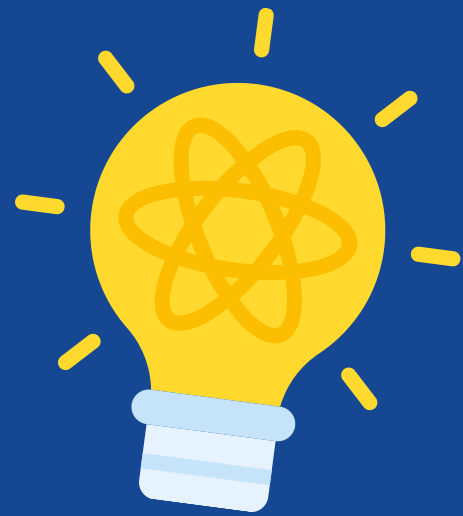


MABE

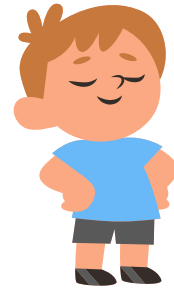
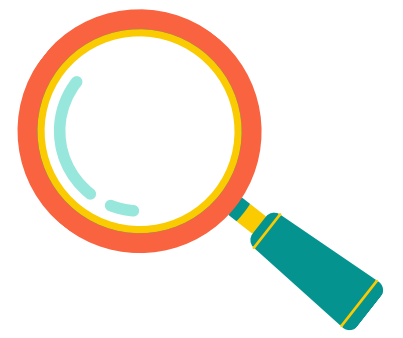


SCIENCE CURRICULUM

We are the best scientists we can **be!**



Science in EYFS at Mabe



Children at Mabe begin their journey as scientists in our EYFS classroom, exploring the world around them and being encouraged to express what they observe in words, drawings and through the questions that they ask. In line with the Educational Programme set out in the EYFS framework, this aspect of Understanding the World involves “guiding children to make sense of their physical world”.

Whether that be through hands-on exploration of the natural world or different textures and materials, or exploring ideas about forces through simple investigations, children are given opportunities to share their ideas and ask questions to pursue the awe and wonder of finding out about our world.

At Mabe, our EYFS planning provides a framework for ensuring that the foundations of inquiry and investigation are embedded through practical experiences and activities. Alongside this, we always allow scope for children to develop their common interests building on these enthusiasms to ignite curiosity as we develop projects together to ‘find out more’. Central to all of this is our key focus on building vocabulary and communication skills which will enable the children to develop their scientific knowledge and skills through our KS1 and KS2 Science curriculum.

Our self-access science resources include:

- Investigation station with magnifying glasses, materials of interest based on topic (rocks, shells, pine cones etc)
- Mini clip boards for recording and mark making.
- Magnetic shapes.
- Cars/ ramps
- Small world animals
- Collage art materials
- Class weather station
- Torches
- Musical instruments
- Gardening equipment
- Bug hunting equipment



Science foundations through our topic themes:

PLANTS

- Planting and Growing topic
- Exploring our garden and school environment
- Harvest celebrations
- Farm topic
- Spring investigations

ANIMALS INC HUMANS

- All about me topic
- Animal magic topic
- Small world animal play
- Role play families
- Health and self care activities (washing, teeth cleaning, healthy diets)

EVERYDAY MATERIALS

- Investigation station
- Different materials such as rocks, shells, pine cones, art based collage materials.

SEASONAL CHANGES

- Daily weather recording
- Spring investigations
- Autumn Investigations
- Looking at different types of holidays (hot/snow)

LIVING THINGS & HABITATS

- Mini-beasts topic
- Exploring our garden and school environment
- Animal magic topic- where do different animals live?

