

# Long Term Plan for Science



**Fields Multi Academy  
Trust**

## EYFS

Year one of the rolling programme for science in Understanding the World in EYFS

### Autumn Term

### Spring Term

### Summer Term

#### Throughout the Year



Throughout the year, children will have the opportunity to expand their vocabulary and share their ideas and thoughts in sentences. They will be encouraged to ask 'why' questions and to connect ideas from different areas of learning. Through all areas of learning, children are supported to work out problems and organise their thinking and ideas. Adults will share information and model new vocabulary. Children will also be encouraged to find out for themselves using a variety of resources: Non-fiction books; use of all of their senses in hands-on exploration; exploration of the natural world around them; describing what they see and hear both inside and outside; and understand the effects of the changing seasons on the natural world around them.

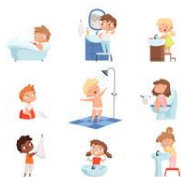


#### Journeys

In our exploration of the journeys that we make, we will be talking about what we

see and hear on our journeys using a wide vocabulary. By talking about our everyday journeys, children are encouraged to respect and care for the natural environment and all living things.

The children will talk about a wide variety of ways to make a journey and explore and talk about the different forces that they can feel, whilst floating boats, building bridges and exploring different vehicles.



#### People Who Help us

Children will recognise that there are many different people who help us in our daily lives. These people help us to stay healthy. In this

term, children find out ways to help themselves make healthy choices about food, drink, activity, sleep and brushing teeth. We learn about how to keep ourselves clean through good handwashing and the names of parts of our bodies.



#### Traditional Tales

Through a variety of different stories, children will explore the food that we eat. Through cooking

and preparing these foods, we extend our vocabulary and talk about the difference between materials and changes that they notice, such as baking bread.



#### Growing

Children will recognise how we grow as humans and talk about their own life and that of their family. By planting seeds and caring for them, they will

understand the basic process of growing and the need to respect and care for the natural environment. By exploring the life cycle of frogs, ladybirds and butterflies, they will understand the key features of life cycles. This term will be another opportunity to widen their vocabulary and talk about what they observe.



#### Change over time

Children will explore how change can happen over time. This is explored both through changes in the growth of our plants and through the toys that we play with. We will explore the properties of

the materials that our toys are made of and use talk to compare and contrast. We will explore how things work and talk about the forces that we feel when for example we make a toy car move or a puppet go up and down.

Autumn Term

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**Homes and Family**

During this term, children will talk about the homes in which we live and the materials that are used in them. We will compare and contrast similarities and differences and talk about the properties of materials. Using our senses, we will talk about our homes and use new vocabulary to describe. We will talk about the people that live in our homes and the words that we use to describe family members and their relation to us.



**Our Planet – Animals and Plants**

During this term, children take a journey around our planet, exploring different habitats and the animals that live within them. They explore the climate of each habitat and how this affects the plants and animals that are able to live and grow there. Children are introduced to new vocabulary and sentences are modelled for children to be able to talk about what they see and have learned. They begin to understand the need to respect and care for the natural environment and all living things.



**Water**

Children explore different ways that we see water, from the water in the tap to the water in rivers and oceans. Through the use of a widening vocabulary, children will be able to talk about the many uses of water and how important it is to conserve this resource. By relating water to our daily weather, children will also look at key ideas such as waterproof, floating and sinking and animals that use water as their habitat.

## Key Stage 1

Year one of the rolling program for Science in KS1

### Autumn Term

### Spring Term

### Summer Term



#### On-going – Seasonal change

Throughout the year we will be observing the changes across the four seasons. We will be studying changes that take place with the plants and animals who live in our school grounds. We will be observing and describing the weather associated with each season and looking at how day length varies as we move through the seasons.



#### Animals including Humans

In this unit we will identify, name and sort a variety of common animals

including fish, amphibians, reptiles, birds and mammals.

