

Mersey Park Curriculum Expectations – Science

Year 1

By the end of the year pupils should be able to:

Animals including Humans

- Spot and name a variety of common animals.
- Spot and name a variety of common animals that are carnivores, herbivores and omnivores.
- Describe and compare the structure of a variety of common animals.
- Name, draw and label the basic parts of the human body and say which part of the body is to do with each sense.

Materials

- Tell the difference between an object and the material from which it is made.
- Name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.
- Describe some everyday materials.
- Make groups of material based on what they are like.

Plants

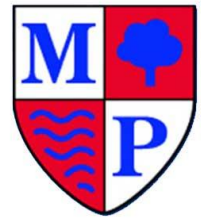
- Name some common wild and garden plants, including deciduous and evergreen trees.
- Name and describe the basic structure of a variety of common flowering plants, including trees.

Seasonal Changes

- Name some common wild and garden plants, including deciduous and evergreen trees.
- Name and describe the basic structure of a variety of common flowering plants, including trees.

Working Scientifically

- Look closely, using equipment.
- Name and group.
- Use my observations and ideas to suggest answers to questions.
- Collect and record data to help answer questions.
- Ask questions and know they can be answered in different ways.
- Do tests.



Mersey Park Curriculum Expectations – Science

Year 2
By the end of the year pupils should be able to:
Animals including Humans
<ul style="list-style-type: none">• Explain that animals, including humans, have babies which grow into adults.• Explain the needs of animals, including humans, for survival.• Explain the importance of exercise, eating healthily and keeping clean.
Materials
<ul style="list-style-type: none">• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
Plants
<ul style="list-style-type: none">• 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.
Living Things and their Habitats
<ul style="list-style-type: none">• 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 micro-habitats.• 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.
Forces
<ul style="list-style-type: none">• Notice and describe how things move, using simple comparisons such as faster and slower.• Compare how different things move.
Working Scientifically
<ul style="list-style-type: none">• Ask questions and know they can be answered in different ways.• Watch closely using simple equipment.• Do tests.• Name and group.• Collect and record data to help answer questions.• Use my observations and ideas to suggest answers to questions.



Mersey Park Curriculum Expectations – Science

Year 3
By the end of the year pupils should be able to:
Animals including Humans
<ul style="list-style-type: none">• Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get nutrition from what they eat.• Explain why humans and some other animals have skeletons and muscles.
Rocks
<ul style="list-style-type: none">• Examine and do practical experiments on various types of rocks in order to group them on the basis of their appearance and simple physical properties• Describe simply how fossils are formed when things that have lived are trapped within rock.• Explain that soils are made from rocks and organic matter.
Plants
<ul style="list-style-type: none">• Explain what different parts of the flowering plants do.• Explore the requirements of plants for life and growth 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, see formation and seed dispersal.
Light
<ul style="list-style-type: none">• Explain that I need light in order to see things and that dark is the absence of light.• Show that light is reflected from surfaces.• Explain that light from the sun can be dangerous and that there are ways to protect eyes.• Show how shadows are formed when the light from a light source is blocked by a solid objects.• Show that there are patterns in the way that the size of shadows change.
Forces
<ul style="list-style-type: none">• Compare how things move on different surfaces.• See that some forces need contact between two 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 some materials on the basis of whether or not they are attracted to a magnet, and identify some magnetic materials.• Describe magnets as having two poles.

- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

Working Scientifically

- Set up simple practical enquiries, comparative and fair tests.
- Make observations and take measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Gather, record, classify and present data in a variety of ways to help with answering questions.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Report on findings from enquiries, including spoken and written explanations, displays or presentations of results and conclusions.
- Explain differences, similarities or changes related to simple scientific ideas and processes.
- Use straightforward scientific evidence to answer questions or to support my findings.
- Ask questions and use different types of scientific enquiries to answer them.
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.