ELECTRICITY/LIGHT

- Exploring light with torches
- Space topic
- Cause and effect on/off toys
- Beebots



ROCKS

- Investigation station
- Different materials such as rocks, shells, pine cones, art based collage materials.
- Fossil investigation as part of dinosaur topic
- Sand castles
- Rock and natural material sculptures

STATES OF MATTER

- Cooking activities
- Ice investigation

FORCES & MAGNETS

- Magnetic construction shapes
- Loose parts for building/rolling/balancing

SOUND

- Pre-phonics sound discrimination games
- Musical instruments
- Experimenting with non traditional instruments outside (banging saucepans, pipes etc)

EVOLUTION & INHERITANCE

- Family role play
- All about me topic
- Lifecycle of butterfly/frogs investigation



EYFS

AUTUMN 1

What are everyday materials?

Identify different materials

Sort materials in different ways

Distinguish between an object and what it is made from

Describe materials according to their properties

Describe why some materials suit certain objects better than others

Assessment Checkpoints:

- Name and identify different materials
- Sort materials in different ways
- Describe materials according to their properties

AUTUMN 2

What are toys made of?



LINKS TO HISTORY "HOW HAVE TOYS CHANGED"
LINKS TO DT: "MAKE AND EVALUATE A TOY"

Explain why an object is made from a certain material

Suggest other suitable materials for given objects

Investigate the properties of materials

Investigate which materials float and which sink

Carry out an experiment to find out which materials are waterproof

Assessment Checkpoints:

- Explain why an object is made from a certain material
- Investigate materials according to their properties
- Name some materials that are waterproof

SPRING 1

Animals, including humans

Identify and name some common animals

compare the structure of common animals

Name and sort animals by what they eat

Name and label the parts of a human body

Name and label the parts of common animals

Assessment Checkpoints:

- Name some common animals
- Sort animals by what they eat
- Label parts of the human body
- Label parts of common animals

SPRING 2

What are my senses?

Name the five senses and locate the body part responsible for them

Investigate the sense of smell

Investigate the sense of taste

Investigate the sense of touch

Investigate the sense of hearing

Investigate the sense of sight

Assessment Checkpoints:

- Name the 5 senses
- Investigates the 5 senses

SUMMER 1

How can I tell which season it is?

Name the four seasons and identify when they occur in a year

Describe the common weather in each season

Describe what happens to the length of a day over the seasons

Describe other features that change throughout the seasons

Name my favourite season and describe why

Assessment Checkpoints:

- Name the four seasons and know when they occur
- Describe key changes that happen during each season

SUMMER 2

What plants and trees are in my local environment?

Know what a plant is

Name the different parts of a plant

Know the difference between garden and wild flowers and name some

Name and compare different types of trees

Identify what is growing in the gardens at Mabe school

Plant our own flowers in our school gardens

Assessment Checkpoints:

- Name different parts of a plant
- Name different types of trees
- Identify different plants in our local area

Working scientifically

? Asking simple questions

🔍 observing

🧪 performing tests

🔗 identifying & classifying

💡 suggesting answers

📊 recording data



AUTUMN 1

How are our bodies brilliant?

- Identify the skills needed to work in the medical profession
- Name and describe the stages of the human life cycle
- Explain the importance of a healthy balanced diet
- Explore the effect of exercise on the body
- Explain the importance of hygiene

LINKS TO HISTORY TOPIC "BRILLIANT BODIES"

Assessment Checkpoints:

- Name and describe the stages of the human life cycle
- Explain why we should eat a balanced diet
- Know the effects of exercise on our body

AUTUMN 2

How are materials part of our everyday lives?

- Identify the key material an object is made from
- Describe the suitability of various everyday materials for particular uses
- Make links between materials and how they are used
- Consider why building materials are fit for purpose
- Investigate which material is suitable for a specific purpose
- Explain how the shapes of objects made from some materials can be changed

Assessment Checkpoints:

- Describe the suitability of materials for a number of objects
- Explain how the shapes of some objects can be changed

SPRING 1

How are other animals' bodies brilliant?

