

Science End Points



E A R L Y Y E A R S F O U N D A T I O N S T A G E

In Pre School and Reception our children will be taught the following:

Learn new vocabulary

Explore the natural world around them, making observations and drawing pictures of animals and plants

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class

Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter

On completion of Foundation Stage, a young Scientist at Moor End will:

Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices

Ask questions about the world around them

Make observations and draw pictures of animals and plants.

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class

Understand some important processes and changes in the natural world around them, including the seasons

Science End Points

END OF KEY STAGE 1



National Curriculum Objectives in Science for KS1 Working Scientifically

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

On completion of Key Stage 1, a young scientist at Moor End will:

- Ask simple questions and know they can be answered in different ways.
- Perform simple tests.
- Identify and classify.
- Make observations and suggest answers to scientific questions.
- Gather and record data to help them answer questions.
- Use all of the above scientific skills and apply them to the Science topics they complete in year 1 and year 2 to help them achieve the National Curriculum objective.

Science End Points

END OF KEY STAGE 1



National Curriculum Objectives in Science for KS1 Plants

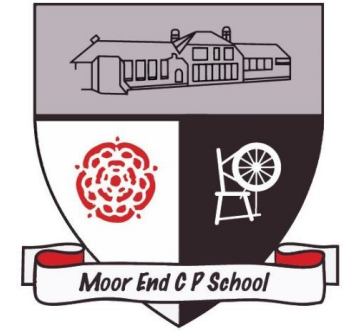
- Identify and name a variety of common and garden plants, including deciduous and evergreen trees.
- Identify and describe the basic structure of a variety of common flowering plants including trees.
- Observe and describe how seeds and bulbs grow into mature plants
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

On completion of Key Stage 1, a young scientist at Moor End will:

- Name trees / other plants that they see regularly
- Describe some of the key features of these trees and plants
- Point out trees which lost their leaves and those that kept them the whole year
- Point to and name the parts of a plant, recognising that they are not always the same
- Describe how plants that they have grown from seeds and bulbs have developed over time
- Identify plants that grew well in different conditions

Science End Points

END OF KEY STAGE 1



National Curriculum Objectives in Science for KS1 continued:

Everyday materials

- Distinguish between an object and the material it is made out of.
- Identify and name a variety of everyday materials (wood, plastic, glass, metal, water, rock, brick, paper and cardboard) and compare their suitability for particular uses
- Describe the simple properties of a variety of everyday materials.
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

On completion of Key Stage 1, a young scientist at Moor End will:

- Describe the properties of different materials
- Name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use
- Label a picture or diagram of an object made from different materials
- Use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot
- Recognise that a material may come in different forms which have different properties

Science End Points

END OF KEY STAGE 1



National Curriculum Objectives in Science for KS1 continued:

Animals, including humans

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)
- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
- 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

On completion of Key Stage 1, a young scientist at Moor End will:

- Name a range of animals which includes animals from each of the vertebrate groups
Describe the key features of these named animals
- Label key features on a picture/diagram
- Write descriptively about an animal
- Describe what a range of animals eat
- Label parts of the body on pictures and diagrams
- Explore objects using different senses
- Describe how animals including humans have offspring which grow into adults
- State the basic needs of animals, including humans, for survival.
- State the importance for humans of exercise, eating the right amounts of different types of food and hygiene.
- Name foods in each section of the Eatwell guide

Science End Points

END OF KEY STAGE 1



National Curriculum Objectives in Science for KS1 continued:

Seasonal changes

- Observe changes across the 4 seasons
- Observe and describe weather associated with the seasons and how day length varies

On completion of Key Stage 1, a young scientist at Moor End will:

- Name the four seasons and identify when in the year they occur.
- Describe weather in different seasons over a year.
- Describe days as being longer (in time) in the summer and shorter in the winter.
- Describe other features that change through the year .

