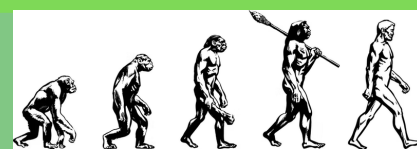


Science Curriculum Path of Progression

In Y5, pupils will begin by consolidating their learning of the Earth, by investigating Earth's shape and how the Earth moves in space. Pupils will explore why we have day and night and how this affects our Earth. Pupils will also investigate why the moon appears to change shape. Following this, pupils will explore the topic of 'Forces', investigating how we measure force, what forces affect a falling object, as well as a case study on Isaac Newton and an exploration of water resistance and levers and pulleys. Following this, pupils will investigate the properties and change of materials, identifying thermal conductors and insulators, as well as learning about dissolving, separating mixtures and irreversible changes. Following this, pupils will investigate living things and their habitats, by looking at the differences in the lifecycles of a variety of animals, as well as exploring the life processes of reproduction in plants and life cycles. Finally, pupils will reflect and analyse how they have changed over the year, explore how babies develop, as well as the changes boys and girls go through, during puberty.

In Y3, pupils will begin by being introduced to forces, looking closely at magnets. Pupils explore friction, as well as when magnets attract and repel. As well as this, pupils will compare the strength of magnets and which materials are attracted by magnets. Following this, pupils will learn all about light, exploring the source of light, how light can be seen through some objects, but not others, as well as exploring reflective materials and why shadows change size. Following this, pupils will be introduced to the different food groups, completing their own food diaries, looking at the effect of different foods on our body. Then pupils will explore and describe rocks, fossils and soil. Finally, pupils will learn about the parts of a plant, partaking in a field trip, as well as understanding the germination process, as well as life processes and water transportation. The pupils will construct their own plant diary, following and analysing the journey of a seed.

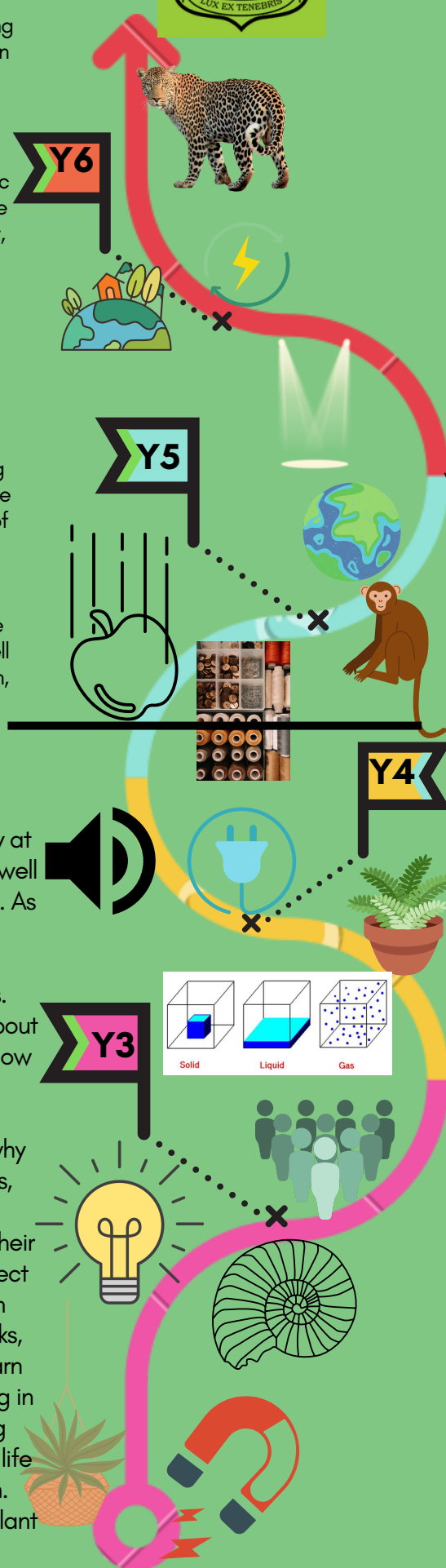


In Y6, pupils will begin by investigating evolution and inheritance, considering the way in which plants and animals adapt, understanding the theory of evolution, adaptation of plants and animals, as well as looking for evidence of evolution in skeletons and fossils. Following this, pupils will explore the theme of 'Light', investigating how light allows us to see, how light is reflected, as well as comparing how light passes through some materials, such as transparent, translucent and opaque materials.