- Know that animals have offspring that grow into adults
- Describe the life cycle of a butterfly
- Contrast the life cycle of a butterfly with the lifecycle of a frog
- Find out about the basic needs of different pets
- Present our learning on a pet's basic needs
- Measure and discuss toddler growth overtime

Assessment Checkpoints:

- Describe and compare two animal lifecycles
- Know the basic needs of some animals

SPRING 2

What do plants need to grow and stay healthy?

- Identify and describe exotic plants in our locality
- Observe, describe and compare seeds and bulbs
- Design an experiment to investigate what seeds need to grow
- Make plant growth observations and measurements
- Interpret the results of our experiment
- Draw a conclusion from our experiment

LINKS TO GEOGRAPHY TOPIC "PLANT HUNTERS"
LINKS TO ART "COLLAGE AND PRINT FLOWER INSPIRED ART"

Assessment Checkpoints:

- Describe and compare seeds and bulbs
- Explain what seeds need in order to grow
- Make accurate measurements

SUMMER 1

How are living things suited to their habitats (Local focus)?

- Identify and compare things that are living, dead or have never been alive
- Identify and name a variety of animals around our school
- Identify and name a variety of plants around our school
- Compare two microhabitats
- Plan and perform a test to decide which habitat insects prefer

Assessment Checkpoints:

- Identify and compare things that are living, dead or have never been alive
- Name a variety of plants around our school and local area
- Compare two microhabitats

SUMMER 2

How are living things suited to their habitats (Global focus)?

- Describe how an ocean habitat provides the basic needs for different plants and animals
- Compare a rainforest with an ocean habitat
- Identify habitat zones on The Galapagos Islands
- Explain how a food chain works
- Classify things are living, dead or have never been alive
- Identify and name a variety of animals in a beach habitat
- Explain how meerkats depend on each other

LINKS TO GEOGRAPHY TOPIC "ISLANDS"
LINKS TO ART "DRAWING AND PAINTING WAVES"

Assessment Checkpoints:

- Describe and compare different habitats
- Explain how food chains work

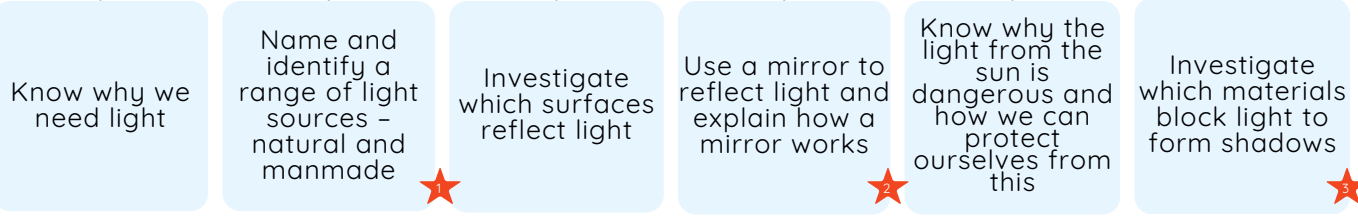
Working scientifically

- Asking simple questions
- observing
- performing tests
- identifying & classifying
- suggesting answers
- recording data



AUTUMN 1

How does light travel?

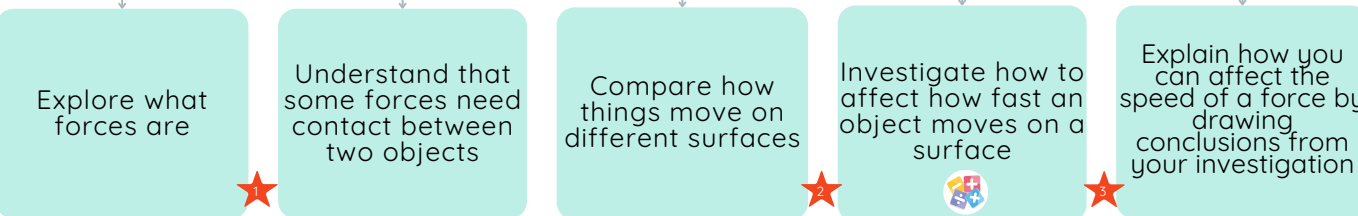


Assessment Checkpoints:

