Sandown Primary School **Core Knowledge** **Subject: Science**

	EYFS and KS1			
	Nursery	**Reception**	**Year 1**	**Year 2**
Term 1	**Me and My Community** • Know that people change as they grow up from being babies, both in how they look and what they can do. • Know that litter is bad for where they live, work and play. • Know that they can look after their environment. **Exploring Autumn** • Know that the woodlands have animals and plants. • Know that trees have leaves and seeds. • Know that they can make pictures with leaves. • Know the names of different animals that live in the woods. • Know that they are lots of different animals and name some they have learnt. • Know that litter is bad for where they live, work and play. • Know that they can look after their environment.	**Let's Explore** • Know that they can make observations and draw pictures of animals and plants when exploring the natural world around them. • Know that a habitat is a place where animals and plants live. • Know that there are woodlands, gardens and pond habitats within our school. • Know that other habitats include hot places, such as deserts and cold places, such as the Arctic. • Know the names of some animals found in the school woodlands, gardens and pond. • Know the names of some animals in the shared texts. • Know that objects can be compared and grouped according to their shape, colour, texture or use.	**Everyday Materials** a. Know that a material is what an object is made from and that everyday materials include wood, plastic, glass, metal, water, rock, brick, paper and fabric. b. Know that objects can be looked at and compared according to their material. c. Know materials have different properties, such as hard or soft; stretchy or stiff; rough or smooth; opaque or transparent; bendy or rigid; waterproof or not waterproof d. Know that materials can be grouped according to their simple physical properties. *e. Know that question words include what, why, how, who, when, which* *f. Know that simple equipment - metre stick, measuring tape, egg timer and hand lens - is used to take measurements* *g. Know that simple tests can be carried out by following a set of instructions* *h. Know that objects, materials and living things can be compared.* *i. Know that results are information found out from an investigation* j. *Know that data can be recorded and displayed as tables, pictograms, Venn diagrams, drawings, diagrams*	**Human Survival** a. Know that human offspring go through different stages as they grow to become adults. These include baby, toddler, child, teenager, adult and elderly. b. Know that humans need water, food, air and shelter to survive. c. Know that a healthy lifestyle includes exercise, good personal hygiene, good quality sleep and a balanced diet. d. Know that there are some risks associated with an unhealthy lifestyle, including obesity, tooth decay and mental health problems. *e. Know that questions can help us find out about the world.* *f. Know that simple equipment is used to take measurements and observations. Examples include timers, hand lenses, metre sticks and trundle wheels.* *g. Know that tests can be carried out by following a set of instructions. A prediction is a guess at what might happen in an investigation.* *h. Know that objects, materials and living things can be looked at, compared and grouped according to their features.* *i. Know that results are information found out from an investigation and can be used to answer a question.* j. *Know that data can be recorded and displayed in different ways, including tables, charts, pictograms and drawings.*
Term 2	**Once Upon a Time** Know that living things change over time.	**Marvellous Machines** • Know that toy vehicles travel further on different surfaces in	**Human Senses** a. Know that the basic body parts are the head, arms, legs, nose, eyes, ears, mouth, hands and feet.	**Habitats** a. Know that local habitats include parks, woodland and gardens. Habitats beyond the locality include beaches, rainforests, deserts,

	Know that objects can be described. Know the names of different animals that live in the woods. Know that some materials are good for building structures with, and others are not. Know that some materials are good for keeping an object safe and others are not. **Sparkle and Shine** Know that food can come from animals or plants. Know that some materials are shiny, and some are not.	the outdoor area than on others. • Know that they can measure how far a toy vehicle travels by using lengths of string or using markers. • Know that some objects are magnetic, and others are not. • Know that some machines use electricity. • Know that electricity is dangerous and can only be explored when an adult provides safe equipment.	b. Know that the five senses are hearing, sight, smell, taste and touch. Ears are used to hear, eyes are used to see, the nose is used to smell, the tongue is used to taste and skin gives the sense of touch c. Know that objects, materials and living things can be looked at and compared. d. Know that different animal groups have some common body parts, such as eyes and a mouth, and some different body parts, such as fins or wings. *e. Know that question words include what, why, how, who, when, which* *f. Know that simple equipment - metre stick, measuring tape, egg timer and hand lens - is used to take measurements* *g. Know that simple tests can be carried out by following a set of instructions* *h. Know that objects, materials and living things can be compared.* *i. Know that results are information found out from an investigation* j. *Know that data can be recorded and displayed as tables, pictograms, Venn diagrams, drawings, diagrams*	oceans and mountains. All living things live in a habitat to which they are suited and it must provide everything they need to survive. b. Know that some living things are those that are alive. Dead things are those that were once living but are no longer. Some things have never been alive. c. Know that a habitat is a place where a living thing, both animals and plants, lives. A microhabitat is a very small habitat. d. Know that food chains show how living things depend on one another for food. All food chains start with a plant, followed by animals that either eat the plant or other animals. *e.* Know that animals need water, food, air and shelter to survive. Their habitat must provide all these things. *f. Know that questions can help us find out about the world.* *g. Know that simple equipment is used to take measurements and observations. Examples include timers, hand lenses, metre sticks and trundle wheels.* *h. Know that tests can be carried out by following a set of instructions. A prediction is a guess at what might happen in an investigation.* *i. Know that objects, materials and living things can be looked at, compared and grouped according to their features.* *j. Know that results are information found out from an investigation and can be used to answer a question.* *k. Know that data can be recorded and displayed in different ways, including tables, charts, pictograms and drawings.*

