different jobs -Soils are made from rocks and organic materials -Fossils can be made when things that lived get trapped within rocks
Plants-seeds and bulbs	-Flowering plants have evolved specific parts to carry out pollination, fertilisation and seed growth -Seed dispersal improves chances of enough seeds germinating and growing to mature plants -Seeds and bulbs need to right conditions to germinate. They contain a food store for the first stages of growth (i.e. until the plant can produce its own food)
Helping plants grow well	-Plants have roots to provide support and to draw moisture and nutrients from the soil -Plants have stems to take water to the rest of the plant -Leaves absorb sunlight and carbon dioxide through leaves which they use to make food
Light and shadows	-We need light to see things, even shiny things -There must be light for us to see. Without light it is dark -Light comes from a source -Shiny materials reflect light beams better than non-shiny materials -Beams of light bounce off some materials (reflection) -Transparent materials let light through them and opaque object don’t which causes shadows to form -There are patterns in the way shadows can change when a light source moves or the distance changes -Light from the sun is dangerous. There are ways to protect our eyes

Year: 4

Topic/media/program	Skills (from progression of skills)
Habitats and survival	-Living things can be divided into groups based on their characteristics -There are many different types and sizes of habitats locally -Human activity significantly affects the environment -Environmental change affects different habitats and organisms differently
Keeping warm	-Temperature is a measure of how hot or cold things are and we often measure it in degrees Celsius (˚C) -Something hot will cool down (0r something cold will warm up) until it is the same temperature as its surroundings -Material such as metals are often good thermal conductors -Good thermal insulators can be used to help keep hot objects hot, or keep cool ones cold
Solids, liquids and gases	-Solids, liquids and gases are described by observable properties -Solids, liquids and gases are made up of particles. In solids they are close together, they are further apart in liquids and much further apart in gases -Heating causes solids to melt into liquids and liquids to evaporate to gases -Cooling causes gases to condense to liquids and liquids to freeze to solids -The temperature at which given substances change state are always the same
Electricity	-A source of electricity (mains or battery) is needed for electrical devices to work -Electricity sources push electricity round a circuit -A complete circuit is needed for electricity to flow and devices to work -A switch can open and close a circuit -More batteries will push the electricity round the circuit faster -Devices work harder when more electricity goes through them -Some materials allow electricity to flow easily and these are called conductors -Materials that don't allow electricity to flow easily are called insulators
Teeth and eating	-Different animals are adapted to eat different foods -Animals have teeth to help them eat. Different types of teeth do different jobs -Some foods and drinks can damage our teeth and gums. There are things we can do to stop this -Food is broken down by the teeth and further in the stomach and intestines where nutrients go into the blood. The blood takes nutrients around the body -Nutrients produced by plants move to primary consumers then to secondary consumers through food chains
Sound	-Sound is produced when an object vibrates -Sound moves through all materials by making them vibrate -Vibrations from a sound source travels through materials to the ear. They travel better through some materials than others -Changing the shape and the size of an object will change the sound it produces. We can change the pitch and the volume.

Year: 5

Topic/media/program	Skills (from progression of skills)

Dissolving	-When some materials are mixed, sometimes they change into a solution or a new substance -Some solids can dissolve in water to form solutions. Although you can't see it, it is still there -There are ways of helping a solid dissolve more quickly in a liquid -The more solid you dissolve. The more concentrated the solution. You will reach a limit where no more will dissolve
Reversible and irreversible changes Reversible and irreversible changes split into 2 blocks, is it OK?	-Dissolving is reversible. It can be reversed by filtering and/or evaporating -When mixtures react to create new substance it usually irreversible -Heating causes materials to change. Some of these changes are irreversible e.g. burning and baking
Forces	-Forces are of varying size. We can measure forces in newtons (N) -More than one force can act on an object. Forces can be represented by arrows in diagrams -Gravity is a force that acts from a distance. On Earth, it pulls unsupported objects towards the ground
Drag Forces Forces split into 2 blocks, is it OK?	-Drag forces resist movement. Friction, air resistance and water resistance are examples. -Friction is a force against motion caused by 2 surfaces rubbing against each other -Air resistance and water resistance are forces against motion caused by objects having to move air and water out of the way -Some objects require large forces to make them move; gears, pulleys and levers can reduce the force needed to move things
The earth in space	-There are eight planets that orbit the sun -The sun, moon and earth are all approximately spheres. Over time scientists have changed their ideas about our solar system -Stars, planets and moons have so much mass they attract other things due to gravity. Smaller mass objects like planets orbit larger mass objects like stars -The Earth takes about 365 days to orbit the sun. The other planets have different length orbits. -The Earth rotates on its axis every 24 hours as it orbits the sun. This rotation creates day and night and changes the length of shadows. The other planets have different length rotations. -The moon orbits the Earth every 28 days. Different amounts of sunlight get reflected to us at different times of the month, so it appears to change shape
Life cycles	-There are 7 characteristics used to describe living things -Different types of organisms have different life cycles -Life cycles have evolved to help organisms survive to adulthood -Different animals mature at different rates and live to different ages -Some organisms reproduce sexually and some reproduce asexually

Year: 6

Topic/media/program	Skills (from progression of skills)

Light and how we see	-Light travels in straight lines -Light travels in straight lines so shadows are the same shape as the objects that cast them -Light reflects off all objects. Non-shiny surfaces scatter the light so we don't see a single beam -Animals see objects when a light is reflected off that object and enters their eyes -Animal see light sources when light travels from the source to their eyes
Fuel for life - circulation	-The heart is made up of muscle. When it contracts it pumps blood around our arteries and veins -Muscles need oxygen to release the energy from food to do work • Oxygen is breathed into our lungs where it is absorbed by the blood • The heart pumps blood through blood vessels to muscles • The muscles take the oxygen and nutrients from the blood -During exercise our muscles work harder. Our pulse rate increases so more blood gets to the muscles -Diet, exercise, drugs and lifestyle can all have an impact on how ell your body works
Electricity	-Batteries are a store of energy. This energy pushes electricity round the circuit. When the battery's energy is gone it stops pushing. Voltage measures the 'push' -Current is how much electricity is flowing round a circuit -The greater the current flowing through a device the harder it works -When current flows through wires, heat is released. The greater the current the more heat is released
Classifying	Living things can be divided into groups based on their characteristics and their similarities and differences (build on year 4) Be able to give reasons for classifying plants and animals based on specific characteristics.
Evolution and inheritance pt 1 –Variation	-Variation exists within a population and between offspring of the same parents -competition exists for resources and mates -organisms best suited to their environment are more likely to survive long enough to reproduce
Evolution and inheritance pt 2 – Fossils and inheritance I broke up evolution and inheritance into 3 blocks – I'm happy for key ideas to be moved around though.	Fossils provide evidence that living things have changed over time -Over time the characteristics that are most suited to the environment become increasingly common Some organisms reproduce sexually where offspring inherit information from both parents and therefore have similar characteristics whereas some reproduce asexually by making a copy of a single parent (builds on year 5)