- ★ Name and identify a variety of light sources
- ★ Explain how a mirror works
- ★ Investigate how shadows are formed

AUTUMN 2

Forces and Magnets (1)

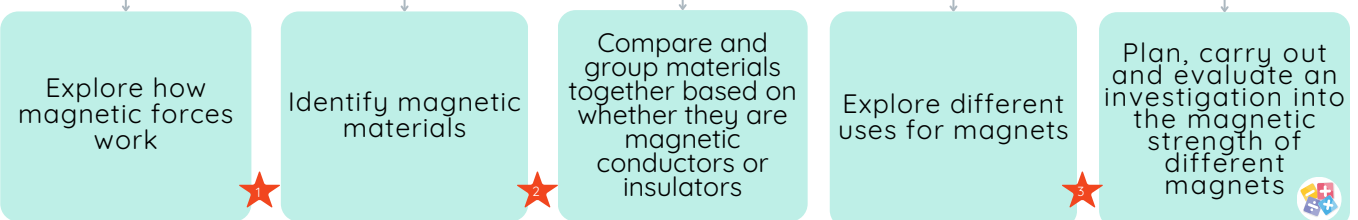


Assessment Checkpoints:

- ★ Explain what a force is
- ★ Describe how things might move on different surfaces
- ★ Explain how surfaces affect how fast an object moves across it

SPRING 1

Forces and Magnets (2)



LINKS TO PREVIOUS GEOGRAPHY TOPIC "AROUND THE WORLD IN 80 DAYS"

USING COMPASSES AND MAGNETIC POLES

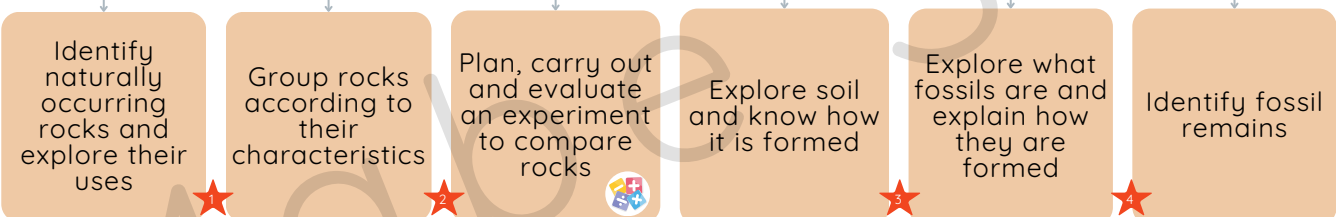
Assessment Checkpoints:

- ★ Explain about magnetic forces
- ★ Identify materials which are magnetic
- ★ Know how magnets are used



SPRING 2

What is the ground made of?



LINKS TO GEOGRAPHY TOPIC "EARTHQUAKES AND VOLCANOES"
LINKS TO ART: "USING CLAY TO MAKE A SCULPTURE"

Assessment Checkpoints:

- ★ Identify and name different types of rocks
- ★ Compare and group rocks according to their properties
- ★ Know how soil is formed
- ★ Explain what a fossil is



SUMMER 1

Animals, including humans

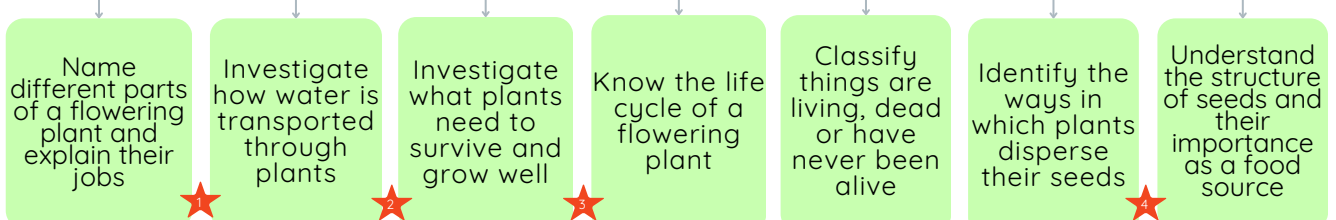


Assessment Checkpoints:

- ★ Know how food carries different nutrients
- ★ Know that animals eat different foods
- ★ Explain the role of the skeleton and muscles
- ★ Compare animals that are vertebrates and invertebrates

SUMMER 2

Plants



LINKS TO ART "LOCAL PAINTING OF LANDSCAPES, ACCURATE REPRESENTATION OF PLANTS"

Assessment Checkpoints:

- ★ Name different parts of a plant explaining their job
- ★ Explain how water is transported through plants
- ★ Describe the life cycle of a flowering plant
- ★ Describe some ways seeds are dispersed



Working scientifically



using evidence



reporting findings in different ways



Asking simple questions



observing & measuring



performing fair tests



identifying similarities & differences



conclude & predict



recording data



AUTUMN 1

How do the lights switch on?

- Identify common appliances that run on electricity
- Understand how to keep safe around electrical appliances
- Construct simple circuits to light a bulb
- Investigate how to make a bulb shine brighter
- Investigate different ways to make two bulbs work (parallel or series circuits)
- Recognise simple conductors and insulators

Assessment Checkpoints:

- ★ Know how to stay safe around electricity
- ★ Construct simple circuits
- ★ Identify conductors and insulators of electricity

LINKS TO SPRING 2 DT "MAKE AN ANIMAL WITH LIGHT UP EYES"

AUTUMN 2

How do we hear?

- Understand that sounds are made when objects and materials vibrate
- Know how sounds travel to the ear
- Name the parts of the ear and describe their function
- Investigate the relationship between distance and volume
- Investigate how and why sounds can be different pitches and volumes
- Investigate which materials let sound pass through and which material stops sounds from reaching the ear

Assessment Checkpoints:

- ★ Describe how a sound is made and travels
- ★ Name parts of the ear and describe their function
- ★ Investigate how far sounds travel

FUTURE LINKS TO Y5 A1 DT "MAKE A LIGHT UP CHRISTMAS DECORATION"

SPRING 1

States of Matter

- Understand the properties of solids, liquids and gases
- Sort materials by their state
- Explore the melting temperatures of solids
- Understand the role of evaporation and condensation in the water cycle
- Observe that some materials change state when they are cooled
- Observe that some materials change state when they are heated

Assessment Checkpoints:

- ★ Describe the properties of solids, liquids and gasses
- ★ Understand the process of evaporation and condensation
- ★ Describe what happens when materials are heated or cooled

PAST LINKS TO Y3 SUMMER 2 "SOURCE TO SEA" TOPIC

SPRING 2

Animals, including humans

- Identify the different types of teeth in humans and their simple functions
- Understand how to look after our teeth and the importance of this
- Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have
- Explain how the digestive system works in humans
- Identify the prey, predator and producer in a range of food chains
- Construct and interpret a variety of food chains

Assessment Checkpoints:

- ★ Name and describe the function of different types of teeth
- ★ Identify herbivores, carnivores and omnivores by their teeth
- ★ Explain the human digestive system

LINKS TO SPRING 2 DT "MAKE AN ANIMAL WITH LIGHT UP EYES"

SUMMER 1

Living Things and their Habitats

- Identify a variety of habitats and explore why organisms live in different habitats
- Group organisms according to their characteristics
- Classify animals into specific groups according to their characteristics
- Use a classification key to identify animals
- Identify and classify a variety of British plants

Assessment Checkpoints:

- ★ Explain why organisms live in different habitats
- ★ Classify animals according to their characteristics
- ★ Use a classification key