Following this, pupils will build upon their prior knowledge, by investigating and comparing the multiple systems of the human body and the circulatory system. As well this, pupils will carry out an enquiry into heart rate and what effects our heartbeat.

Pupils will also investigate the impact of water and nutrition. Following this, pupils will enhance their knowledge of the classification system, discovered by Carl Linnaeus. Pupils will use classification keys to sort living things, as well as creating their own classification keys and carrying out an enquiry into bird classification. Finally, pupils will research different components and series' that make a circuit. They will investigate the necessary precautions for working safely with electricity, as well as designing and making their own traffic lights and light-up t-shirt.

In Y4, pupils will begin by exploring sound, vibration, gaining an understanding of the difference between pitch and volume, as well as investigating the relationship between volume and pitch and the distance from the source. Following this, pupils will explore electricity, identifying items that require electricity to operate, making comparisons between mains and battery electricity, as well as creating electrical circuits, with switches. Following this, pupils will explore states of matter, looking at the relationship between solids, liquids and gases, as well as investigating the water cycle and evaporation. Following this, pupils will explore the theme of animals including humans, investigating the main organs of the human body, as well as identifying the parts and functions of the human digestive system. Finally, pupils will explore living things and habitats, investigating the characteristics of living things, as well as sorting and identifying animal groups and classifications. Pupils will also explore food chains and changing environments.





Autumn Term 1 – Forces and Magnets

National Curriculum Coverage

- compare how things move on different surfaces
- notice that some forces need contact between 2 objects, but magnetic forces can act at a distance
- observe how magnets attract or repel each other and attract some materials and not others

Coverage

Which surface has the most friction?
When do magnets attract or repel each other?
Are magnets all the same strength?
Comparative enquiry.
Which materials are attracted by magnets?

Pupils will be introduced to forces, looking closely at magnets. Pupils explore friction, as well as when magnets attract and repel. As well as this, pupils will compare the strength of magnets and which materials are attracted by magnets.

Progression pathway

This unit builds upon prior knowledge gained in Year 2 in which pupils were introduced to core scientific skills.

They build upon those skills this half term by being introduced to forces, looking closely at magnets. Pupils explore friction, as well as when magnets attract and repel. As well as this, pupils will compare the strength of magnets and which materials are attracted by magnets.

This will lead on to developing further scientific skills, as pupils explore electricity and states of matter in Year 4.

Autumn Term 2 – Light

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Where does light come from?
Why can I see through some objects but not others?
Which materials are reflective?
Why do shadows change size?
Working scientifically.

Pupils will learn all about light in this unit, exploring the source of light, how light can be seen through some objects, but not others, as well as exploring reflective materials and why shadows change size.

Progression pathway

This unit builds upon prior knowledge gained in Year 2 in which pupils were introduced to core scientific skills.

They build upon those skills this half term by learning all about light, exploring the source of light, how light can be seen through some objects, but not others, as well as exploring reflective materials and why shadows change size.

This will lead on to developing further scientific skills, as pupils explore electricity and states of matter in Year 4.



Spring Term 1 – Animals including humans

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

What are the different types of food?
How does food affect our body?
Which muscles do we need to do different actions?
Why do we have a skeleton?

During this unit, pupils will be introduced to the different food groups, completing their own food diaries, looking at the effect of different foods on our body, as well as being introduced to the skeletal and muscular systems, and how this aids us in everyday life.

Progression pathway

This unit builds upon prior knowledge gained in Year 2 in which pupils were introduced to core scientific skills.

They build upon those skills this half term by being introduced to the different food groups, completing their own food diaries, looking at the effect of different foods on our body, as well as being introduced to the skeletal and muscular systems, and how this aids us in everyday life.

This will lead on to developing further scientific skills, as pupils explore electricity and states of matter in Year 4.

Spring Term 2 – Rocks and fossils

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

How are rocks formed?
Why are there different types of rock?
Describing rocks.
What are fossils?
What is soil?

During this unit, pupils will explore how rocks are formed, being introduced to Igneous/Sedimentary/Metamorphic rocks, as well as exploring and describing rocks, fossils and soil.

Progression pathway

This unit builds upon prior knowledge gained in Year 2 in which pupils were introduced to core scientific skills.

They build upon those skills this half term by exploring how rocks are formed, being introduced to Igneous/Sedimentary/Metamorphic rocks, as well as exploring and describing rocks, fossils and soil.

This will lead on to developing further scientific skills, as pupils explore electricity and states of matter in Year 4.



