


Science Focus	Animals, including humans	Year 2	Autumn 1
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What? (Key Knowledge)	
Growth	
Growth in animals	Animals become older and change as time passes
3 examples of animal growth	Egg > chick > chicken Egg > caterpillar > pupa > butterfly Spawn > tadpole > froglet > frog
Example of human growth	Baby > toddler > child > teenagers > adult
Human Survival	
What is a balanced diet	See the Eat Well Guide: https://www.gov.uk/government/publications/the-eatwell-guide Drink 6-8 glasses of fluid each day
What is regular exercise?	Adults need to be active for at least 150 minutes each week Children aged 5-16 need to be active for at least 60 minutes each day Children under 5 need 3 hours of activity a day
What is good hygiene?	Hands are washed after you've used the toilet Private parts are washed every day Your face is washed daily You are fully bathed or showered at least twice a week Your teeth are brushed twice a day

Pictures and diagrams


• Statutory requirements
<ul style="list-style-type: none"> 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.

What? (Key vocab)	
Spelling	Definition
Offspring	A person or animal's child or children
Growth	The process of getting bigger
Pupa	An insect that is about to turn into an adult
Baby	A very young child
Toddler	A young child that is just beginning to walk
Child	A young person below the age of 13
Teenager	A person aged between 13 and 19
Adult	A grown up
Fluids	A liquid

Possible experiences
<ul style="list-style-type: none"> Having caterpillar eggs or frogspawn in class and taking time lapse photography of their cycle of life Finding out what happens to a tooth left in various types of drinks Investigating the effects of exercise on the body Trying new foods Growing and preparing healthy foods

Science Focus:

Uses of everyday materials

Year 2

Spring 1st & 2nd Half-Term

What? (Key Knowledge)

Properties of Materials

Wood	Hard, strong, stiff
Plastic	Strong, shiny, bendy
Glass	Transparent, smooth, stiff
Metal	Hard, strong, shiny
Water	Runny, wet, clear
Rock	Hard, strong

Uses of common materials

Wood can be used for:	Doors, tables
Plastic can be used for:	Pens, rulers
Glass can be used for:	Windows, glasses
Metal can be used for:	Cars, coins
Rock can be used for:	Garden walls, old buildings
Brick can be used for:	Houses, walls
Paper can be used for:	School books, wrapping paper
Card can be used for:	Folders, birthday cards

Different materials for the same thing

Some objects can be made from various materials	For example, a spoon can be made from: plastic, wood or metal.
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Changing the shape of materials

Squashing	Crush something so that it becomes flat, soft, or out of shape
Bending	Changing a straight object so that it is curved.
Twisting	Change the shape of an object by turning it.
Stretching	Made longer or wider without tearing or breaking

People we need to know

John Dunlop	<ul style="list-style-type: none"> Born in 1840 An expert in rubber Invented the first inflatable tyre
Charles Macintosh	<ul style="list-style-type: none"> Born in 1766 Invented the first waterproof fabric The 'mac' raincoat is named after him
John McAdam	<ul style="list-style-type: none"> Born in 1756 He invented building roads with a smooth, hard surface.

What? (Key Vocabulary)

Spelling

Definition/Sentence

Various	Lots of different kinds
Rubber	A tough material that can be shaped
Inflatable	Can be filled with air
Fabric	Cloth produced by weaving or knitting

Diagrams and Symbols

Squashing



Bending



Twisting



Stretching



Possible Experiences

- Spot and group the materials you see on the way to school
- Find an object in your house that exists in three or more different material forms
- Find an object that is made from more than three materials

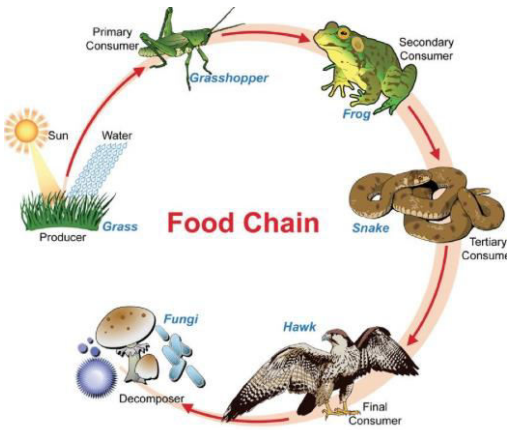
Science Focus	Living Things and Their Habitats	Year 2	Spring 2
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What? (Key Knowledge)	
There are key differences between things that are alive, dead or have never been alive	MRS NERG – movement, respiration, sensing, nutrition, excretion, reproduction and growth
Most living things live in habitats to which they are suited.	Animals live in habitats that meet their basic needs.
There is a variety of variety of plants and animals in their habitats, including micro-habitats	Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow. Garden plants – crocus, daffodil, bluebells, etc Animals – see key vocab for examples
Animals obtain their food from plants and other animals	Identify and name different sources of food.
Food chains	Plants are the primary producers in a food-chain. A snail is an example of a primary consumer -It eats the plant. A centipede is a fierce hunter, feeding on a variety of primary consumers. It is therefore known as a secondary consumer .

