"Every child is a unique child of God."

WHINMOOR ST. PAUL'S C of E Primary School

# Year 1

# Seasonal Changes – Biology

| Previous Knowledge and Skills<br>Can you remember learning to? | Curriculum Links |
|---|---|
| • explore the natural world around you<br>• describe what they see, hear and feel whilst outside<br>• begin to understand the effect of changing seasons on the natural world around them | - Whole Class Reading – A walk in the Woods<br>- Nature park – Errol's Garden |

## Important Images


Spring


Summer


Autumn


Winter

| Key Vocabulary<br>We want you to remember these words | Working Scientifically |
|---|---|
| **Season** – a part of the year<br>**Weather** – the conditions outside<br>**Autumn** – the season after summer and before winter<br>**Winter** – the season after autumn and before spring<br>**Spring** - the season after winter and before summer<br>**Summer** – the season after spring and before autumn<br>**Daylight** – natural light from the Sun<br>**Frost** - water droplets freeze and turn into tiny ice crystals<br>**Record** – write information | • Gathering and recording data to help in answering questions<br>• Asking simple questions and recognising that they can be answered in different ways |

## Key knowledge and skills

The 'stuff' we want you to remember

- There are four seasons in one year
- The seasons are spring, summer, autumn and winter
- Autumn
  - In autumn, the hours of daylight start to become shorter and the nights start to become longer.
  - Some trees lose their leaves in autumn
- Winter
  - In winter, there are fewer hours of daylight and the nights are longer
  - The weather is often cold in winter
- Spring
  - In spring, plants start to grow
  - In spring, some trees regrow their leaves
  - In spring, there are more hours of daylight and the nights start to become shorter
- Summer
  - Summer is usually warmer than spring
  - Summer is normally the warmest season
  - There are more hours of daylight in summer and the nights are shortest

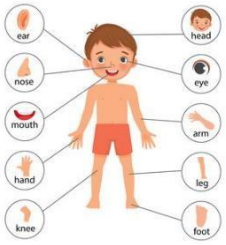
**Focus question:** What are the main changes in each season?

"Every child is a unique child of God."

WHINMOOR ST. PAUL'S C of E Primary School

# Year 1 Autumn 1

## The Human Body - Biology

| Previous Knowledge and Skills | Links to the Wider Curriculum |
|---|---|
| In Reception, we learnt:<br>• Some of the things that make us unique and talk about similarities and differences in relation to family and friends.<br>• Know about similarities and differences in relation to living things. | - PSHE – Pants Rule – NSPCC |
| **Important Images** | **Key Enquiry Questions** |
|  <br>**Body Part**<br>  <br>**The 5 senses** | 1. Can you identify and name key body parts?<br>2. Do the oldest children have the longest feet?<br>3. Do you know the five senses? Can you tell me which parts of the body are needed for each sense?<br>4. Can you investigate and draw your own conclusions about each of the five sense? |

| **Key Vocabulary**<br>***We want you to remember these words.*** | |
|---|---|
| **Senses -** Five ways that allow us to observe and understand the world. | **Taste -** The sense by which sweet, sour, bitter, savoury or salty flavours are detected. |
| **Sight -** The ability to see. | **Smell -** To sense something through the nose |
| **Hearing –** When we listen to sounds | **Brain -** The control centre for your body. |
| **Touch -** To come into or be in contact with. | **Parts of the body -** For example, head, neck, arms, elbows, hands, legs, knees, foot/feet, face, ears, eyes, nose, hair, mouth, teeth |
| **Key knowledge and skills**<br>***The 'stuff' we want you to remember.*** | |
| To be able to identify, name, draw and label parts of our bodies. | To know that we have five senses: sight, hearing, touch, taste, smell. |
| To know the body parts associated with our senses. | To carry out scientific investigations based on the five senses and begin to draw our own Conclusions. |

**Focus question: Which parts of the body do we use for the 5 senses?**

"Every child is a unique child of God."