Sandown Primary School **Core Knowledge** **Subject: Science**

Term 3	**Starry Night** **Winter Wonderland**	**Long Ago** • Know that litter is harmful in the areas we live, work and play. • Know that people need to put their rubbish in the bin and not throw it on the ground. • Know that daily weather can be described as sunny, rainy, windy, cloudy, warm or cold. • Know that weather is warmer in the summer with more sunshine and colder in the winter with more snow and rain. • Know that people grow from being babies to adults. As people grow older, they look different and can do different things. • Know that a human body normally has a head, neck, body, 2 arms, 2 legs, 2 hands, 2 feet, 5 fingers and 5 toes. A human face has 2 eyes, a nose and a mouth. • Know that to draw a person you must usually include: a head, neck, body, 2 arms, 2 legs, 2 hands, 2 feet, 5 fingers and 5 toes. A human face has 2 eyes, a nose and a mouth. • Know objects can be compared and grouped according to their shape, colour, texture or use.	**Seasonal Changes** a. Know that the local environment is a habitat for living things and can change during the seasons. b. Know that there are four seasons: spring, summer, autumn and winter. c. Know that certain events and weather patterns happen in different seasons. d. Know that plants are living things and common plants include, flowers, bushes, fruit, vegetables, grasses and trees. e. Know that trees are either deciduous or evergreen. f. Know that deciduous trees lose their leaves in Autumn eg oak, maple, willow and ash and evergreen trees have leaves all year round eg holly and pine. g. Know the names of some common wild and garden flowers, bushes, fruit, vegetables and trees. h. Know that different types of weather include sunshine, rain, hail, wind, snow, fog, lightning, storm and cloud. i. Know that the weather can change daily and some weather types are more common in certain seasons, such as snow in winter j. Know that day length (the number of daylight hours) is longer in the summer months and shorter in the winter months. k. Know that simple equipment can be used for measuring weather, such as measuring temperature with a thermometer; identifying wind force and direction with a windsock; measuring rainfall with a rain gauge l. Know that temperature is the measure of how hot or cold something is *m. Know that question words include what, why, how, who, when, which*	**Uses of Materials** a. Know that materials found in the environment can be natural (rock, stone, water, sand, soil, water and clay) and man-made (brick, glass, plastic and concrete). b. Know that objects, materials and living things can be looked at, compared and grouped according to their properties. c. Know that some objects and materials can be changed by squashing, bending, twisting, stretching, heating. d. Know that a property is a quality a material has eg hard or soft e. Know that a material's properties make it suitable for particular purposes, such as glass for windows and brick for building walls. f. Know that many materials are used for more than one purpose, such as metal for cutlery and cars. g. Know that objects can be made from one material, more than one material or different materials with similar properties. *h. Know that questions can help us find out about the world.* *i. Know that simple equipment is used to take measurements and observations. Examples include timers, hand lenses, metre sticks and trundle wheels.* *j. Know that tests can be carried out by following a set of instructions. A prediction is a guess at what might happen in an investigation.* *k. Know that objects, materials and living things can be looked at, compared and grouped according to their features.* *l. Know that results are information found out from an investigation and can be used to answer a question.*

			n. Know that simple equipment - metre stick, measuring tape, egg timer and hand lens - is used to take measurements • *Know that simple tests can be carried out by following a set of instructions* • *Know that objects, materials and living things can be compared.* • *Know that results are information found out from an investigation* • *Know that data can be recorded and displayed as tables, pictograms, Venn diagrams, drawings, diagrams*	m. *Know that data can be recorded and displayed in different ways, including tables, charts, pictograms and drawings.*
Term 4	**Dangerous Dinosaurs** **Puddles and Rainbows**	**Ready Steady Grow** • Know that a habitat is a place where animals and plants live. • Know that there are woodlands, gardens and pond habitats within our school. • Know that other habitats include hot places, such as deserts and cold places, such as the Arctic. • Know that animals are living things and know the names of a wide range of farm animals. • Know that parent and baby animals include cow and calf, sheep and lamb, horse and foal, cat and kitten, dog and puppy, duck and duckling, chicken and chick, goose and gosling. • Know the names of a wide range of fruit and vegetables. • Know that food can come from plants or animals. Fruit and vegetables are from plants. Meat, milk and eggs are from animals. • Know that they can make observations and draw pictures of fruit and vegetables when exploring the natural world around them. • Know the parts of a flower are the stem, leaves, roots and flower.		**Plant Survival** a. Know that local habitats include parks, woodland and gardens. Habitats beyond the locality include beaches, rainforests, deserts, oceans and mountains. All living things live in a habitat to which they are suited and it must provide everything they need to survive. b. Know that objects, materials and living things can be looked at, compared and grouped according to their features. c. Know that a habitat is a place where a living thing lives. A microhabitat is a very small habitat. d. Know that plants grow from seeds and bulbs. Seeds and bulbs need water and warmth to start growing (germinate). As the plant grows bigger, it develops leaves and flowers. e. Know that plants need water, light and a suitable temperature to grow and stay healthy. Without any one of these things, they will die. *f. Know that questions can help us find out about the world.* *g. Know that simple equipment is used to take measurements and observations. Examples include timers, hand lenses, metre sticks and trundle wheels.* *h. Know that tests can be carried out by following a set of instructions. A prediction is a guess at what might happen in an investigation.* *i. Know that objects, materials and living things can be looked at, compared and grouped according to their features.*