Statutory Requirements
<ul style="list-style-type: none">Recognise that living things can be grouped in a variety of waysExplore and use classification keys to help group, identify and name a variety of living things in their local and wider environmentRecognise that environments can change and that this can sometimes pose dangers to living things

What? (Key vocab)	
Spelling	Definition
Habitat	The place where organisms live
Invertebrates	Animals without backbones -Two of the most commonly known ones are arachnids (spiders) and insects.
Birds	Birds are animals that have feathers and that are born out of hard-shelled eggs.
Vertebrates	Animals with backbones - The five most well known classes of vertebrates are mammals, birds, fish, reptiles, amphibians.
Mammals	If an animal drinks milk when it is a baby and has hair on its body, it belongs to the mammal class. e.g. dogs, cats, dolphins and whales.
Fish	Fish are vertebrates that live in water and have gills, scales and fins on their body.
Reptiles	Reptiles are a class of animal with scaly skin. They are cold blooded and are born on land e.g. snakes, lizards, crocodiles, alligators.
Amphibians	Amphibians are born in the water. When they are born, they breathe with gills like a fish. But when they grow up, they develop lungs and can live on land. e.g. frogs.
Organism	An animal or plant

Diagrams and Symbols



Possible experiences

- Finding and classifying animals and habitats in the school environment
- Looking closely at habitats in the school grounds
- Collect insects for a short length of time to observe closely with hand lenses
- Visit habitats outside the school grounds, for example a pond or a forest.

Science Focus	Plants	Year 2	Summer Term
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What? (Key Knowledge)

Structure of plants - In most plants the part above the ground is the shoot system and the part below is the root system.

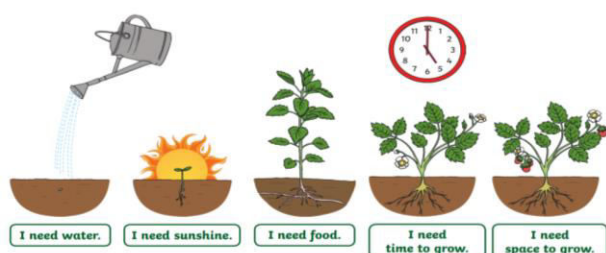
Leaf	The leaf makes food for the plant by photosynthesis.
Stem	The stem supports the leaves and is also part of the plant's transport system.
Buds	Buds are undeveloped shoots.
Flowers	Some buds produce flowers. These are shoots specialised for reproduction.
Roots	Roots anchor the plant to whatever material it is growing on or in. They also absorb water and other chemicals that the plant needs in order to live healthily and grow normally.

Requirements of plants

Sunlight	All plants need light from the sun to grow well. Some plantgs need lots of sunlight and some need only a little.
Water	All plants need water to grow. Without water, seeds and bulbs will not germinate.
Temperature	This is how warm or cold something is. Different plants like cooler or warmer temperatures.
Nutrition	Food or nourishment. Plants make their own food in their leaves using sunlight.

Diagrams

What Does a Plant Need to Grow?



Statutory requirements

- 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.

What? (Key vocab)

Spelling	Definition
Germination	When conditions are right, the seed soaks up water and swells, and the tiny new plant bursts out of its shell.
Sprout	When a plant sprouts, it grows new shoots.
Shoot	A shoot grows upwards from the seed or plant to find sunlight.
Seed dispersal	The movement, spread or transport of seeds away from the parent plant. They can be moved by the wind or animals.
Blossom	The flowers that appear on a tree before the fruit.

Possible experiences

- Try growing plants in different conditions. Change one variable e.g. light, water or nutrients and see how this affects growth.
- Visit a garden to find and identify flowering plants. Take some photographs and have children label them when they get back showing the different parts of the plant.
- Make a model of different types of plants including vegetables and trees to help children become more familiar with the main parts of plant.

Science Focus

Environment

Year 2

What? (Key Knowledge)

Environment	Our planet provides everything that we and all living things need. We call it our environment.
Climate	Climate is the weather. The earth's climate is just right, meaning that things can live on the planet.
Climate change	Climate change is a change in the overall weather and temperature on Earth. (Not the day-to-day weather). The Earth is getting warmer due to some of the things humans are doing. This means it will be more difficult for living things to survive.
Atmosphere	The layer of air surrounding the Earth.
Greenhouse gas	Greenhouse gases are special types of gas in the atmosphere. They let sunlight through but stop heat from escaping, like a greenhouse, so the Earth warms up.

Pictures and Diagrams

Renewable power sources



Wind turbines turn the energy from the wind into electricity.



Solar panels turn the energy from sunshine into electricity.



The energy from heat deep underground can be turned into electricity. This is geothermal energy.



Biomass means 'natural material'. It is burned to create energy.

• Statutory requirements

Although it is not a statutory requirement to teach as a separate topic, this does link to requirements in all Year 2 areas of the science curriculum - Plants, Animals and Living things in their habitats and Everyday materials. *See individual Yr2 Science Knowledge Organisers for details.*

What? (Key vocab)

Spelling

Definition

Energy

Energy makes everything work.

Power

Electricity, gas and oil are all sources of power. They give us energy to make things work.

Non-renewable

Non-renewable power sources such as coal, oil and gas can't be replaced once they have been used. Scientists think these are running out.

Renewable

Renewable power sources can be replaced. This means they will never run out. Solar power, wind power, geothermal power, biomass and wave power are all renewable power sources.

Endangered

Being endangered means that scientists think that a type of animal or plant is at risk.

Extinct

Extinct means that there are none of that type of animal or plant left alive.

Possible experiences

- Visit a recycling plant (or watch a video) to see how our waste is recycled.
- Look at creative ways to reduce and reuse waste to cut down on the energy it takes to recycle it.
- Make a turbine (pin wheel) from a square of paper. Use it to measure the force and direction of the wind on a daily basis. If we blow or waft the turbine, where is the energy coming from to turn it?