WHINMOOR ST. PAUL'S C of E Primary School

# Year 2 Autumn 1

# Animals' Needs for Survival - Biology

| Previous Knowledge and Skills<br>Can you remember learning to? | Curriculum Links |
|---|---|
| • identify and name a variety of common animals - including fish, amphibians, reptiles, birds and mammals<br>• identify and name a variety of common animals that are carnivores, herbivores and omnivores?<br>• describe and compare the structure of a variety of common animals<br>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense | - English – Non chronological reports – Mammals<br><br>- Geography – Which continent provides the best conditions for survival for different animals |

## Important Images


Mammals


birds


fish


reptiles


amphibians


humans

| Key Vocabulary<br>We want you to remember these words | Working Scientifically |
|---|---|
| **Carnivore** – an animal that eats other animals<br>**Herbivore** – an animal that eats plants<br>**Omnivore** – an animal that eats plants and other animals<br>**Mammal** - an animal with fur or hair on its body<br>**Amphibian** – an animal that lives on land and in water<br>**Reptile** – an animal with dry scales on its body<br>**Scales** – small, hard layers that grow from the skin | • Gathering and recording data to help in answering questions<br>• Identifying and classifying<br>• Asking simple questions and recognising that they can be answered in different ways<br>• Using their observations and ideas to suggest answers to questions |

## Key knowledge and skills

The 'stuff' we want you to remember

- All mammals need air, water, food and shelter to survive
- Mammals are carnivores, herbivores or omnivores
- Amphibians live on land and in water
- Amphibians do not have scales on their bodies
- Some amphibians have webbed feet
- Fish have gills that they use to breathe
- Birds have feathers, wings and beaks
- Reptiles need direct heat to survive

**Focus question:** Choose an animal and describe three essential things it requires for survival.

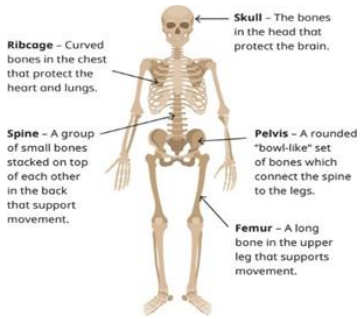
"Every child is a unique child of God."

WHINMOOR ST. PAUL'S C of E Primary School

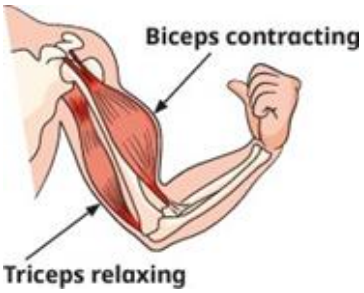
# Year 3 Autumn 1
# Skeletons and Movement – Biology

| Previous Knowledge and Skills<br>Can you remember learning to? | Curriculum Links |
|---|---|
| • identify and name a variety of common animals<br>• describe and compare the structure of a variety of common animals<br>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense | - PSHE – Learning about healthy lifestyle choices<br>- PE – Understanding how activity affects the body |

## Important Images








| Key Vocabulary<br>We want you to remember these words | Working Scientifically |
|---|---|
| **Skeleton** – a collection of bones that provides protection and supports movement<br>**Spine** – a group of small bones in the back that support movement<br>**Exoskeleton** - a type of skeleton on the outside of an animal's body that provides support and protection<br>**Joint** - a point where two or more bones meet<br>**Function** – the purpose/job of something<br>**Bicep and triceps** – muscles in the upper arm<br>**Muscle** - works with joints and bones to allow movement | • Asking relevant questions and using different types of scientific enquiries to answer them<br>• Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables<br>• Talk about criteria for grouping, sorting and classifying (non-statutory)<br>• Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions |

## Key knowledge and skills
The 'stuff' we want you to remember

- Humans have skeletons for movement, support and protection
- Skeletons are made up of lots of different bones and these have specific functions/jobs (see important images)
- Some animals have a spine and some animals do not
- Some animals have an exoskeleton: an exoskeleton provides support and protection
  There are different joints in the human body: The knees and elbows are hinge joints
- The shoulders and hips are ball and socket joints
- Muscles work in pairs by contracting and relaxing. Bones, muscles and joints work together to allow movement

**Focus question:** How can animals be sorted and grouped based on their skeletons?

"Every child is a unique child of God."

WHINMOOR ST. PAUL'S C of E Primary School

# Year 3 Autumn 1

# Nutrition and Diet – Biology

| Previous Knowledge and Skills<br>Can you remember learning to? | Curriculum Links |
|---|---|
| • identify and name a variety of common animals that are carnivores, herbivores and omnivores<br>• say which part of the body is associated with each sense<br>• describe how animals obtain their food from plants and other animals, and identify and name different sources of food | - DT – Designing healthy meals |