SUMMER 2

Living Things and their Habitats

- Use photographs to make observations about plants and animals in different habitats throughout the seasons
- Classify living things found in different habitats based on their features
- Create a simple identification key based on a living things features
- Explore the human impact on habitats and environments in our local area through a fieldwork investigation
- Explore the human impact on habitats and environments in the wider world
- Use secondary sources to find out about human impact (positive and negative) on environments

Assessment Checkpoints:

- ★ Explain how habitats change throughout the seasons
- ★ Create a simple identification key
- ★ Describe the human impact on habitats and environments of the world

LINK TO ART "SCULPTURE IN NATURE; ANDY GOLDSWORTHY"

Working scientifically



using evidence



reporting findings in different ways



Asking simple questions



observing & measuring



performing fair tests



identifying similarities & differences



conclude & predict



recording data



YEAR 4

AUTUMN 1

Properties and Changes of Materials

- Investigate the properties of different materials in order to recommend materials for particular functions. ★
- Explore adding a range of solids to water and other liquids e.g. cooking oil, as appropriate. ★
- Investigate rates of dissolving by carrying out comparative and fair test. ★
- Separate mixtures by sieving, filtering and evaporation, choosing the most suitable method. ★
- Explore a range of non-reversible changes e.g. rusting, adding fizzy tablets to water, burning. ★
- Carry out comparative and fair tests involving non-reversible changes. ★
- Research new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton). ★

Assessment Checkpoints:

- ★ Investigate the properties of different materials
- ★ Describe what affects the rate of dissolving
- ★ Explain what a non-reversible change is

AUTUMN 2

Properties and Changes of Materials

- Identify which material will dissolve in liquid to form a solution. ★
- Use knowledge of solids, liquids and gases to decide how mixtures can be separated. ★
- Explain the some changes cause new materials to form and that these are irreversible. ★
- Identify when a change caused by heating or cooling is reversible or irreversible. ★
- Investigate materials needed for burning and name the new materials form by burning. ★

Assessment Checkpoints:

- ★ Know which materials will dissolve in a liquid
- ★ Describe how materials can be separated
- ★ Explain some reversible and irreversible changes

SPRING 1

What is beyond our world (and how do we know)?

- Name and describe the planets in our solar system. ★
- Describe the movement of the Earth and other planets, relative to the Sun. ★
- Describe the Earth, Sun and Moon and explain their function and purpose. ★
- Explain what causes day and night. ★
- Describe the movement of the moon relative to the Earth. ★

LINK TO YEAR 6 SUMMER 2 HISTORY "SPACE THROUGH THE AGES"

Assessment Checkpoints:

- ★ Name and describe the planets in our solar system
- ★ Describe the movement of the Sun, Earth and Moon
- ★ Explain day and night

SPRING 2

Can I slow down a force?

- Explain the unsupported objects fall to the ground because of gravity. ★
- Identify the effect of friction that acts between two surfaces. ★
- Identify the effects of air resistance that act between moving surfaces. ★
- Identify and explain the effects of water resistance. ★
- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. ★
- Use investigation results to make predictions and set up further comparative tests. ★

LINK TO SUMMER 1 DT "MAKE AND EVALUATE A MODERN DAY SHIP WITH SAILS"

Assessment Checkpoints:

- ★ Explain the effect of friction on a moving object
- ★ Explain the effects of air and water resistance
- ★ Know what can affect a force

SUMMER 1

Living Things and their Habitats

- Use secondary sources and, where possible, first-hand observations to find out about the life cycle of a range of animals. ★
- Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth. ★
- Look for patterns between the size of an animal and its expected life span. ★
- Grow and observe plants that reproduce asexually e.g. strawberries, spider plants, potatoes. ★
- Explain how planted bulbs multiply. ★
- Use secondary sources to find out about pollination. ★

Assessment Checkpoints:

- ★ Describe the life cycle of different types of animals
- ★ Compare gestation time for different mammals
- ★ Explain how different plants reproduce