We will be identifying and naming a variety of animals that are carnivores, herbivores and omnivores. We will start by looking at what our pets at home eat and then moving on to explore local animals and then worldwide animals.

We will be exploring the structure of animals, looking at how many legs they have and how they move, sorting animals by those that fly, walk or swim.



#### Marvellous materials

In this unit we will be finding and naming everyday

materials, including wood, plastic, glass, metal, water and rock. This will include exploring the materials that we find indoors and outdoors.

We will compare and group these materials based on their physical properties, including ordering materials in different ways, such as by how flexible they are or how smooth they are.

We will be investigating the physical properties of a variety of materials through exploring questions such as 'Which material makes the best waterproof cover for an umbrella?' and 'Which cloth is the most absorbent to clean up spillages?'



#### Plants and how they Grow

In this unit we will be planting seeds and bulbs to observe how they grow into mature

plants.

We will be identifying and naming common wild and garden plants in our school grounds. This will include identifying and naming deciduous and evergreen trees using tree identification charts.

We will be observing carefully and finding out about the main parts of a plant, naming them and learning their functions.

We will be carrying out a range of investigations to find out what plants need to grow and stay healthy.

*Year two of the rolling program for Science in KS1*

Autumn Term

Spring Term

Summer Term

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**Me and my senses**

In this unit we will find out about our amazing bodies, labelling the main parts and learning about how

important it is for us as humans to look after our bodies with exercise, eating the right types of foods and hygiene.

We will explore our five senses of smell, taste, touch, hearing and sight through a range of investigations.

We will learn that animals have offspring that grow into adults, learning about the life cycles of humans, frogs, chickens and butterflies.



**Materials and their uses**

In this unit we will investigate a variety of everyday materials, identifying them and

comparing their suitability for particular uses by exploring questions such as ‘Why is plastic a suitable material for a water bottle?’ or ‘Why do we use glass in a window?’

Through exploration we will learn that some materials can change shape through squashing, bending, twisting or stretching, finding out why this can be useful. This will include investigating which material stretches the furthest to make a leotard suitable for a gymnast.



**Living things and their habitats**

In this unit we will be exploring animal and plant habitats,

learning how different habitats provide for the needs of the animals and plants that live there. This will include identifying and naming a variety of local animals and plants and then moving on to explore worldwide habitats such as the desert or ocean.

We will study microhabitats in our school grounds and learn about the mini-beasts that live in them through answering questions such as ‘Do woodlice prefer dry or damp conditions?’

We will explore the food chains of plants and animals living in our local area.

**Lower Key Stage 2**

Year one of the rolling program for science in Lower Key Stage Two

**Autumn Term**

**First half of term: Light**



In this unit we will be exploring that we need light in order to see things and that dark is the absence of light. This

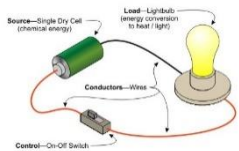
will include recognising that light from the sun can be dangerous and that there are ways to protect our eyes.

We will explore how light reflects off different surfaces.

We will be investigating how shadows are formed and creating our own shadow puppets.

Through creating a shadow puppet show we will find out we can change the size of a shadow by changing the distance of the shadow puppet from the light source.

**Second half of term: Electricity**



In this unit we will be identifying common appliances that run on

**Spring Term**

**First half of term: Forces and Magnets**



In this unit we will be exploring forces, investigating how things move on different surfaces. This

will include finding out that for some forces we need contact but that magnetic forces can act at a distance.

We will be exploring a range of different shapes and sizes of magnets answering questions such as 'Do bigger magnets attract more paperclips?' or 'How far away from the magnetic material will the magnet attract the object?'

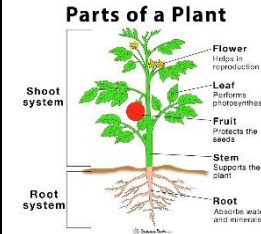
We will test a range of materials and sort them by whether they are magnetic or not.

We will explore how magnets have two poles and then use our learning to predict whether two magnets will attract or repel each other, depending on which poles are facing.