## Important Images


dairy products


carbohydrates


fruit and vegetables


protein


fats

| Key Vocabulary<br>We want you to remember these words | Working Scientifically |
|---|---|
| **Carbohydrates** – found in foods such as bread, cereals, pasta and rice<br>**Proteins** – found in foods such as eggs, beans, fish and meat<br>**Dairy products** – food made from the milk of an animal<br>**Fats** – found in foods such as avocados, oil, butter, fried food and nuts<br>**Sugars** – substances used to make food and drinks sweet<br>**Nutrition** – the process of taking in and using food<br>**Vegetarian diet** – a diet that does not include meat but does include animal products such as cheese and eggs<br>**Vegan diet** – a diet that does not include meat or animal products<br>**Pescatarian diet** – a diet that includes fish but no other meat products<br>**Omnivorous diet** – a diet that includes all food types<br>**Balanced diet** - a diet that fulfils a person's nutritional needs | • Talk about criteria for grouping, sorting and classifying (non-statutory)<br>• Using straightforward scientific evidence to answer questions or to support their findings<br>• Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions<br>• Identifying differences, similarities or changes related to simple scientific ideas and processes |

## Key knowledge and skills

The 'stuff' we want you to remember

- Humans need to eat a healthy, balanced diet to maintain good health
- Humans should eat a wide variety of foods and consume the right amount to maintain a healthy body weight
- The Eatwell Guide shows how much of each food group we should eat to achieve a healthy and balanced diet
- There are a variety of human diets including vegan, vegetarian, pescatarian and omnivorous diets.
- Animals cannot make their own food and need nutrition from the food they eat:
  - Some animals are carnivores – they eat other animals.
  - Some animals are herbivores – they only eat plants.
  - Some animals are omnivores – they eat plants and other animals

**Focus question:** What is a balanced diet and is it important?

"Every child is a unique child of God."

WHINMOOR ST. PAUL'S C of E Primary School

# Year 4 Autumn 1

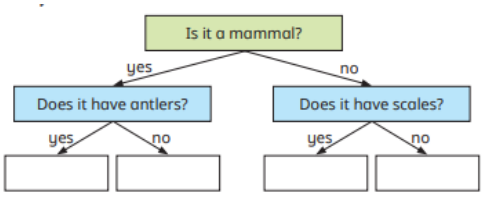
# Group and Classify Living Things – Biology

| Previous Knowledge and Skills<br>Can you remember learning to? | Curriculum Links |
|---|---|
| • 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<br>• identify and name a variety of plants and animals in their habitats, including microhabitats<br>• 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 | Class trip – Ledston Estate |

## Important Images

vertebrate

invertebrate




classification key

| Key Vocabulary<br>We want you to remember these words | Working Scientifically |
|---|---|
| **Vertebrate** – An animal with a spine.<br>**Invertebrate** – An animal that don't have an internal<br>**Soft-bodied invertebrate** – an invertebrate with a soft body such as a slug or a snail<br>**Flowering plant** – a plant that can produce flowers and fruit<br>**Non-flowering plant** – a plant that does not produce flowers and fruit<br>**Stamen** – the male parts of a flowering plant<br>**Pistil** – the female part of a flowering plant<br>**Pollination** – the transfer of pollen from the male parts to the female parts | • Talk about criteria for grouping, sorting and classifying (non-statutory)<br>• Asking relevant questions and using different types of scientific enquiries to answer them<br>• Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions<br>• Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions<br>• Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables |

## Key knowledge and skills

The 'stuff' we want you to remember

- Identify, sort and group vertebrates into categories based on their features
- Identify, sort and group invertebrates into categories based on their features
- Use classification trees to sort and classify animals
- Sort and group plants in different ways
- Use classification trees to sort and classify plants

**Focus question:** How do we classify animals and what are the differences between vertebrates and invertebrates?

"Every child is a unique child of God."

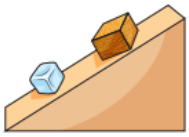
WHINMOOR ST. PAUL'S C of E Primary School

# Year 5 Autumn 1

# Forces – Physics

| Previous Knowledge and Skills<br>Can you remember learning that? | Curriculum Links |
|---|---|
| • friction is a contact force between two surfaces<br>• friction always works in the opposite direction to that in which the object is moving | - P.E. – Push and pull<br>- Maths – Mass and Force – which travels further, measuring |

## Important Images

| Key Vocabulary<br>We want you to remember these words | Working Scientifically |
|---|---|
| **Force** – a push or pull on an object<br>**Motion** - the change in the position of an object<br>**Friction** – an opposing force caused by two objects moving in opposite directions<br>**Gravity** – the force that pulls objects towards each other<br>**Air resistance** – an opposing force that pushes against objects falling through the air<br>**Water resistance** – an opposing force that pushes against objects moving in water<br>**Buoyancy** – the force that pushes objects in fluids upwards, causing them to float<br>**Surface area** - the total area of the surface of an object<br>**Lever** - a rigid object that can rotate around a pivot<br>**Gear** - a wheel with teeth<br>**Pulley** - a cable on one or more wheels | • Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory)<br>• Recognise which secondary sources will be most useful to research their ideas (non-statutory)<br>• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate<br>• Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results<br>• Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate<br>• Identifying scientific evidence that has been used to support or refute ideas or arguments |