Science End Points

END OF KEY STAGE 1



National Curriculum Objectives in Science for KS1 continued:

Living things and their habitats

- Explore and compare the differences between things that are living, dead, and things that have never been alive
- 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
- Identify and name a variety of plants and animals in their habitats, including microhabitats
- 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.

On completion of Key Stage 1, a young scientist at Moor End will:

- Find a range of items outside that are living, dead and never lived
- Name a range of animals and plants that live in a habitat and micro-habitats that they have studied
- Talk about how the features of these animals and plants make them suitable to the habitat
- Talk about what the animals eat in a habitat and how the plants provide shelter for them
- Construct a food chain that starts with a plant and has the arrows pointing in the correct direction .

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2

Working scientifically LKS2

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

On completion of Lower Key Stage 2, a young Scientists at Moor End will:

- Ask relevant questions
- Set up practical enquiries
- Conduct a fair test
- Make accurate measurements
- Make careful observations
- Present data in a variety of ways
- Record findings using simple scientific language
- Draw and label diagrams and explain what they mean.
- Identify scientific similarities and differences
- Use scientific evidence to support their findings

Use all of the above scientific skills and apply them to the Science topics they complete KS2 to help them achieve the National Curriculum objective.

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2

Plants

- Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
- Investigate the way in which water is transported within plants
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

On completion of Key Stage 2, a young Scientists at Moor End will:

- Explain the function of the parts of a flowering plant
- Describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination
- Give different methods of pollination and seed dispersal, including examples

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2 Continued Animals including humans

- Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- Identify that humans and some other animals have skeletons and muscles for support, protection and movement
- Describe the simple functions of the basic parts of the digestive system in humans
- Identify the different types of teeth in humans and their simple functions
- Construct and interpret a variety of food chains, identifying producers, predators and prey
- Describe the changes as humans develop to old age
- 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

On completion of Key Stage 2, a young Scientists at Moor End will:

- Name the nutrients found in food
- Name some bones that make up their skeleton giving examples that support, help them move or provide protection
- Describe how muscles and joints help them to move
- Sequence and draw the main parts of the digestive system
- Describe what happens in the digestive system
- Describe what some teeth are used for
- Name producers, predators and prey within a habitat
- Construct food chains
- Explain how a baby changes physically as it grows and also what it is able to do

Science End Points



END OF KEY STAGE 2

National Curriculum Objectives for KS2 Continued Rocks

- 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

On completion of Key Stage 2, a young Scientists at Moor End will:

- Name some types of rock and give physical features of each
- Explain how a fossil is formed
- Explain that soils are made from rocks and also contain living/dead matter

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2 Continued Light

- 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
- Recognise that shadows are formed when the light from a light source is blocked by an opaque object
- Find patterns in the way that the size of shadows change 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
- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

On completion of Key Stage 2, a young Scientists at Moor End will:

- Describe how we see objects in light and can describe dark as the absence of light
- State that it is dangerous to view the sun directly
- Define transparent, translucent and opaque
- Describe how shadows are formed by objects blocking light.
- Describe how light travels in straight lines either from sources or reflected from other objects into our eyes.
- Describe how light travels in straight lines past translucent or opaque objects to form a shadow of the same shape.

Science End Points



END OF KEY STAGE 2

National Curriculum Objectives for KS2

Forces (including magnets)

- 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
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- Describe magnets as having 2 poles
- Predict whether 2 magnets will attract or repel each other, depending on which poles are facing
- 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
- Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.