		• Know the parts of a tree are the roots, trunk, branch and twig. • Know that plants need water and sunlight to grow. • Know that animals need food and water to live. • Know that a hand lens makes an object look larger. • Know that fruit and vegetables are healthy foods. • Know that food can change taste, texture and colour when it is cooked.		*j. Know that results are information found out from an investigation and can be used to answer a question.* k. *Know that data can be recorded and displayed in different ways, including tables, charts, pictograms and drawings.*
Term 5	**Sunshine and Sunflowers** **Shadows and Reflections**	**Animal Safari** • Know that they can make observations and draw pictures of animals when exploring the natural world around them. • Know the names of a wide range of animals studied. • Know that animals have some common body parts such as eyes and mouth and some have different body parts such as wings and fins. • Know that animals need food and water to live. • Know that a habitat is a place where plants and animals live. • Know that animals can be grouped according to simple body parts, habitat and movement. • Know that parent and baby animals include cow and calf, sheep and lamb, horse and foal, cat and kitten, dog and	**Plant Parts** a. Know that the local environment is a habitat for living things and can change during the seasons. b. Know that plants are living things and common plants include, flowers, bushes, fruit, vegetables, grasses and trees. c. Know that trees are either deciduous or evergreen. d. Know that deciduous trees lose their leaves in Autumn eg oak, maple, willow and ash and evergreen trees have leaves all year round eg holly and pine. e. Know that the basic plant parts include root, stem, leaf, flower, petal, seed and bulb. f. Know that the woody stem of a tree is called the trunk and the smaller woody parts are called branches. g. Know the names of some common wild and garden flowers, bushes, fruit, vegetables and trees. *h. Know that question words include what, why, how, who, when, which*	**Animal Survival** a. Know that local habitats include parks, woodland and gardens. Habitats beyond the locality include beaches, rainforests, deserts, oceans and mountains. All living things live in a habitat to which they are suited and it must provide everything they need to survive. b. Know that a habitat is a place where a living thing lives. A microhabitat is a very small habitat. c. Know that objects, materials and living things can be looked at, compared and grouped according to their features. d. Know that animals need water, food, air and shelter to survive. Their habitat must provide all these things. e. Know that food chains show how living things depend on one another for food. All food chains start with a plant, followed by animals that either eat the plant or other animals. f. Know that animals have offspring that grow into adults. Different animals have different stages of growth or life cycles. *g.* Know that the UK has typical weather in each of the seasons. For example, winter is cold

		puppy, duck and duckling, chicken and chick, goose and gosling. • Know that animals eat different kinds of food. • Know that to draw familiar animals, you must include all the main body parts. • Know that different animals live in our school grounds to other habitats i.e. the rainforest, the Serengeti. • Know that litter is harmful in the areas we live, work and play. • Know that people need to put their rubbish in the bin and not throw it on the ground.	*i. Know that simple equipment - metre stick, measuring tape, egg timer and hand lens - is used to take measurements* *j. Know that simple tests can be carried out by following a set of instructions* *k. Know that objects, materials and living things can be compared.* *l. Know that results are information found out from an investigation* m. *Know that data can be recorded and displayed as tables, pictograms, Venn diagrams, drawings, diagrams*	and sometimes frosty, whereas summer is warm and sometimes sunny. *h.* Know the names of a variety of plants and animals studied in their habitats, including microhabitats i. Know that a material's physical properties make it suitable for particular purposes, such as glass for windows and brick for building walls. Many materials are used for more than one purpose, such as metal for cutlery and cars. *j. Know that questions can help us find out about the world.* *k. Know that simple equipment is used to take measurements and observations. Examples include timers, hand lenses, metre sticks and trundle wheels.* *l. Know that tests can be carried out by following a set of instructions. A prediction is a guess at what might happen in an investigation.* *m. Know that objects, materials and living things can be looked at, compared and grouped according to their features.* *n. Know that results are information found out from an investigation and can be used to answer a question.* *o. Know that data can be recorded and displayed in different ways, including tables, charts, pictograms and drawings.*
Term 6	**Big Wide World** **Splash!**	**On the Beach** • Know that they can make observations and draw pictures of animals when exploring the natural world around them. • Know that a habitat is a place where animals and plants live. • Know that there are beach, rockpool and sea habitats near our school. • Know the names of some natural objects found on the beach e.g. pebbles, sand, clay, driftwood, seaweed • Know the names of a wide range of animals studied. • Know that litter is harmful in the areas we live, work and play.	**Animal Parts** a. Know that animals are living things and can be sorted into 6 main groups: fish, amphibians, reptiles, birds, invertebrates and mammals. b. Know the names of a range of animals, including pets, animals found within the local environment, the UK and in other countries. c. Know that animals can be sorted and grouped according to their features. d. Know that animals can be carnivores which eat other animals (meat), herbivores which eat plants or omnivores which eat other animals and plants. e. Know that animal groups have some common body parts such as eyes and mouth and some have different body parts such as wings and fins *f. Know that question words include what, why, how, who, when, which*	