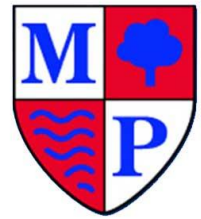
Mersey Park Curriculum Expectations – Science

Year 4
By the end of the year pupils should be able to:
Animals including Humans
<ul style="list-style-type: none">• Explain some parts of the digestive system in humans.• Explain the different types of teeth in humans and what they do.• Describe and explain a variety of food chains, naming producers, predators and prey.
Electricity
<ul style="list-style-type: none">• Talk about common appliances that run on electricity.• Construct and draw with labels a simple series electrical circuits which includes cells, wires, bulbs, switches and buzzers.• Predict if a lamp will light or not in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery,• Explain that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.• Show that some materials are conductors and some are insulators, and can explain that metals are good conductors.
Living Things and Their Habitats
<ul style="list-style-type: none">• Show that living things can be grouped together in various ways.• Explore and use classification keys to help group, identify and name a variety of living things.• Explain that environments can change and that this sometimes means that living things are put in danger.
Sound
<ul style="list-style-type: none">• Explain how sounds are made, and show that some of them are linked to vibrations.• Explain 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.• Show that there is a pattern between the volume of a sound and the strength of the vibrations that produced it.• Show that sounds get fainter as the distance from the sound source increases.
States of Matter
<ul style="list-style-type: none">• Group materials together, according to whether they are solids, liquids or gases, including tricky ones like gels, foams, mists and pastes.• Demonstrate and explain 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).

- Correctly talk about the part played by evaporation and condensation in the water cycle, and can show a link between the rate of evaporation and temperature.

Working Scientifically

- Ask relevant questions and use different types of scientific enquiries to answer them.
- Set up practical enquiries, comparative and fair tests.
- Make systematic and careful observations, and take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Gather, record, classify and present data in a variety of ways to help with answering questions.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Report on findings from enquiries, including spoken and written explanations, displays or presentations of results and conclusions.
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identify differences, similarities or changes related to scientific ideas and processes.
- Use scientific evidence to answer questions or to support my findings.



Mersey Park Curriculum Expectations – Science

Year 5
By the end of the year pupils should be able to:
Animals including Humans
<ul style="list-style-type: none">Describe the changes as humans develop into old age.
Forces
<ul style="list-style-type: none">Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.Demonstrate the effects of air resistance, water resistance and friction, that act between moving surfaces.Show that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
Living Things and Their Habitats
<ul style="list-style-type: none">Describe the difference in the life cycles of a mammal, an amphibian, an insect and a bird.Describe how some animals and plants reproduce.
Properties and Materials
<ul style="list-style-type: none">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.Explain 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 by 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 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.
Space
<ul style="list-style-type: none">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.Explain day and night, and the apparent movement of the sun across the sky, using the idea of the Earth's rotation.

Working Scientifically

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Record data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use test results to make predictions to set up further comparative and fair tests.
- Talk about and present findings from enquiries, including conclusions, casual relationships and explanations of how reliable the information is.
- Identify scientific evidence that has been used to support or refute ideas or arguments.



Mersey Park Curriculum Expectations – Science

Year 6
By the end of the year pupils should be able to:
Animals including Humans
<ul style="list-style-type: none">• 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 the body functions.• Describe the ways in which nutrients and water are transported within animals, including humans.
Electricity
<ul style="list-style-type: none">• Show that the brightness of a lamp or the volume of a buzzer depends on 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.• Draw a diagram using recognised symbols to represent a simple circuit.
Evolution and Inheritance
<ul style="list-style-type: none">• Explain that the kinds of living things that live on the Earth now are different from those that inhabited the Earth millions of years ago and that fossils provide this information.• Explain that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.• Give examples of how animals and plants are adapted to suit their environment in different ways and can explain that adaptation may lead to evolution.
Light
<ul style="list-style-type: none">• Show that light appears to travel in straight lines.• Use the explanation that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.• Demonstrate and 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.• Demonstrate that light travels in straight lines to show why shadows have the same shape as the objects that cast them.
Living Things and Their Habitats
<ul style="list-style-type: none">• Give reasons for classifying plants and animals based on specific characteristics.• Describe how plants, animals and micro-organisms are classified into broad groups according to common observable characteristics and based on similarities and differences.

Working Scientifically

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Take accurate measurements, using a range of scientific equipment taking repeat readings when appropriate.
- Record complex data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use test results to make predictions to set up further comparative and fair tests.
- Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or arguments.