On completion of Key Stage 2, a young Scientists at Moor End will:

- Name living things living in a range of habitats, giving the key features that helped them to identify them
- Give examples of how an environment may change both naturally and due to human impact
- Draw the life cycle of a range of animals identifying similarities and differences between the life cycles
- Explain the difference between sexual and asexual reproduction and give examples of how plants reproduce in both ways
- Give examples of animals in the five vertebrate groups and some of the invertebrate groups
- Give the key characteristics of the five vertebrate groups and some invertebrate groups
- Compare the characteristics of animals in different groups
- Can give examples of flowering and non-flowering plants

Science End Points



END OF KEY STAGE 2

National Curriculum Objectives for KS2

Living things and their habitats

- 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 local and wider environment
- Recognise that environments can change and that this can sometimes pose dangers to living things
- 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
- 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

On completion of Key Stage 2, a young Scientists at Moor End will:

- Name living things living in a range of habitats, giving the key features that helped them to identify them
- Give examples of how an environment may change both naturally and due to human impact
- Draw the life cycle of a range of animals identifying similarities and differences
- Explain the difference between sexual and asexual reproduction and give examples of how plants reproduce in both ways
- Give examples of animals in the five vertebrate groups and some of the invertebrate groups
- Give the key characteristics of the five vertebrate groups and some invertebrate groups
- Compare the characteristics of animals in different groups Can give examples of flowering and non-flowering plants

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2

States of matter/properties of materials

- 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)
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- 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
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- Demonstrate that dissolving, mixing and changes of state are reversible changes
- Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda

On completion of Key Stage 2, a young Scientists at Moor End will:

- Name properties of solids, liquids and gases
- Give everyday examples of melting and freezing
- Give everyday examples of evaporation and condensation
- Describe the water cycle
- Understanding of properties to explain everyday uses of materials.
- Explain what dissolving means
- Name equipment used for filtering and sieving
- Use knowledge of liquids, gases and solids to suggest how materials can be recovered from solutions or mixtures by evaporation, filtering or sieving
- Describe some simple reversible and non-reversible changes to materials, giving examples

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2

Sound

- 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
- Find patterns between the volume of a sound and the strength of the vibrations that produced it
- Recognise that sounds get fainter as the distance from the sound source increases

On completion of Key Stage 2, a young Scientists at Moor End will:

- Name sound sources and state that sounds are produced by the vibration of the object.
- State that sounds travel through different mediums
- Give examples to demonstrate how the pitch of a sound are linked to the features of the object that produced it
- Give examples of how to change the volume of a sound
- Give examples to demonstrate that sounds get fainter as the distance from the sound source increases

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2

Electricity

- 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
- Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- Recognise some common conductors and insulators, and associate metals with being good conductors
- 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

On completion of Key Stage 2, a young Scientists at Moor End will:

- Name the components in a circuit
- Make electric circuits
- Control a circuit using a switch
- Name some metals that are conductors Name materials that are insulators
- Make electric circuits and demonstrate how variation in the working of particular components
- Draw circuit diagrams of a range of simple series circuits using recognised symbols

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2

Evolution and Inheritance

- 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
- Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution

On completion of Key Stage 2, a young Scientists at Moor End will:

- Explain the process of evolution
- Give examples of how plants and animals are suited to an environment
- an give examples of how an animal or plant has evolved over time
- Give examples of living things that lived millions of years ago and the fossil evidence we have to support this
- Give examples of fossil evidence that can be used to support the theory of evolution

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2 Earth and Space

- 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
- Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

On completion of Key Stage 2, a young Scientist at Moor End will:

- Show using diagrams the movement of the Earth and Moon
- Explain the movement of the Earth and Moon
- Show using diagrams the rotation of the Earth and how this causes day and night
- Explain what causes day and night

Science End Points

END OF KEY STAGE 2



National Curriculum Objectives for KS2 Continued

Working Scientifically UKS2

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- 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
- Identifying scientific evidence that has been used to support or refute ideas or arguments

On completion of Upper Key Stage 2, a young Scientist at Moor End will:

- Plan their own scientific enquiry
- Measure accurately
- Record data of increasing complexity
- Predict and set up fair tests
- Present findings with conclusion and an explanation
- Explain their results using scientific language

Use all of the above scientific skills and apply them to the Science topics they complete in year 5 and year 6 to help them achieve the National Curriculum objective.