Summer Term 1 – Plants

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Plants:
Parts of a plant
Germination
Plant diary
Life processes
Water transportation.

During this unit, pupils will begin by learning about the parts of a plant, partaking in a field trip, as well as understanding the germination process, as well as life processes and water transportation. The pupils will construct their own plant diary, following and analysing the journey of a seed.

Progression pathway

This unit builds upon prior knowledge gained in Year 2 in which pupils were introduced to core scientific skills.

They build upon those skills this half term by beginning to learn about the parts of a plant, partaking in a field trip, as well as understanding the germination process, as well as life processes and water transportation. The pupils will construct their own plant diary, following and analysing the journey of a seed.

This will lead on to developing further scientific skills, as pupils explore electricity and states of matter in Year 4.

Summer Term 2

National Curriculum Coverage

Coverage

Progression pathway



Autumn Term 1 – Sound

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Sound:
Exploring sound
Introduction to sound
Pitch and volume
Volume investigation
Pitch investigation.

During this unit, pupils will explore sound, vibration, gaining an understanding of the difference between pitch and volume, as well as investigating the relationship between volume and pitch and the distance from the source.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 in which pupils learnt about light.

They build upon those skills this half term by exploring sound, vibration, gaining an understanding of the difference between pitch and volume, as well as investigating the relationship between volume and pitch and the distance from the source.

This will lead on to developing further scientific skills, as they learn about forces, properties of materials, as well as habitats and Animals including humans in Year 5.

Autumn Term 2 – Electricity

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Electricity:
Exploring electricity
Mains and battery electricity
Making electrical circuits
Switches with electrical circuits
Complete and incomplete circuits.

During this unit, pupils will begin to explore electricity, identifying items that require electricity to operate, making comparisons between mains and battery electricity, as well as creating electrical circuits, with switches.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 in which pupils learnt about light.

They build upon those skills this half term by exploring electricity, identifying items that require electricity to operate, making comparisons between mains and battery electricity, as well as creating electrical circuits, with switches.

This will lead on to developing further scientific skills, as they learn about forces, properties of materials, as well as habitats and Animals including humans in Year 5.



Spring Term 1 – States of matter

National Curriculum

Coverage

- Pupils should be taught to:
- 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)

Coverage

States of matter:

Exploring states of matter

Introduction to Solids, Liquids and Gases

Is it a solid, liquid or gas?

The water cycle

Evaporation investigation.

During this unit, pupils will explore states of matter, looking at the relationship between solids, liquids and gases, as well as investigating the water cycle and the relationship between temperature and the rate of evaporation.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 in which pupils learnt about light.

They build upon those skills this half term by exploring states of matter, looking at the relationship between solids, liquids and gases, as well as investigating the water cycle and evaporation.

This will lead on to developing further scientific skills, as they learn about forces, properties of materials, as well as habitats and Animals including humans in Year 5.

Spring Term 2 – Animals including humans

National Curriculum

Coverage

- Pupils should be taught to:
- 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

Coverage

Animals including humans:

The main organs of the human body

The digestive system

Types of teeth.

During this unit, pupils will explore the theme of animals, including humans investigating the main organs of the human body, describing the simple functions of the organs, as well as identifying the parts and functions of the human digestive system. Pupils will also learn to identify the different types of teeth in humans.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 in which pupils learnt about light.

They build upon those skills this half term by exploring the theme of animals including humans, investigating the main organs of the human body, as well as identifying the parts and functions of the human digestive system. Pupils will also learn to identify the different types of teeth in humans.

This will lead on to developing further scientific skills, as they learn about forces, properties of materials, as well as habitats and Animals including humans in Year 5.



Summer Term 1 – Living things and their habitats

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Living things and their habitats:
Exploring living things and habitats
Characteristics of living things
Animal groups
Sorting animals
Classification keys
Food chains
Changing environments

During this unit, pupils will explore living things and habitats, investigating the characteristics of living things, as well as sorting and identifying animal groups and classifications. Pupils will also explore food chains and changing environments.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 in which pupils learnt about animals including humans.

They build upon those skills this half term by exploring living things and habitats, investigating the characteristics of living things, as well as sorting and identifying animal groups and classifications. Pupils will also explore food chains and changing environments.

This will lead on to developing further scientific skills, as they learn about forces, properties of materials, as well as habitats and Animals including humans in Year 5.

Summer Term 2

National Curriculum Coverage

Coverage

Progression pathway



Autumn Term 1 – Earth and Space

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Earth and space:
What shape is the Earth?
How does the Earth move in space?
Why do we have day and night?
Why does the moon appear to change shape?
What are the different planets in the solar system?