SUMMER 2

Animals including humans

- Describe the stages of the human life cycle. ★
- Explain the changes that happen in 0-5 years of age. ★
- Explain how bodies change during puberty. ★
- Explain how bodies change during old age. ★
- Compare the life cycle of humans to other animals. ★

Assessment Checkpoints:

- ★ Describe each stage of the human life cycle
- ★ Compare the human life cycle to other animals

Working scientifically



using evidence



reporting findings in different ways



Asking simple questions



accurate measuring



making predictions



plan enquiries



recording data



AUTUMN 1

Animals, inc Humans

Identify and name the key parts of the circulatory system

Describe the function of the heart, blood vessels and blood

Explain how the heart works

Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function

Describe the ways in which nutrients and water are transported within animals, including humans

LINK TO PSHE JIGSAW UNIT "CHANGING ME"

Assessment Checkpoints:

- ★ Name the key part of the circulatory system
- ★ Explain the function of the heart, blood vessels and blood
- ★ Describe the impact of poor lifestyle choices on our bodies

AUTUMN 2

Electricity

Explain the significance of Nikola Tesla on the scientific world

Use recognised symbols when representing a simple circuit in a diagram

Associate the brightness of a lamp with the number of voltage cells used

Compare and give variations in how components function, including the loudness of buzzers

Compare and give variations in how components function, including the on/off position of switches

LINK TO DT: "DESIGN, MAKE AND EVALUATE A MOTORISED BOAT"

Assessment Checkpoints:

- ★ Use symbols when drawing electrical circuits
- ★ Associate the brightness of a lamp with the number of volts
- ★ Compare how components function

SPRING 1

Living Things and their Habitats

Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important

Use first-hand observation to identify characteristics shared by the animals in a group

Use secondary sources to research the characteristics of animals that belong to a group

Use information about the characteristics of an unknown animal or plant to assign it to a group

Classify plants and animals, presenting this in a range of ways e.g. Venn diagrams, Carroll diagrams and keys

Create an imaginary animal which has features from one or more groups

LINK TO: ART SPI, PLANTS AND LANDSCAPE ART

Assessment Checkpoints:

- ★ Know how the classification system for animals was devised
- ★ Use classification keys to identify and group animals
- ★ Classify animals in different forms

SPRING 2

Light

Explain the significant finding of Euclid

Investigate the light travels in straight lines

Explain how we see things

Explain why and how shadows form

Predict the size of shadows when the position of the light source changes

Assessment Checkpoints:

- ★ Explain how light travels
- ★ Explain how we see things
- ★ Explain how shadows form

SUMMER 1

Evolution and Inheritance

Explain the significance of Charles Darwin on the scientific world

Consider Darwin's discoveries and his thought process about finches in the Galapagos Islands

Recognise that living things produce offspring of the same kind but they may not be identical to their parents

Explain how the environment can have an impact on living things

Investigate plant adaptations

Recognise that living things have changed overtime through exploration of fossils

LINK TO RE: "CREATION AND SCIENCE: CONFLICTING OR COMPLEMENTARY?"

Assessment Checkpoints:

- ★ Describe the significance of Charles Darwin to the scientific world
- ★ Understand the role of genetics in off-spring
- ★ Describe how some plants have adapted and why

SUMMER 2

Can I make the bulb shine brighter?

Make a series and parallel circuit work and draw this using symbols

Explain how a circuit operates to achieve particular operations

Make circuits to solve particular problems, such as a quiet and a loud burglar alarm

Carry out fair tests exploring changes in circuits

Make circuits that can be controlled

Assessment Checkpoints:

- ★ Make a circuit which will solve a given problem
- ★ Know how to carry our fair tests
- ★ Use circuit symbols to present my learning

Working scientifically



using evidence



reporting findings in different ways



Asking simple questions



accurate measuring



making predictions



plan enquiries



recording data



YEAR 6