		• Know that people need to put their rubbish in the bin and not throw it on the ground. • Know that animals eat different kinds of food. • Know that animals have some common body parts such as eyes and mouth and some have different body parts such as wings and fins. • Know that other habitats include hot places, such as deserts and cold places, such as the Arctic. • Know that objects can be compared and grouped according to their shape, colour, texture or use. • Know that a hand lens makes an object look larger.	*g. Know that simple equipment - metre stick, measuring tape, egg timer and hand lens - is used to take measurements* *h. Know that simple tests can be carried out by following a set of instructions* *i. Know that objects, materials and living things can be compared.* *j. Know that results are information found out from an investigation* k. *Know that data can be recorded and displayed as tables, pictograms, Venn diagrams, drawings, diagrams*	

Sandown Primary School **Core Knowledge** **Subject: Science**

	KS2			
	Year 3	**Year 4**	**Year 5**	**Year 6**
Term 1	**Animal Nutrition and the Skeletal System** a. Know that animals cannot make their own food and need to get nutrition from the food they eat. Carnivores get their nutrition from eating other animals. Herbivores get their nutrition from plants. Omnivores get their nutrition from eating a combination of both plants and other animals. b. Know that humans have to get nutrition from what they eat. It is important to have a balanced diet made up of the main food groups, including proteins, carbohydrates, fruit and vegetables, dairy products and alternatives, and fats and spreads. Humans need to stay hydrated by drinking water. c. Know that humans have a skeleton and muscles for movement, support and protecting organs. Know the names of some major bones and major muscle groups. d. Know that some animals have skeletons for support, movement and protection. Some skeletons are found inside some animals, such as humans, cats and horses. Some skeletons are found on the outside of some animals, such as beetles and flies. Some animals have no skeleton, such as slugs and jellyfish. e. Know that animals can be compared and grouped according to their type of skeleton. *f. Know that questions can help us find out about the world and can be answered in different ways.*	**Food and the Digestive System** a. Know that food chains show what animals eat within a habitat. All food chains start with a producer, which is typically a green plant. The producer is eaten by a primary consumer (prey), which is eaten by a secondary consumer (predator/prey), which is eaten by a tertiary consumer (predator). b. Know that habitats change over time, either due to natural or human influences. Natural influences include extreme or unseasonable weather. Human influences include habitat destruction or pollution. These changes can pose a risk to animals and plants that live in the habitat. c. Know that the main parts of the digestive system are the mouth, oesophagus, stomach, and rectum. The mouth starts digestion by chewing food and mixing it with saliva. The oesophagus transports the chewed food to the stomach, where it mixes with stomach acid and gets broken down into smaller pieces. In the small intestine, nutrients from the food are absorbed by the body. In the large intestine, water is absorbed by the body. The remaining undigested waste is stored in the rectum before excretion through the anus.	**Forces and Mechanisms** a. Know that gravity is a force of attraction and that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. b. Know that friction, air resistance and water resistance are forces that change the direction and slow down moving objects. Know that these forces can be useful in everyday life. c. Know that mechanisms, such as levers, pulleys and gears, allow a smaller force to have a greater effect; therefore, giving a mechanical advantage. *d. Know that questions can help us find out about the world and can be answered using a range of scientific enquiries.* *e. Know that specialised equipment is used to take measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C), and measuring tapes (millimetres, centimetres, metres). A force meter can be used to measure an object's mass in grams (g) or kilograms (kg) and its weight in newtons (N).*	**Circulatory System** a. Know that the role of the circulatory system is to transport oxygen, water and nutrients around the body. They are transported in blood and delivered to where they are needed. b. Know that the circulatory system includes the heart, blood vessels and blood. The heart pumps blood through the blood vessels and around the body. The blood carries gases (oxygen and carbon dioxide), water and nutrients to where they are needed. c. Know that lifestyle choices can have a positive (exercise and eating healthily) or negative (drugs, smoking and alcohol) impact on the body. d. Know that diet, exercise, drugs and lifestyle has an impact on the way their bodies function. *e. Know that questions can help us find out about the world and can be answered using a range of scientific enquiries, including fair tests, research and observation.* *f. Know that specialised equipment is used to take accurate measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers*