During this unit, pupils will investigate Earth's shape and how the Earth moves in space. Pupils will explore why we have day and night and how this affects our Earth. Pupils will also investigate why the moon appears to change shape, as well as the different planets in the solar system.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 and 4 in which pupils learnt about sound and light, as well as states of matter.

They build upon those skills this half term by investigating Earth's shape and how the Earth moves in space. Pupils will explore why we have day and night and how this affects our Earth. Pupils will also investigate why the moon appears to change shape.

This will lead on to developing further scientific skills, as they learn about evolution and inheritance, light, living things and Animals including humans in Year 6.

Autumn Term 2 – Forces

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Forces:
How do we measure force?
What forces affect a falling object?
Isaac Newton
Water resistance
Levers and pulleys.

During this unit, pupils will explore the topic of 'Forces', investigating how we measure force, what forces affect a falling object, as well as a case study on Isaac Newton and an exploration of water resistance and levers and pulleys.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 and 4 in which pupils learnt about sound and light, as well as states of matter.

They build upon those skills this half term by exploring the topic of 'Forces', investigating how we measure force, what forces affect a falling object, as well as a case study on Isaac Newton and an exploration of water resistance and levers and pulleys.

This will lead on to developing further scientific skills, as they learn about evolution and inheritance, light, living things and Animals including humans in Year 6.



Spring Term 1 – Properties and change of materials

National Curriculum

Coverage

- Pupils should be taught to:
- compare and group together everyday materials on the basis of their properties
- 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

Coverage

Properties and change of materials:

Properties of materials

Keeping cool

Brighter bulbs

Dissolving

Separating mixtures

Irreversible changes.

During this unit, pupils will investigate the properties and change of materials, sorting materials and identifying thermal conductors and insulators, carrying out an investigation to find the best electrical conductor, as well as learning about dissolving, separating mixtures and irreversible changes.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 and 4 in which pupils learnt about sound and light, as well as states of matter.

They build upon those skills this half term by investigating the properties and change of materials, sorting materials and identifying thermal conductors and insulators, as well as learning about dissolving, separating mixtures and irreversible changes.

This will lead on to developing further scientific skills, as they learn about evolution and inheritance, light, living things and Animals including humans in Year 6.

Spring Term 2 – Living things and their habitats

National Curriculum

Coverage

- Pupils should be taught to:
- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- describe the life process of reproduction in some plants and animals

Coverage

Living things and their habitats:

What are the differences in the lifecycles of a bird, mammal, amphibian and insect?

What is the life process of reproduction in plants?

What are the reproductive parts of a plant?

Plant reproduction

Life cycles.

During this unit, pupils will explore living things and their habitats, by looking at the differences in the lifecycles of a variety of animals, as well as exploring the life processes of reproduction in plants and life cycles.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 and 4 in which pupils learnt about sound and light, as well as states of matter.

They build upon those skills this half term by investigating living things and their habitats, by looking at the differences in the lifecycles of a variety of animals, as well as exploring the life processes of reproduction in plants and life cycles.

This will lead on to developing further scientific skills, as they learn about evolution and inheritance, light, living things and Animals including humans in Year 6.



Summer Term 1 – Animals including humans

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Animals including humans:
How have I changed over the year?
How do babies develop and grow?
What are the changes boys and girls go through during puberty?
What are the changes humans go through when reaching old age?

During this unit, pupils will reflect and analyse how they have changed over the year, explore how babies develop and grow over time, as well as the changes boys and girls go through, during puberty and the changes humans go through when reaching old age.

Progression pathway

This unit builds upon prior knowledge gained in Year 3 and 4 in which pupils learnt about sound and light, as well as states of matter.

They build upon those skills this half term by reflecting and analysing how they have changed over the year, explore how babies develop and grow over time, as well as the changes boys and girls go through, during puberty.

This will lead on to developing further scientific skills, as they learn about evolution and inheritance, light, living things and Animals including humans in Year 6.

Summer Term 2

National Curriculum Coverage

LIs

Progression pathway



Autumn Term 1 – Evolution and inheritance

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Evolution and inheritance:

To gain an understanding of the key words associated with the topic of Evolution and Inheritance.

To consider the way in which plants and animals have adapted to their habitat.

To gain an understanding of the theory of evolution.

To look for evidence of evolution in the skeletons and fossils of horses.

To understand that Charles Darwin used the beaks of finches to formulate his theory.

