



## Levendale Curriculum Intent Statement

At Levendale, the curriculum is based on a carefully considered progression of transferable skills and knowledge acquisition from 3-11. The Levendale Curriculum is tailored to our local area and context, allowing children to acquire relevant knowledge and skills whilst allowing them to appreciate the historical and cultural importance of both their local area and other areas of the country and world. Children are encouraged to develop life skills that can be applied in a wide range of disciplines to prepare them to make a positive contribution to society.



Our curriculum fosters a deep-rooted love of learning through developing the key skills of questioning, investigating and evaluating. Children are encouraged to be resilient and increasingly independent learners in all areas; they demonstrate positive attitudes to learning and apply key skills in multi-disciplinary areas through meaningful links across curriculum areas. Children develop a base of secure factual knowledge through appropriate support and challenge for all.

Learning experiences should be stimulating, engaging, purposeful, relevant and accessible to all, taking account of prior learning and giving all children the opportunity to consolidate and embed their understanding and knowledge across all subject areas. Children should be encouraged to develop an appreciation and understanding of the world in which they live, at both local, national and global levels. The curriculum should be responsive to individual and/or cohort need, taking into account changes at local, national and global levels. Children should depart from Levendale in Y6 having had the opportunities and experiences necessary to take responsibility for their own learning at KS3 and beyond whilst being willing and able to make positive contributions to wider society. Children should be encouraged to fulfil their potential and be given the opportunities to do so, whether in curriculum areas, through extra-curricular provision or through established links with other agencies or individuals.

Assessment is used to form meaningful and relevant judgements on a child's progress and attainment at regular points throughout the year. Assessment, both formative and summative, informs planning and provision, addresses gaps in learning where these are evident and offers support and challenge where required.

## Science Curriculum Intent Statement

Science teaching has a significant role to play in encouraging children's natural curiosity and understanding of the world around them. It should develop this inquisitive nature and encourage children's questioning of how and why things happen. Science should provide children with the knowledge and skills required to find ways to answer their questions.

At Levendale, our intent is to deliver a science curriculum that inspires and excites our children through an engaging practical-based curriculum. We aim to increase pupils' knowledge and understanding of our world, and to develop the skills associated with science as a process of enquiry. Along with developing the natural curiosity of the child, it should encourage respect for living organisms and the physical environment and provide opportunities for critical evaluation of evidence.

At Levendale, in conjunction with the aims of the National Curriculum, our science teaching offers opportunities for children to:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop an understanding of the processes and methods of science through different types of scientific enquiry that help them to answer scientific questions about the world around them
- be equipped with the scientific knowledge and skills required to understand the uses and implications of science, today and for the future
- develop the essential scientific enquiry skills to deepen their scientific knowledge.
- use a range of methods to communicate their scientific information and present it in a systematic, scientific manner, including ICT, diagrams, graphs and charts
- encourage children to focus on the work of great scientists, to use and apply a growing bank of scientific vocabulary and to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.
- develop a respect for the materials and equipment they handle with regard to their own, and other children's safety
- ensure that all children are exposed to high quality teaching and learning experiences, which allow children to explore their outdoor environment and locality, thus further developing their scientific enquiry and investigative skills
- ensure that all children develop an understanding of how their body works and how to stay healthy
- develop an enthusiasm and enjoyment of scientific learning and discovery

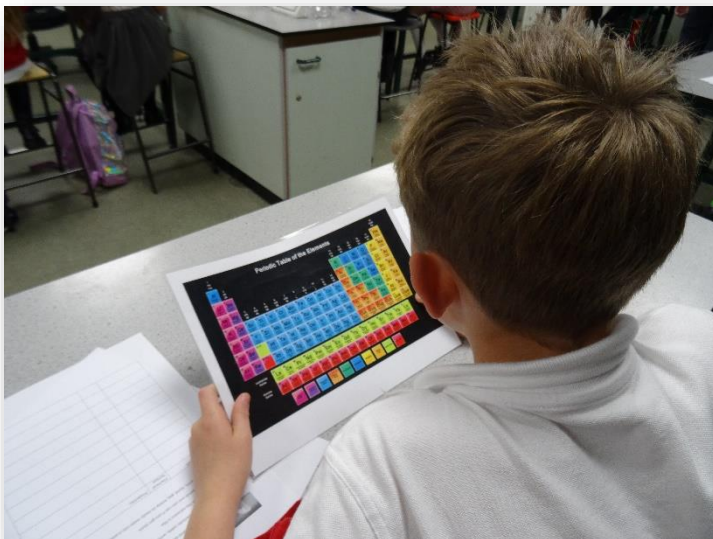
The National Curriculum will provide a structure and skill development for the science curriculum being taught throughout the school, which can be linked, if appropriate, to other topics being taught in school.

In the EYFS we understand that Science begins with children's very first acts of exploration. We ensure that we provide a stimulating and engaging environment (both indoors and outdoors) which encourages children's scientific enquiry. The teachers in the EYFS develop children's understanding of the world and trigger curiosity through the use of open-ended questioning.

