

Year 1: Autumn 1

Biology: Plants



	Required prior knowledge	Knowledge to be explicitly taught	How knowledge will be built upon
Substantive	<ul style="list-style-type: none"> • There are differences in the wildlife we see and the weather in spring and winter (Rec Spr2). • Some plants have flowers (Rec Spr2). 	<ul style="list-style-type: none"> • A plant is a living thing that usually grows in one place. • Coniferous plants keep their leaves all year round (e.g. pine, yew, juniper in UK). • Deciduous plants lose their leaves in winter (e.g. oak, silver birch, horse chestnut, sycamore, ash). • Trees are a type of plant that have a tall stem made of wood. • The basic parts of a plant are leaves, flowers, roots, stem/trunk/branch. 	<ul style="list-style-type: none"> • Plant growth from germination (Y2). • Requirements for plant life (Y2, Y3). • Purpose of leaves, stem/trunk, roots and flowers (Y3). • Coniferous trees transport their seeds in cones; deciduous trees use seeds and flowers/fruit (Y3 Spr) • Classifying plants (Y4).
Disciplinary	<ul style="list-style-type: none"> • M&O: Measure/observe using senses (N3-4). • R&P: Use hoops to classify objects based on simple criteria (N3-4). 	<p><i>Draw and label a scientific diagram of a plant</i></p> <ul style="list-style-type: none"> • R&P: Draw a diagram, a simple scientific drawing that explains or informs. <p><i>Classify trees as deciduous or coniferous using images of them at different times in the year</i></p> <ul style="list-style-type: none"> • R&P: Use a table to classify items based on properties. 	<ul style="list-style-type: none"> • R&P: Use Carroll diagrams (Y1 Spr), Venn diagrams (Y1 Sum), and a pair of axes (Y2) to classify items based on properties.
VCs	<ul style="list-style-type: none"> • 5A: Geographical features include beach, hill, forest, sea and river (EYFS). 	<ul style="list-style-type: none"> • 5A: Some plants grow in soil. • 7: Plants are organised with roots, stem, leaves and flowers. 	<ul style="list-style-type: none"> • 5A: Geography – Describe other physical features in our local area, including river, forest, soil and hill and coastal features of beach, cliff, sea and ocean (Y1). • 7: Humans are organised with organs like hearts and lungs, which do particular jobs. The skeleton and muscles allow the body to move (Y3).

Year 1: Autumn 2

Biology & Physics: Seasonal Changes



	Required prior knowledge	Knowledge to be explicitly taught	How knowledge will be built upon
Substantive	<ul style="list-style-type: none"> Types of weather include sunny, rainy, windy and snowy (N3-4 Aut1). Identify appropriate clothes to go outside in different types of weather (N3-4 Aut1). Some animals, like bears, hibernate in the winter (N3-4 Aut1). There are differences in the wildlife we see and the weather in spring and winter (Rec Spr2). Coniferous plants keep their leaves all year round (e.g. pine, yew, juniper in UK) (Y1 Aut). Deciduous plants lose their leaves in winter (e.g. oak, silver birch, horse chestnut, sycamore, ash) (Y1 Aut). Geography: We live on the Earth (Y1 Aut). 	<ul style="list-style-type: none"> Weather is a description of what the conditions are like in a particular place. Examples of weather include sunny, rainy, windy, warm, cold, cloudy, drizzle, snow, stormy (with thunder and lightning). The weather can change rapidly in one day (e.g. sunny morning and rainy afternoon). The UK and our local area have daily weather patterns. Extreme weather is very different from the weather that you would usually expect to see in the country. There are four seasons: spring, summer, autumn and winter. The weather changes gradually as we move from season to season. Recognise differences between four seasons in terms of living things (trees lose leaves; flowers drop and we see different animals, such as butterflies in the summer). Daytime is when the Earth is facing the Sun; nighttime is when the Earth is facing away from the Sun. In the summer that there are more hours of daylight and in winter there are fewer hours of daylight. The Moon is more visible at night. 	<ul style="list-style-type: none"> Earth rotates in 24 hours, meaning that only half of the Earth is facing the Sun at any one time; this creates night and day (Y5 Sum). The Moon orbits the Earth in 28 days and, during this time, the sun shines on different parts (Y5 Sum). Seasons are caused by the Earth's tilt (KS3).
Disciplinary		<p>Conduct geographical/scientific fieldwork and observe/collect data about the weather.</p> <ul style="list-style-type: none"> A&P: Scientists and geographers look for patterns in the world around them. R&P: Record numerical or descriptive observations in a table. <p>Use information from images of four seasons to identify and record differences in wildlife and weather in four seasons</p> <ul style="list-style-type: none"> M&O: Gather information from text/books/images. 	<ul style="list-style-type: none"> A&P: Scientists look for patterns in data to try to identify correlations (Y5). M&O: Gather information from the internet (Y3).
VCs	<ul style="list-style-type: none"> 5B: Types of weather include sunny, rainy, windy, and snowy. We experience different types of weather in different seasons (focus on spring and winter) (EYFS). 6: Naming the Sun, Earth and Moon (EYFS). 	<ul style="list-style-type: none"> 5B: The weather can change rapidly. The four different seasons have different weather patterns. 6: Daytime is when the Earth is facing the Sun; nighttime is when the Earth is facing away from the Sun. 	<ul style="list-style-type: none"> 5B: Global warming describes the increase in Earth's average temperatures (Y2). 6: The Sun as a star in our universe; Earth as a planet and the Moon as a satellite (Y5).