During this unit, pupils will investigate evolution and inheritance, considering the way in which plants and animals adapt, understanding the theory of evolution, adaptation of plants and animals, as well as looking for evidence of evolution in skeletons and fossils.

Progression pathway

This unit builds upon prior knowledge gained in Year 5 in which pupils learnt about space, forces, materials, living things and animals, including humans.

They build upon those skills this half term by investigating evolution and inheritance, considering the way in which plants and animals adapt, understanding the theory of evolution, adaptation of plants and animals, as well as looking for evidence of evolution in skeletons and fossils.

This will lead on to developing further scientific skills, as they continue to develop their 'thinking scientifically' skills, as well as applying their skills to everyday life.

Autumn Term 2 – Light

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Light:

What is light?

How does light allow us to see?

How is light reflected?

Comparing how light passes through some materials (transparent, translucent, opaque).

During this unit, pupils will explore the theme of 'Light', investigating how light allows us to see, how light is reflected, as well as comparing how light passes through some materials, such as transparent, translucent and opaque materials.

Progression pathway

This unit builds upon prior knowledge gained in Year 5 in which pupils learnt about space, forces, materials, living things and animals, including humans.

They build upon those skills this half term by exploring the theme of 'Light', investigating how light allows us to see, how light is reflected, as well as comparing how light passes through some materials, such as transparent, translucent and opaque materials.

This will lead on to developing further scientific skills, as they continue to develop their 'thinking scientifically' skills, as well as applying their skills to everyday life.



Spring Term 1 – Animals including humans

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Animals including humans:
Systems of the human body
The circulatory system
Heartbeat enquiry
Water and nutrition

During this unit, pupils will build upon their prior knowledge of the topic of 'Animals including humans', by investigating and comparing the multiple systems of the human body, the circulatory system including the location and functions of the lungs, heart, capillaries, arteries and veins. As well this, pupils will carry out an enquiry into heart rate and what effects our heartbeat. Pupils will also investigate the impact of water and nutrition.

Progression pathway

This unit builds upon prior knowledge gained in Year 5 in which pupils learnt about space, forces, materials, living things and animals, including humans.

They build upon those skills this half term by investigating and comparing the multiple systems of the human body and the circulatory system. As well this, pupils will carry out an enquiry into heart rate and what effects our heartbeat. Pupils will also investigate the impact of water and nutrition.

This will lead on to developing further scientific skills, as they continue to develop their 'thinking scientifically' skills, as well as applying their skills to everyday life.

Spring Term 2

National Curriculum Coverage

Coverage

Progression pathway



Summer Term 1 – Living things and their habitats

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Living things and their habitats:
Classification system
Carl Linnaeus
Classification keys to sort living things according to observable characteristics
Creating classification keys
Bird classification

During this unit, pupils will build upon their prior knowledge of Living things, by enhancing their knowledge of the classification system, discovered by Carl Linnaeus. Pupils will use classification keys to sort living things, as well as creating their own classification keys and carrying out an enquiry into bird classification.

Progression pathway

This unit builds upon prior knowledge gained in Year 5 in which pupils learnt about space, forces, materials, living things and animals, including humans.

They build upon those skills this half term by enhancing their knowledge of the classification system, discovered by Carl Linnaeus. Pupils will use classification keys to sort living things, as well as creating their own classification keys and carrying out an enquiry into bird classification.

This will lead on to developing further scientific skills, as they continue to develop their 'thinking scientifically' skills, as well as applying their skills to everyday life.

Summer Term 2 – Electricity

National Curriculum Coverage

- Pupils should be taught to:
- 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

Coverage

Electricity:
Researching different components to construct a simple series circuit
Represent a circuit in a diagram using recognised symbols
Necessary precautions for working safely with electricity
Systematically identifying the effect of changing one component at a time in a circuit
Designing and making a set of traffic lights
Designing and making an electrical circuit powered light-up t-shirt, using conductive thread

During this unit, pupils will build upon their knowledge of electricity, by researching different components and series' that can make a circuit. They will investigate the necessary precautions for working safely with electricity, as well as designing and making their own traffic lights and light-up t-shirt.

Progression pathway

This unit builds upon prior knowledge gained in Year 5 in which pupils learnt about space, forces, materials, living things and animals, including humans.

They build upon those skills this half term by researching different components and series' that can make a circuit. They will investigate the necessary precautions for working safely with electricity, as well as designing and making their own traffic lights and light-up t-shirt.

This will lead on to developing further scientific skills, as they continue to develop their 'thinking scientifically' skills, as well as applying their skills to everyday life.