Children have weekly lessons in science throughout Key Stage 1 and 2, using various programmes of study and resources. Teachers are familiar with previous and subsequent year groups' content which enables them to link to prior learning and build on previous knowledge. They are also aware of where a unit of work fits in across the curriculum - we believe this is essential in ensuring key knowledge is taught and assessed to maintain progression through the curriculum.

Teachers aim to nurture a love for the natural world, excitement for future possibilities in science and provide opportunities for creative investigations and problem solving. They develop children's curiosity and inspire them to pursue scientific enquiry. They also develop children's awareness of opportunities for careers within science and other STEM industries.

Additional opportunities are provided in science, such as Children Challenging Industry in Y6, British Science Week, visitors coming to support particular lessons in the curriculum due to their expertise, visits to Conyers School in Y4, 5 and 6 for science lessons, science quiz competitions and educational visits linked to the science curriculum.



## Early Years Early Learning Goals 2022

<b>ELG: The Natural World</b>	<p>Children at the expected level of development will:</p> <ul style="list-style-type: none"> <li>- Explore the natural world around them, making observations and drawing pictures of animals and plants;</li> <li>- 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;</li> <li>- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> </ul>
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	<b>What does this look like in EYFS?</b>
<b>Intent</b>	<p>The frequency and range of children’s personal scientific experiences increases their knowledge and sense of the world around them. Children are taught scientific concepts and knowledge through real life experiences and contexts where possible. They listen to a broad selection of stories, non-fiction, rhymes and poems that foster their understanding of our culturally, socially, technologically and ecologically diverse world and learn about scientific figures of importance. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children’s vocabulary will support later reading comprehension.</p>
<b>Implementation</b>	<p>Understanding the world involves guiding children to make sense of their physical world and their community.            Children explore the scientific world around them through investigation and experimentation and real life situations or contexts.            They learn that:-            That there are changes in the natural world through the seasons;            That there are similarities and differences in the natural world.            That there are key words/vocabulary associated with science;            That the world is made up of different animals and plants;            There are important processes and changes that happen;            Use a range of Scientific equipment to help them develop their lines of enquiry.            How science is used to help us.</p>
<b>Impact</b>	<p>Children think of themselves as scientists.            They use scientific vocabulary to talk about the seasons, changes over time, similarities and differences            They are able to correctly identify several plants and flowers found in their locality</p>
<b>Curriculum Goal</b>	EXPLORE the natural world.

## National Curriculum 2014

The ‘Working Scientifically’ elements of the National Curriculum set out a skills framework that our curriculum delivery aims to promote.

WORKING SCIENTIFICALLY: STATUTORY REQUIREMENTS			
	KEY STAGE ONE	LOWER KEY STAGE TWO	UPPER KEY STAGE TWO
<b>QUESTIONING</b>	Asking simple questions, recognising they can be answered in different ways	Asking relevant questions, using range of scientific enquiries to answer them Using straightforward scientific evidence to answer questions or support findings.	Planning range of scientific enquiries to answer questions, recognising and controlling variables where necessary
<b>OBSERVING</b>	Observing closely using simple equipment	Making systematic, careful observations, taking accurate measurements Using a range of equipment, including thermometers and data loggers	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
<b>EXPERIMENTING</b>	Performing simple tests	Setting up simple practical enquiries, comparative and fair tests	Using test results to make predictions to set up further comparative and fair tests
<b>CLASSIFYING</b>	Identifying and classifying	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
<b>APPLYING</b>	Using observations and ideas to suggest answers to questions	Using results to draw simple conclusions, make prediction, suggest improvements raise further questions Identifying differences, similarities or changes related to scientific ideas processes	Identifying scientific evidence that has been used to support or refute ideas or arguments
<b>RECORDING</b>	Gathering and recording data to help in answering questions	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, oral and written explanations, displays or presentations of results and conclusions	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

Our Science curriculum coverage across KS1 and KS2 is as follows:

	Autumn Term	Spring Term	Summer Term
<b>EY</b>			
<b>Year 1</b>	Animals including humans / Ourselves / Plants	Materials / Plants/ Seasonal Change	Plants / Animals including humans
<b>Year 2</b>	Uses of Everyday Materials / Animals including humans / Plants	Animals including humans / Living things and their habitats	Plants (seeds) / Living things and their habitats
<b>Year 3</b>	Animals (skeleton/muscles) / Rocks and soils	Forces and magnets / Animals (nutrition)	Plants / Light
<b>Year 4</b>	States of matter	Living things and their habitats / Sound	Electricity / Animals including humans
<b>Year 5</b>	Properties and changes of materials	Earth & Space / Forces	Animals / Living things and their habitats
<b>Year 6</b>	Light / Electricity / CCI	Living things and their habitats / Evolution & inheritance	Animals including humans

Objective coverage

## YEAR 1

### Plants

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

### 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.

### Everyday materials

- Distinguish between an object and the material from which it is made.
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.
- Describe the simple physical properties of a variety of everyday materials
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.

### Seasonal Changes

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

## YEAR 2

### 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 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.

### Plants

- 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.