	g. Know that an observation involves looking closely at objects, materials and living things, which can be compared and grouped according to their features. *h. Know that tests can be set up and carried out by following or planning a set of instructions. A prediction is a best guess for what might happen in an investigation based on some prior knowledge.* *i. Know that results are information that has been discovered as part of an investigation. A conclusion is the answer to a question that uses the evidence collected.* j. *Know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.*	d. Know that there are four different types of teeth: incisors, canines, premolars and molars. Incisors are used for cutting. Canines are used for tearing. Premolars and molars are used for grinding and chewing. e. Know that regular teeth brushing, limiting sugary foods and visiting the dentist are important for good oral hygiene. *f. Know that questions can help us find out about the world and can be answered using scientific enquiry.* *g. Know that equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C), and metre sticks, rulers or trundle wheels (millimetres, centimetres, metres).* *h. Know that scientific enquiries can be set up and carried out by following or planning a method. A prediction is a statement about what might happen in an investigation, based on some prior knowledge or understanding. A fair test is one in which only one variable is changed and all others remain constant.* *i. Know that an observation involves looking closely at objects, materials and living things. Observations can be made regularly to identify changes over time.* *j. Know that results are information, such as data or observations, that have been found out from an investigation. A conclusion is the answer to a question that uses the evidence collected.*	*f. Know that a method is a set of clear instructions for how to carry out a scientific investigation. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.* *g. Know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time.* *h. Know that the results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered using evidence collected.* *i. Know that data can be recorded and displayed in different ways, including tables, bar and line graphs, classification keys and labelled diagrams.*	*(°C) and measuring tapes (millimetres, centimetres, metres).* *g. Know that a method is a set of clear instructions for how to carry out a scientific investigation, including what equipment to use and observations to make. A variable is something that can be changed during a fair test. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.* *h. Know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time, identify processes and make comparisons.* *i. Know that the results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered, using correct, precise terminology and collected evidence.* *j. Know that data can be recorded and displayed in different ways, including tables, bar and line charts, scatter graphs, classification keys and labelled diagrams.*

		k. *Know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.*		
Term 2		**Sound** a. Know that when an instrument is played, the air around or inside it vibrates. b. Know that these vibrations travel through a medium, such as air or water, to the ear. c. Know that pitch is how high or low a sound is. Parts of an instrument that are shorter, tighter or thinner produce high-pitched sounds. Parts of an instrument that are longer, looser or fatter produce low-pitched sounds. d. Know that volume is how loud or quiet a sound is. The harder an instrument is hit, plucked or blown, the stronger the vibrations and the louder the sound. e. Know that sounds are louder closer to the sound source and fainter as the distance from the sound source increases. f. Know that the volume of sound is measured in decibels (dB). *a. Know that questions can help us find out about the world and can be answered using scientific enquiry.* *b. Know that equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C), and*	**Earth and Space** a. Know that the Solar System is made up of the Sun and everything that orbits around it. There are eight planets in our Solar System: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. b. Know that the Earth orbits around the Sun and a year (365.25 days) is the length of time it takes for Earth to complete a full orbit. c. Know that the Moon orbits Earth, completing a full orbit every month (27.3 days). d. The Sun, Earth, Moon and the planets in our solar system are roughly spherical. e. As Earth orbits the Sun, it also spins on its axis. It takes Earth a day (24 hours) to complete a full spin. During the day, the Sun appears to move through the sky. However, this is due to the Earth rotating and not the Sun moving. As Earth rotates, different parts of it face the Sun, which brings what we call daytime. The part facing away is in shadow, which is night time. *f. Know that questions can help us find out about the world and can be answered using a range of scientific enquiries.* *g. Know that specialised equipment is used to take measurements in*	

		metre sticks, rulers or trundle wheels (millimetres, centimetres, metres). *c. Know that scientific enquiries can be set up and carried out by following or planning a method. A prediction is a statement about what might happen in an investigation, based on some prior knowledge or understanding. A fair test is one in which only one variable is changed and all others remain constant.* *d. Know that an observation involves looking closely at objects, materials and living things. Observations can be made regularly to identify changes over time.* *e. Know that results are information, such as data or observations, that have been found out from an investigation. A conclusion is the answer to a question that uses the evidence collected.* *f. Know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.*	*standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C), and measuring tapes (millimetres, centimetres, metres). A force meter can be used to measure an object's mass in grams (g) or kilograms (kg) and its weight in newtons (N).* *h. Know that a method is a set of clear instructions for how to carry out a scientific investigation. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.* *i. Know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time.* *j. Know that the results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered using evidence collected.* *k. Know that data can be recorded and displayed in different ways, including tables, bar and line graphs, classification keys and labelled diagrams.*	