## Key knowledge and skills

The 'stuff' we want you to remember

- Friction is a contact force that is caused by one object being pushed across the surface of another
- Friction can stop or slow down a moving object
- Friction has many useful applications, e,g. the use of brakes to slow down a vehicle
- Gravity is non-contact force
- Gravity is caused by objects with mass pulling each other
- Heavier objects do not fall to the ground faster than lighter objects
- Objects with a different mass fall at the same rate
- Air resistance is a type of friction force on an object moving through air
- The greater the surface area of an object, the greater the air resistance
- Levers, pulleys and gears are all mechanisms that will allow a smaller force to have a greater effect
- Gears are wheels with teeth that allow a small force to produce a larger force to increase speed
- Pulleys use a rope or cable through a wheel to allow lifting of heavy objects

**Focus question:** Draw a diagram of a falling parachute. Label and explain the forces that act on it as it falls

"Every child is a unique child of God."

WHINMOOR ST. PAUL'S C of E Primary School

# Year 6 Autumn 1

## Living Things and Their Habitats – Biology

| Previous Knowledge and Skills<br>Can you remember learning to? | Curriculum Links |
|---|---|
| • describe and compare the structure of a variety of common animals<br>• recognise that living things can be grouped in a variety of ways<br>• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment<br>• recognise that environments can change and that this can sometimes pose dangers to living things | - Topic – Biomes and deforestation<br>- Geography – Different areas and continents<br>- Maths – Fractions and ratios – animals and calories<br>- Maths – Measuring plants |

### Important Images


bacteria


virus


fungi

### Key Vocabulary
We want you to remember these words

**Organism** - a living thing such as an animal or a plant
**Excretion** - the removal of waste products
**Reproduction** - the production of offspring, either sexually or asexually
**Mollusc** - a soft bodied invertebrate
**Arachnid** - an invertebrate with two body parts and eight legs
**Classification** - the system by which organisms are arranged in groups based on shared features
**Coniferous tree** - an evergreen tree that produces cones instead of flowers
**Microorganism** - a tiny organism, such as a bacterium, virus or fungus
**Bacteria** - microorganisms that are too small to be seen by the human eye
**Virus** - a microorganism that can multiply only inside the living cells of another organism
**Fungi** - a group of organisms including mushrooms, mould and yeast
**Characteristics** - the system by which organisms are arranged in groups based on shared features

### Working Scientifically

- Identifying scientific evidence that has been used to support or refute ideas or arguments
- Use and develop keys and other information records to identify, classify and describe living things (non-statutory)
- Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- Use relevant scientific language and illustrations to discuss, communicate and justify their ideas and should talk about how scientific ideas have developed over time (non-statutory)

### Key knowledge and skills
The 'stuff' we want you to remember

- A living organism moves, reproduces, grows and exercises
- The stem of a plant moves towards the strongest light source and the roots move away from the light
- Plants can reproduce sexually and asexually
- Vertebrates can be put into groups of mammals, birds, fish, amphibians and reptiles.
- Plants can be put into groups of flowering and non-flowering.
- Scientists group organisms based on their features.
- Grouping organisms can help scientists to understand how organisms are related to each other
- Classification keys are used to classify animals.
- Classification keys are used to identify different animals based on their features.

- Classification keys are made up of several questions with "yes" or "no" answers.
- Classification keys are used to classify plants.
- Classification keys are used to identify different plants based on their features.
- Trees can be classified as deciduous, evergreen and coniferous.
- Bacteria are simple organisms invisible to the naked eye. Some bacteria can cause diseases and infections. Humans have good bacteria in their bodies to help them digest food.
- Viruses are microorganisms that need a host, and are invisible to the naked eye. They can cause diseases such as flu or a common cold.
- Fungi are microorganisms. Some can cause infections. Some can be used in bread making.
- Microorganisms, such as bacteria, viruses and fungi, can be classified.
- The classification of microorganisms is based on their features, such as shape.
- Bacteria, viruses and fungi have different shapes.
- Carl Linnaeus was a Swedish botanist who wrote a book called Systema Naturae or System of Nature.
- Linnaeus was famous for developing the first system to classify animals and plants. The classification was based on a hierarchical system.
- Linnaeus initially divided the Kingdom Animalia into six classes. These were mammals, birds, amphibians, fish, insects and worms.

**Focus question:** Can microorganisms be good for you?