Year 1: Spring

Chemistry: Everyday Materials



	Required prior knowledge	Knowledge to be explicitly taught	How knowledge will be built upon
Substantive	<ul style="list-style-type: none"> Feel, hear, smell and see natural materials of grass, mud, water, rock and sand (N3-4 Aut1). Materials can be artificial (man-made) or natural (N3-4 Aut1). Materials include plastic, wood, and fabric (N3-4 Aut1). Some materials are hard whilst others are soft, some can be described as rough whilst others are smooth, and some are dull whilst others are shiny (N3-4 Aut1). 	<ul style="list-style-type: none"> An object is a 'thing' that can be seen and touched. Objects have a name and often have a purpose. For example, a cup is the object, and its purpose is for drinking from. The material is what an object is made of, for example a cup can be made of paper or plastic. Common materials include wood, paper, metal, glass, plastic, water, rock, rubber and cotton. Wood, water, rock, rubber and cotton are natural materials. Paper, glass, and plastic are artificial (man-made) materials. Materials have different physical properties, some materials are hard whilst others are soft, some can be described as rough whilst others are smooth, some are dull whereas others are shiny. Materials can be grouped in a number of ways based on their physical properties. The material that we choose to make an object from depends on its purpose (e.g. no chocolate kettle). 	<ul style="list-style-type: none"> Materials have physical properties that make them better or worse for certain uses, such as waterproof, absorbent, windproof, heatproof, malleable (Y2 Spr). Materials such as wood, metal, plastic, brick, rock, paper and cardboard have these physical properties to different extents (Y2 Spr). Different combinations of materials could be used to create different object, including a wall, a mop and a saucepan (Y2 Spr).
Disciplinary	<ul style="list-style-type: none"> Use a table to classify items based on properties (Y1 Aut). 	<p>Sort materials into a Carroll diagram based on their characteristics</p> <ul style="list-style-type: none"> A&P: Scientists group objects or living things based on their properties. R&P: Use a Carroll diagram to classify items based on properties. <p>Find the best material for a dog bed (waterproof and soft)</p> <ul style="list-style-type: none"> A&E: Make simple statements about the results of an enquiry. 	<ul style="list-style-type: none"> A&P: The thing that we measure is called the dependent variable; the thing we change is the independent variable (Y3).
VCs		<ul style="list-style-type: none"> 1: Objects have a purpose and are made of different materials. 	<ul style="list-style-type: none"> 1: Materials have different properties, which make them suitable for specific purposes. (Y2)

Year 1: Summer 1

Biology: Animals



	Required prior knowledge	Knowledge to be explicitly taught	How knowledge will be built upon
Substantive	<ul style="list-style-type: none"> A plant is a living thing that usually grows in one place (Y1 Aut). 	<ul style="list-style-type: none"> Animals are different to plants because they usually move around, rather than stay in the same place. Animals can be placed into different groups (carnivores, herbivores and omnivores) based the foods they eat. Animals have different features, including fins, wings, scales, legs, feathers, claws, paws etc. Some animals can be grouped into fish, amphibians, reptiles, birds and mammals (name common examples). 	<ul style="list-style-type: none"> Classification refers to a method used to place all living things into groups (Y4 Aut). Organisms can be classified in a number of ways (Y4 Aut). A species is a group of one type of organism, individuals in this group can breed with each other to produce offspring that can go on to breed (Y4 Aut). Early classification from Aristotle placed animals into groups based on land, water and air, plants were grouped according to size, small, medium and large (Y4 Aut). Fish, amphibians, reptiles, birds and mammals are all vertebrates (Y4 Aut). Vertebrates have endoskeletons (Y4 Aut). Vertebrates can be grouped in a number of ways based on their characteristics, e.g. warm/cold blooded; or physical features like fur, beak, wings etc. (Y4 Aut). Invertebrates can be grouped based on their characteristics as snails and slugs; worms; spiders and insects (Y4 Aut).
Disciplinary	<ul style="list-style-type: none"> A&P: Scientists group objects or living things based on their properties (Y1 Spr). M&O: Gather information from text/books/images (Y1 Aut). R&P: Use a Carroll diagram to classify items based on properties (Y1 Spr). 	<ul style="list-style-type: none"> A&P: Scientists conduct secondary research to learn from what other scientists have already learned. R&P: Use a Venn diagram to classify items into two or three sets based on properties. 	<ul style="list-style-type: none"> A&E: Science is never 'complete', and scientists are always working to make models more accurate or to discover new explanations (Y5).
VCs	<ul style="list-style-type: none"> 10: There are many different kinds of plants and animals in the world today (EYFS). 	<ul style="list-style-type: none"> 10: There are lots of types of animal, and some types can be grouped as amphibians, birds, fish, mammals and reptiles. 	<ul style="list-style-type: none"> 10: To help scientists make sense of the diversity of organisms, they are classified into different groups, such as animals as vertebrates and invertebrates. Each group has similar features (Y4).