Sandown Primary School **Core Knowledge** **Subject: Science**

	Forces and Magnets	States of Matter	Human Reproduction and Ageing	Electrical Circuits and Components
Term 3	a. Know that friction is a force between two surfaces as they move over each other. Friction slows down a moving object. Smooth surfaces usually generate less friction than rough surfaces. b. Know that an object will not move unless a pushing or pulling force is applied. Some forces require direct contact, whereas other forces can act at a distance, such as magnetic force. c. Know that some materials have magnetic properties. Magnetic materials are attracted to magnets. All magnetic materials are metals but not all metals are magnetic. Iron is a magnetic metal. d. Know that magnets have two poles (north and south). Opposite poles (north and south) attract each other, while like poles (north and north, or south and south) repel each other. e. Know that a force meter is a piece of equipment that measures a force or mass. Forces are measured in newtons (N). Mass is measured in kilograms (kg). *f. Know that questions can help us find out about the world and can be answered in different ways.* *g. Know that an observation involves looking closely at objects, materials and living things, which can be compared and grouped according to their features.* *h. Know that tests can be set up and carried out by following or planning a set of instructions. A prediction is a best guess for what might happen in an investigation based on some prior knowledge.*	a. Know that materials can be grouped according to whether they are solids, liquids or gases. b. Know that solids stay in one place and can be held. Some solids can be squashed, bent, twisted and stretched. Examples of solids include wood, metal, plastic and clay. Liquids move around (flow) easily and are difficult to hold. Liquids take the shape of the container in which they are held. Examples of liquids include water, juice and milk. Gases spread out to fill the available space and cannot be held. Examples of gases include oxygen, helium and carbon dioxide. Air is a mixture of gases. c. Know that heating or cooling materials can bring about a change of state. This change of state can be reversible or irreversible. d. Know that the temperature at which materials change state varies depending on the material. e. Know that water changes state from solid (ice) ⇌ liquid (water) at 0°C and from liquid (water) ⇌ gas (water vapour) at 100°C. f. Know that the process of changing from a solid to liquid is called melting. The reverse process of changing from a liquid to a solid is called freezing. The process of changing from a liquid to a gas is called evaporation. The reverse process of changing from a gas to a liquid is called condensation.	a. Know that a life cycle is the series of changes in the life of a living thing and includes these basic stages: birth, growth, reproduction and death. Mammals' life cycles include the stages: embryo, juvenile, adolescent and adult. Amphibians' life cycles include the stages: egg, larva (tadpole), adolescent and adult. Some insects' (butterflies, beetles and bees) life cycles include the stages: egg, larva, pupa and adult. Birds' life cycles include the stages: egg, baby, adolescent and adult. b. Know that humans reproduce, which involves two parents (one female and one male) and produces offspring that are different from the parents. c. Know that reproduction is the process of producing offspring and is essential for the continued survival of a species. d. Know that humans go through characteristic stages as they develop towards old age. These stages include baby, infant, toddler, child, adolescent, young adult, adult and senior citizen. e. Know that puberty is the transition between childhood and adulthood, during which adolescents reach sexual maturity and become capable of reproduction. It causes physical and emotional changes. f. Know that good personal hygiene (washing, wearing clean clothes and	a. Know that voltage is measured in volts (V). The more voltage flowing through a lamp, buzzer or motor, the brighter the lamp, the louder the buzzer and the faster the motor. b. Know that a series circuit needs a power source, such as a battery or cell, with wires connected to both the positive and negative terminals. Other components include lamps, buzzers or motors, which an electric current passes through and affects a response, such as lighting a lamp or turning a motor. c. Know that when a switch is open, it creates a gap and the current cannot travel around the circuit. When a switch is closed, it completes the circuit and allows a current to flow all the way around it. d. Know that there are recognised symbols for different components of circuits when constructing and drawing circuits. *e. Know that questions can help us find out about the world and can be answered using a range of scientific enquiries, including fair tests, research and observation.* *f. Know that specialised equipment is used to take accurate measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C) and measuring tapes (millimetres, centimetres, metres).*

	i. Know that results are information that has been discovered as part of an investigation. A conclusion is the answer to a question that uses the evidence collected. *j. Know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.* **Rocks, Relics and Rumbles** a. Know that rocks can be compared and grouped together on the basis of their appearance and simple physical properties eg, colour, texture, hardness, absorbs water. b. Know that fossils form when a living thing dies in a watery environment. The body gets covered by mud and sand and the soft tissues rot away. Over millions of years, the ground hardens to form rock and the skeletal or shell remains turn to rock. Scientists can use fossils to find out what life on Earth was like in prehistoric times. c. Know that soils are made from tiny pieces of eroded rock, air and organic matter.	*l. Know that questions can help us find out about the world and can be answered using scientific enquiry.* *m. Know that equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C), and metre sticks, rulers or trundle wheels (millimetres, centimetres, metres).* *n. Know that scientific enquiries can be set up and carried out by following or planning a method. A prediction is a statement about what might happen in an investigation, based on some prior knowledge or understanding. A fair test is one in which only one variable is changed and all others remain constant.* *o. Know that an observation involves looking closely at objects, materials and living things. Observations can be made regularly to identify changes over time.* *p. Know that results are information, such as data or observations, that have been found out from an investigation. A conclusion is the answer to a question that uses the evidence collected.* *q. Know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.*	brushing teeth) can prevent disease or illness. *g. Know that questions can help us find out about the world and can be answered using a range of scientific enquiries.* *h. Know that specialised equipment is used to take measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C), and measuring tapes (millimetres, centimetres, metres). A force meter can be used to measure an object's mass in grams (g) or kilograms (kg) and its weight in newtons (N).* *i. Know that a method is a set of clear instructions for how to carry out a scientific investigation. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.* *j. Know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time.* *k. Know that the results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered using evidence collected.*	*g. Know that a method is a set of clear instructions for how to carry out a scientific investigation, including what equipment to use and observations to make. A variable is something that can be changed during a fair test. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.* *h. Know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time, identify processes and make comparisons.* *i. Know that the results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered, using correct, precise terminology and collected evidence.* *j. Know that data can be recorded and displayed in different ways, including tables, bar and line charts, scatter graphs, classification keys and labelled diagrams.*

