



ESF Progression in Science Skills / Knowledge - Years 1-6



	Year 1
Animals including Humans	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
	Identify and name a variety of common animals that are carnivores, herbivores and omnivores
	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)
	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
Everyday Materials	Distinguish between an object and the material from which it is made
	Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
	Describe the simple physical properties of a variety of everyday materials
	Compare and group together a variety of everyday materials on the basis of their simple physical properties
Plants	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.
	Identify and describe the basic structure of a variety of common flowering plants, including trees
Seasonal Change	Observe changes across the four seasons
	Observe and describe weather associated with the seasons and how day length varies
Working Scientifically	I can ask simple scientific questions
	I can use simple equipment to make observations
	I can carry out simple tests
	I can identify and classify things
	I can suggest what I have found out
	I can use simple data to answer questions

	Year 2
Use of everyday materials	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
Animals including humans	Notice that animals, including humans, have offspring which grow into adults
	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
Living things and their habitats	Explore and compare the differences between things that are living, dead, and things that have never been alive
	Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
	Identify and name a variety of plants and animals in their habitats, including micro-habitats
	Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food
Plants	Observe and describe how seeds and bulbs grow into mature plants
	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
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	I can use simple equipment to make observations
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	Year 3
Light	Recognise that they need light in order to see things and that dark is the absence of light
	Notice that light is reflected from surfaces
	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes
	Recognise that shadows are formed when the light from a light source is blocked by an opaque object
	Find patterns in the way that the size of shadows change
Magnets	Compare how things move on different surfaces
	Describe magnets as having two poles
	Predict whether two magnets will attract or repel each other, depending on which poles are facing
	Notice that some forces need contact between two objects, but magnetic forces can act at a distance
	Observe how magnets attract or repel each other and attract some materials and not others
	Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
Rocks	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
	Describe in simple terms how fossils are formed when things that have lived are trapped within rock
	Recognise that soils are made from rocks and organic matter
Animals including Humans	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
	Identify that humans and some other animals have skeletons and muscles for support, protection and movement
Plants	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
	Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
	Investigate the way in which water is transported within plants
	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
Working Scientifically	I can ask relevant scientific questions
	I can use observations and knowledge to answer scientific questions
	I can set up a simple enquiry to explore a scientific question
	I can set up a test to compare two things
	I can set up a fair test and explain why it is fair
	I can make careful and accurate observations, including the use of standard units
	I can use equipment, including thermometers and data loggers to make measurements
	I can gather, record, classify and present data in different ways to answer scientific questions
	I can use diagrams, keys, bar charts and tables; using scientific language
	I can use findings to report in different ways, including oral and written explanations, presentation
	I can draw conclusions and suggest improvements

	Year 4
Sound	Identify how sounds are made, associating some of them with something vibrating
	Recognise that vibrations from sounds travel through a medium to the ear
	Find patterns between the pitch of a sound and features of the object that produced it
	Find patterns between the volume of a sound and the strength of the vibrations that produced it
	Recognise that sounds get fainter as the distance from the sound source increases
Electricity	Identify common appliances that run on electricity
	Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
	Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
	Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
	Recognise some common conductors and insulators, and associate metals with being good conductors
Animals including Humans	Describe the simple functions of the basic parts of the digestive system in humans
	Identify the different types of teeth in humans and their simple functions
	Construct and interpret a variety of food chains, identifying producers, predators and prey
Living things and their habitats	Recognise that living things can be grouped in a variety of ways
	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
	Recognise that environments can change and that this can sometimes pose dangers to living things
States of matter	Compare and group materials together, according to whether they are solids, liquids or gases
	Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
	Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
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	Year 5
Properties and Changing Materials	Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
	Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
	Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
	Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
	Demonstrate that dissolving, mixing and changes of state are reversible changes
	Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda
Forces	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
	Identify the effects of air resistance, water resistance and friction, that act between moving surfaces
	Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect
Earth and Space	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system
	Describe the movement of the Moon relative to the Earth
	Describe the Sun, Earth and Moon as approximately spherical bodies
	Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky
Humans	Describe the changes as humans develop to old age apparent movement of the sun across the sky
Working Scientifically	I can plan different types of scientific enquiry
	I can control variables in an enquiry. •I can measure accurately and precisely using a range of equipment
	I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
	I can use the outcome of test results to make predictions and set up a further comparative fair test
	I can report findings from enquiries in a range of ways
	I can explain a conclusion from an enquiry
	I can explain causal relationships in an enquiry
	I can relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory
	Read, spell and pronounce scientific vocabulary accurately

	Year 6
Evolution and Inheritance	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
	Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
	Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
Living Things and their Habitats	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
	Give reasons for classifying plants and animals based on specific characteristics
	Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
	Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
	Recognise some common conductors and insulators, and associate metals with being good conductors
Animals including Humans	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
	Describe the ways in which nutrients and water are transported within animals, including humans
Light	Recognise that light appears to travel in straight lines
	Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
	Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
	Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
Electricity	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
	Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
	Use recognised symbols when representing a simple circuit in a diagram
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