**Second half of term: Sound**

**Summer Term**

**Plants and keeping healthy**



In this unit we will be dissecting flowering plants to find out about the different parts and their functions. This will include a controlled investigation to look at

the function of leaves by asking 'Can a plant survive and grow without its leaves?'

We will be carrying out a range of investigations to learn the requirements of plants for life and growth and learning that this varies from plant to plant.

Through observing how coloured dye travels through a flowering plant the children will find out the way in which water is transported within plants.

We will explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

We will explore the plants that we eat, finding out about how animals, including humans need the right types and amount of

electricity, recognising how we need to stay safe around electricity.  
We will be constructing simple circuits, identifying and naming the basic parts such as cells, wires, bulbs, switches and buzzers.  
We will investigate a range of circuits to find out if they light a bulb.  
We will be testing and making switches to learn how a switch open and closes a circuit.



In this unit we will be exploring how sounds are made, exploring vibrations through observing rice moving on a tambourine and the vibrations of sound forks.  
We will investigate to find out the patterns between the pitch of a sound and features of the objects that produced it.  
We will explore the patterns between the volume of a sound and the strength of the vibrations that produced it.  
We will investigate how a sound gets fainter as the distance from the sound source increases.

nutrition and that we get nutrition from what we eat.

**Autumn Term**

**First half of term: Rocks**



In this unit the children will explore a range of rocks. They will compare and group these rocks on the basis of their appearance and simple physical properties.

We will explore how fossils are formed by creating our own models of fossils.

We will be exploring how soils are made and testing the soils in our school grounds.

**Second half of term: States of matter**



In this unit we will be comparing and grouping materials according to whether they are solids, liquids or gases.

We will be investigating how some materials change state when they are heated or cooled, measuring at what temperature this happens.

We will be learning about the water cycle, creating our own model to observe the part played by evaporation and condensation in water cycle.

**Spring Term**

**Our Amazing Bodies!**



In this unit we will be exploring the skeletons and muscles of humans and other animals. Finding out how they provide support, protection and movement. This will include making a moving model of a hand.

We will be creating a model to represent the simple functions of the basic parts of the digestive system in humans. Following on from this we will be labelling each part of the digestive system and describing its function.

We will be identifying the different types of teeth in humans and finding out about their simple functions.

**Summer Term**

**Living Things and their Habitats**



In this unit we will be learning that living things can be grouped in a variety of ways. We will be using classification keys to

help group, identify and name living things. We will begin with identifying plants and animals in our school grounds and then move onto studying the local and then wider environment.

We will look at the impact that changes to the environment can have on habitats, learning how these changes can pose dangers to living things. We will also look at how we can help protect and sustain the habitats of plants and animals in our school grounds. This will include an environmental project where we plan and carryout a project to improve or preserve habitats in our school environment.

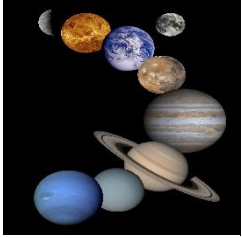
We will be constructing and interpreting a variety of food chains, identifying producers, predators and prey.



## Upper Key Stage 2

Year one of the rolling program for science in Upper Key Stage Two

### Autumn Term



#### **First half of term: Earth and Space**

In this unit we will learn about the solar system, describing the movement of the Earth and other planets relative to the sun.

We will learn about and describe the movement of the moon,

keeping a moon diary for one month to study the different phases of the moon.

We will make a model to compare the size of the spherical bodies of the Earth, sun and moon and their distances from each other.

We will explore how the Earth's rotation explains day and night.



#### **Second half of term: Light**

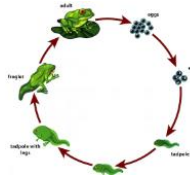
In this unit we will be exploring how light appears to travel in straight lines, using this idea to

explain that objects are seen because they give out or reflect light into the eye.