		Misty Mountains and Winding Rivers a. Know that the water cycle has four stages: evaporation, condensation, precipitation and collection. Water in lakes, rivers and streams is warmed by the Sun, causing the water to evaporate and rise into the air as water vapour. As the water vapour rises, it cools and condenses to form water droplets in clouds. The clouds become full of water until the water falls back to the ground as precipitation (rain, hail, snow and ice). The fallen water collects back in lakes, rivers and streams. b. Know that evaporation and condensation are caused by temperature changes. **c.** Know that humans can affect habitats in negative ways, such as littering, pollution and land development, or positive ways, such as garden ponds, bird boxes and wildflower areas.	*l. Know that data can be recorded and displayed in different ways, including tables, bar and line graphs, classification keys and labelled diagrams.*	
Term 4		Grouping and Classifying a. Know that scientists classify living things according to shared characteristics. b. Know that animals can be divided into six main groups: mammals, reptiles, amphibians, birds, fish and invertebrates. c. Know that these groups can be further subdivided. d. Know that classification keys are scientific tools that aid the identification of living things.		

		e. *Know that questions can help us find out about the world and can be answered using scientific enquiry.* f. *Know that equipment is used to take measurements in standard units. Examples include data loggers plus sensors, timers (seconds, minutes and hours), thermometers (°C), and metre sticks, rulers or trundle wheels (millimetres, centimetres, metres).* g. *Know that scientific enquiries can be set up and carried out by following or planning a method. A prediction is a statement about what might happen in an investigation, based on some prior knowledge or understanding. A fair test is one in which only one variable is changed and all others remain constant.* h. *Know that an observation involves looking closely at objects, materials and living things. Observations can be made regularly to identify changes over time.* i. *Know that results are information, such as data or observations, that have been found out from an investigation. A conclusion is the answer to a question that uses the evidence collected.* j. *Know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.*		

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Term 5	**Plant Nutrition and Reproduction** a. Know that the plant's roots anchor the plant in the ground and transport water and minerals from the ground to the plant. Know that the stem (or trunk) supports the plant above the ground. Know that the leaves collect energy from the Sun and make food for the plant. Know that flowers make seeds to produce new plants. b. Know that plants need air, light, water, minerals from the soil and room to grow, in order to survive. Different plants have different needs depending on their habitat. Examples include cacti, which need less water than is typical, and ferns, which can grow in lower light levels. c. Know that water is transported in plants from the roots, through the stem and to the leaves. d. Know that flowers are important in the life cycle of flowering plants. The processes of a plant's life cycle include pollination, seed formation and seed dispersal. Insects and the wind can transfer pollen from one plant to another (pollination). Animals, wind, water and explosions can disperse seeds away from the parent plant (seed dispersal). *k. Know that questions can help us find out about the world and can be answered in different ways.* *l. Know that an observation involves looking closely at objects, materials and living things, which can be compared and grouped according to their features.* *m. Know that tests can be set up and carried out by following or planning a set of instructions. A prediction is a best guess for what might happen in an investigation based on some prior knowledge.*	**Electrical Circuits and Conductors** a. Know that electricity is a type of energy. It is used to power many everyday items, such as kettles, computers and televisions. Electricity can also come from batteries. Batteries eventually run out of power and need to be recycled or recharged. Batteries power devices that can be carried around, such as mobile phones and torches. b. Know that electrical components include cells, wires, lamps, motors, switches and buzzers. c. Know that switches open and close a circuit and provide control. d. Know that a simple series circuit is a simple loop with only one path for the electricity to flow. A series circuit must be a complete loop to work and have a source of power from a battery or cell. e. Know that electrical conductors allow electricity to flow through them, whereas insulators do not. Common electrical conductors are metals. Common insulators include wood, glass, plastic and rubber. f. Know that working with electrical circuits can be dangerous. Precautions include not touching electrical components with wet hands. *g. Know that questions can help us find out about the world and can be answered using scientific enquiry.* *h. Know that equipment is used to take measurements in standard units. Examples include data loggers plus*	**Properties and Changes of Materials** a. Know that materials can be grouped according to their basic physical properties. Properties include hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism. b. Know that thermal conductors conduct heat. Solid metals are good thermal conductors. Solids, such as plastic, wood and glass do not conduct heat. They are thermal insulators. c. Know that some materials (solutes) will dissolve in liquid (solvents) to form a solution. The solute can be recovered by evaporating off the solvent by heating. d. Know that dissolving is when a solute becomes incorporated into a solvent and can no longer be seen. e. Know that some mixtures can be separated by filtering, sieving and evaporating. Sieving can be used to separate large solids from liquids and some solids from other solids. Filtering can be used to separate small solids from liquids. Evaporating can be used to separate dissolved solids from liquids. f. Know that a material's properties dictate what it can be used for. For example, cooking pans are made from metal, which is a good thermal conductor, allowing heat to quickly transfer from the hob to the contents of the pan. g. Know that reversible changes include heating, cooling, melting, dissolving and evaporating.	**Light Theory** a. Know that light travels in straight lines. b. Know that objects reflect light into our eyes. c. Know that an object can be seen because light travels from light sources to objects and then to our eyes in straight lines. d. Know that a shadow appears when an object blocks the passage of light. Apart from some distortion or fuzziness at the edges, shadows are the same shape as the object. e. Know that lasers are intense beams of light and they should never be pointed at people's faces or aircraft. f. Know that mirrors and lenses are used in a range of everyday objects (telescopes, periscopes, cars and on roads). *g. Know that questions can help us find out about the world and can be answered using a range of scientific enquiries, including fair tests, research and observation.* *h. Know that specialised equipment is used to take accurate measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C) and measuring tapes (millimetres, centimetres, metres).* *i. Know that a method is a set of clear instructions for how to carry out a scientific investigation, including what equipment to use and observations to make. A variable is*