Year 1 : Summer 2 - Humans (Biology)

Year 1: Summer 2

Biology: Humans



	Required prior knowledge	Knowledge to be explicitly taught	How knowledge will be built upon
Substantive	<ul style="list-style-type: none"> Animals can be grouped into fish, amphibians, reptiles, birds and mammals (name common examples) (Y1 Sum). Animals can be placed into different groups (carnivores, herbivores and omnivores) based the foods they eat (Y1 Sum). Materials have different physical properties, some materials are hard whilst others are soft, some can be described as rough whilst others are smooth, some are dull whereas others are shiny (Y1 Spr). 	<ul style="list-style-type: none"> Humans are omnivores, but some choose to eat only plants. Humans are made of many different body parts including head, neck, back, ears, eyes, nose, mouth, arms, shoulders, elbows, hands, fingers, legs, knees, feet, toes, face. Humans have five senses, smell, taste, touch, sight and hearing. The five senses are each associated with different body parts (eyes, ears, nose, tongue). 	<ul style="list-style-type: none"> The main food groups are carbohydrates (starch and sugars), proteins, fats, dairy, fruit and vegetables (Y3 Spr). Humans need a balanced diet which is made of main food groups (Y3 Spr). Our skeleton is made up of bones that grow as we grow (Y3 Spr). Humans and some other animals have skeletons (Y3 Spr). Organs are parts of the body that do a particular job, the heart pumps blood around the body and the lungs are used for breathing which gets air into your body (Y3 Spr). The skeleton protects organs, e.g. the skull protects the brain; and the ribcage protects the lungs, heart and other important organs (Y3 Spr). The skeleton supports the body, e.g. the spine helps the body stand (Y3 Spr). The skeleton helps the body move, e.g. pelvis and knee joints (Y3 Spr). The muscles and skeleton are required to help the body move. When muscles contract they pull the bone (Y3 Spr). Different animals hear different sounds (Y4 Spr). Humans' hearing changes as we age (Y4 Spr). Sounds are made when objects vibrate. Vibrations travel through a medium (e.g. air, water) to the ear. Vibrations enter the ear, our inner ear vibrates and we hear them as sound. (Y4 Spr). The eye is made of many parts: the pupil is the circular black hole in the center of the eye, the iris is the <u>coloured</u> part of the eye that surrounds the pupil, and the lens is a structure found behind the pupil. The pupils allow light to enter the eye. The iris controls how much light enters the eye by changing the size of the pupil. The lens helps to focus the light rays entering the eye (Y6 Spr). Many problems with our vision are caused by parts of the eye that are the not the right shape or size, or that have become cloudy. Many of these problems can be corrected through surgery or prescription glasses. People living with sight loss or blindness may use long canes or guide dogs when outside, talking books or Braille, and different devices in the home (Y6 Spr).
DK	<ul style="list-style-type: none"> Draw a diagram, a simple scientific drawing that explains or informs (Y1 Spr). 	<p><i>Draw a scientific diagram, labelling key human body parts</i></p>	
VCS		<ul style="list-style-type: none"> 8: Living things, including humans, react to their surroundings with their senses. 11: Humans have five senses. Some people have impairments, like visual and hearing impairments. 	<ul style="list-style-type: none"> 8: Organisms move, reproduce, are sensitive to their surroundings, grow, need oxygen, get rid of their waste, and need nutrition (MRS GOWN) (Y2). 11: Causes of hearing (Y4) and visual (Y6) impairments and technologies and behaviours that reduce their impact.