We will then use the idea that light travels in a straight line to explain why shadows have the same shape as the objects that cast them.

Through enquiry, we will learn how the transparency of materials affects the strength of the shadow and why.

### Spring Term



#### **Life Cycles**

In this unit we will be studying, comparing and

describing the differences in the life cycles of a mammal, an amphibian, an insect and a bird.

This will include a research project where groups of children will research and then present to the class an in-depth report on the life cycles of one of these groups of animals.

We will be describing the life process of reproduction in some plants and animals.

We will be studying in depth, the changes that occur as humans develop to old age.

### Summer Term



#### **Human Body and Keeping Healthy**

In this unit we will be identifying and naming the main parts of the

human circulatory system, describing the functions of the heart, blood vessels and blood. This will include some drama work where the class will be re-enacting the circulatory system. Children will have red and blue paper to represent the blood as it oxygenates and de-oxygenates. This will encourage them to describe the process and be able to use the correct scientific terms.

We will be finding out about the impact of diet, exercise, drugs and lifestyle on the ways in which our bodies function. This will include researching and presenting a project about living healthy to the class. We will be describing the ways in which nutrients and water are transported within animals, including humans. This will include investigations to help the children to visualise and then be able to describe these processes.

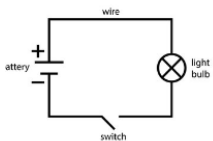
**Autumn Term**



**Forces and electricity**

In this unit we will be learning about gravity, exploring how

unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling objects. We will be investigating and identifying the effects of air resistance, water resistance and friction that act between moving surfaces. This will include answering questions such as ‘How does the surface area of a parachute effect the time it takes for the parachute to land? And ‘Which shape of foil boat holds the most weight before it sinks?’ We will be learning that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.



**Electricity**

In this unit we will be exploring how the brightness of a lamp or the volume of a buzzer is effected by the number and voltage of cells used in a circuit.

**Spring Term**



**Properties and Changes in Materials**

In this unit we will be comparing and grouping everyday materials on the basis of their

properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets. We will be exploring how some materials dissolve to form a solution and through investigations will find out how to recover a substance from a solution. We will be using a range of methods of separation including filtering, sieving and evaporating to decide how mixtures of solids, liquids and gases might be separated. We will be carrying out fair test investigations to provide evidence for the particular uses of everyday materials, including metals, wood and plastic. We will be investigating to find out about examples of both reversible and irreversible changes. This will include be able to demonstrate that dissolving, mixing and changes of state are reversible changes but

**Summer Term**



**Classification and adaption**

In this unit we will be describing how living things are

classified into broad groups according to common observable characteristics and based on similarities and differences. This will include finding out about the scientist Carl Linnaeus and his binominal system for classifying living things. We will be using classification keys and identification charts to classify invertebrates living in the school grounds. We will also be using a range of different types of identification charts to classify the trees in the school grounds, discussing which were the most useful and why.



**Evolution and inheritance**

In this unit we will be exploring how living things have changed over time and that fossils provide information about living things that inhabited the

<p>We will be carrying out a range of investigations to find out about and compare the variations in how components function, including the brightness of a bulbs, the loudness of buzzers and the on/off positions of switches.</p> <p>We will be learning and using the correct symbols to represent the components in a circuit diagram.</p> <p>We will end this unit with the children using their knowledge of electrical circuits to design, create and evaluate their own electronical board game.</p>	<p>that some changes result in the formation of new materials, and that this kind of change is not usually revisable.</p>	<p>Earth millions of years ago. This will include making a large scale timeline of evaluation on the playground as well as learning about the work of Charles Darwin.</p> <p>Through reading the story 'The Mollibird – an evolution story by Jules Pottle and Rufus Thomas' the children will learn about survival of the fittest and that living things produce offspring of the same kind. This will include learning that normally offspring vary and are not identical to their parents. Through this text and exploration we will also identify how animals and plants are adapted to suit their environment in different ways and that adaption may lead to evolution.</p>
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