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	n. Know that results are information that has been discovered as part of an investigation. A conclusion is the answer to a question that uses the evidence collected. *o. Know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.*	*sensors, timers (seconds, minutes and hours), thermometers (°C), and metre sticks, rulers or trundle wheels (millimetres, centimetres, metres).* *i. Know that scientific enquiries can be set up and carried out by following or planning a method. A prediction is a statement about what might happen in an investigation, based on some prior knowledge or understanding. A fair test is one in which only one variable is changed and all others remain constant.* *j. Know that an observation involves looking closely at objects, materials and living things. Observations can be made regularly to identify changes over time.* *k. Know that results are information, such as data or observations, that have been found out from an investigation. A conclusion is the*	h. Know that irreversible changes include burning, rusting, decaying and chemical reactions. i. Know that very hot and very cold materials can burn skin. Heating materials should be done safely. *j. Know that questions can help us find out about the world and can be answered using a range of scientific enquiries.* *k. Know that specialised equipment is used to take measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C), and measuring tapes (millimetres, centimetres, metres). A force meter can be used to measure an object's mass in grams (g) or kilograms (kg) and its weight in newtons (N).* *l. Know that a method is a set of clear instructions for how to carry out a*	*something that can be changed during a fair test. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.* *j. Know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time, identify processes and make comparisons.* *k. Know that the results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered, using correct, precise terminology and collected evidence.* *l. Know that data can be recorded and displayed in different ways, including tables, bar and line charts, scatter graphs, classification keys and labelled diagrams.*

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Term 6	**Light and Shadows** a. Know that dark is the absence of light and we need light to be able to see. b. Know that light can be reflected from different surfaces. Some surfaces are poor reflectors, such as some fabrics, while other surfaces are good reflectors, such as mirrors. c. Know that light from the Sun is damaging for vision and the skin. Protection from the Sun includes sun cream, sun hats, sunglasses and staying indoors or in the shade. d. Know that a shadow is formed when light from a light source, such as the Sun, is blocked by an object. e. Know that shadows change shape and size when the light source moves. For example, when the light source is high above the object, the shadow is short and when the light source is low down, the object's shadow is long. *m. Know that questions can help us find out about the world and can be answered in different ways.* *n. Know that an observation involves looking closely at objects, materials and living things, which can be compared and grouped according to their features.* *o. Know that tests can be set up and carried out by following or planning a set of instructions. A prediction is a best guess for what might happen in an investigation based on some prior knowledge.* *p. Know that results are information that has been discovered as part of an investigation. A conclusion is the answer to a question that uses the evidence collected.*	*answer to a question that uses the evidence collected.* *l. Know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.*	*scientific investigation. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.* *m. Know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time.* *n. Know that the results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered using evidence collected.* *o. Know that data can be recorded and displayed in different ways, including tables, bar and line graphs, classification keys and labelled diagrams.*	**Evolution and Inheritance** a. Know that scientists classify living organisms into broad groups according to their characteristics, including microorganisms, plants and animals. Vertebrates are an example of a classification group. b. Know that scientists compare fossilised remains from the past to living species that exist today to hypothesise how living things have evolved over time. Humans and apes share a common ancestry and evidence for this comes from fossil discoveries and genetic comparison. c. Know that animals that reproduce generate new offspring of the same kind but normally offspring vary and are not identical to their parents. d. Know that an adaptation is a physical or behavioural trait that allows a living thing to survive in their environment. e. Know that adaptations evolve by natural selection and that this may lead to evolution. *f. Know that questions can help us find out about the world and can be answered using a range of scientific enquiries, including fair tests, research and observation.* *g. Know that specialised equipment is used to take accurate measurements in standard units. Examples include data loggers plus sensors, such as light (lux), sound (dB) and temperature (°C); timers (seconds, minutes and hours); thermometers (°C) and measuring tapes (millimetres, centimetres, metres).*

	q. *Know that data can be recorded and displayed in different ways, including tables, charts, graphs and labelled diagrams. Data can be used to provide evidence to answer questions.*			h. *Know that a method is a set of clear instructions for how to carry out a scientific investigation, including what equipment to use and observations to make. A variable is something that can be changed during a fair test. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.* i. *Know that an observation involves looking closely at objects, materials and living things. Accurate observations can be made repeatedly or at regular intervals to identify changes over time, identify processes and make comparisons.* j. *Know that the results are information, such as measurements or observations, that have been collected during an investigation. A conclusion is an explanation of what has been discovered, using correct, precise terminology and collected evidence.* k. *Know that data can be recorded and displayed in different ways, including tables, bar and line charts, scatter graphs, classification keys and labelled diagrams.*