### Animals, including humans

- 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.

### Uses of everyday materials

- 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.

## **YEAR 3**

### 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.

### 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.

### 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.



## 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 a solid object
- Find patterns in the way that the size of shadows change.

## Forces and magnets

- Compare how things move on different surfaces
- Notice 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 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 two poles
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

## **YEAR 4**

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

### Animals, including humans

- 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.

### States of matter

- 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.

## 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.

## 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.

## **YEAR 5**

### Living things and their habitats

- 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.

### Animals, including humans

- Describe the changes as humans develop to old age.

### Properties and changes of materials

- 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.

#### 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.

#### Forces

- 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.

### **YEAR 6**

#### Living Things and their habitats

- 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.

#### Animals including humans

- 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.

#### 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.

## Light

- 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.

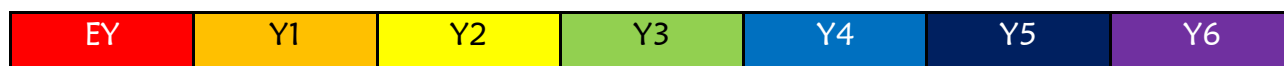
## Electricity

- 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.

## Skills and knowledge progression

The continuum below outlines the developmental progression of skills and knowledge across our Science curriculum.

The colour bands correspond approximately to the following year groups:



	OBSERVATION AND CONCLUSION	ENQUIRY, PREDICTION, TESTING	DATA COLLECTION	RECORDING
	Make simple observations	Enjoy finding out about things	Join in – e.g. leaf collections	Draw what interests them
	Make observations Talk simply about what they see Answer simple questions about what they see Describe simple features with simple vocabulary – parts of the body, a tree Observe closely using simple equipment to help them – e.g. magnifying glass	Perform simple tests using simple equipment – e.g. a timer Talk about some reasons why things might happen, or why something has happened Understand basic safety rules when testing out their ideas	Recognise that scientific ideas are more than guesses, and based on evidence Collect data when asked – e.g. a weather station Count data sets – trees in a field Sort data within given criteria – tall trees, wet days, blue eyes Remember and recall information Underline important facts	Record what they have seen or done in different ways, including drawing and labelled diagrams Record some information onto a pre prepared chart Label objects according to simple criteria Record things they have seen or done from memory
	Answer questions using evidence Ask questions about what they see Make relevant observations Give simple reasons and explanations for what they have seen Identify simple parts of what they see – e.g. petal, leg	Find things out, with help and suggestions Begin to make predictions about what might happen Understand key factors that make a fair test Use simple apparatus effectively and safely	Gather and record data to help in answering questions and understand why this is important Use tallies to count in surveys Use books to find information	Begin to use cause and effect in their explanations, and some scientific vocabulary Use simple tables and charts Identify, classify and use bulleted lists Make sketches of their observations Use line graphs to present their findings

	OBSERVATION AND CONCLUSION	ENQUIRY, PREDICTION, TESTING	DATA COLLECTION	RECORDING
	<p>Choose what observations to make</p> <p>Know that questions can be answered in different ways</p> <p>Compare what happened to what might have happened and give simple explanations</p> <p>Make a precise series of observations and measurements</p> <p>Classify simple features –flower, tree</p> <p>Examine closely and question what is seen</p>	<p>Identify features of a fair test and carry out a fair test with help</p> <p>Think of questions to ask during testing</p> <p>Decide on approaches to answer questions and suggest own ideas</p> <p>Select suitable equipment</p> <p>Suggest improvements in their work</p> <p>Predict before testing</p> <p>Begin to repeat observations and measurements</p>	<p>Use books and other sources of information</p> <p>Begin to suggest ways to collect data</p> <p>Recognise the importance of data collection</p> <p>Make suggestions about how to collect data</p> <p>Use graphs to find and interpret patterns</p>	<p>Record and label sketches and diagrams, sometimes with notes</p> <p>Use ICT to record results</p> <p>Begin to plot points for simple graphs</p> <p>Record systematically</p> <p>Record a series of observations in different ways</p>
	<p>Make systematic and careful observations and comparisons</p> <p>Compare observations over time</p> <p>Categorise observations</p> <p>Begin to make theories</p> <p>Provide explanations using scientific language</p> <p>Use precise scientific language</p> <p>Ask relevant questions</p>	<p>Decide on the best approaches for enquiry</p> <p>Make predictions based on scientific knowledge</p> <p>Describe or show how to vary a factor and keep others the same</p> <p>Repeat tests and explain difference</p> <p>Review work and check predictions</p> <p>Suggest improvements giving reasons</p>	<p>Recognise the importance of the evidence collected</p> <p>Compare and identify data patterns</p> <p>Select from a range of sources</p> <p>Question others about their work</p> <p>Know the work of some scientists</p> <p>Count and measure quantities accurately</p> <p>Use sources of information to analyse</p>	<p>Use a range of scientific conventions</p> <p>Understand and begin to use both quantitative and qualitative data</p> <p>Record and present data in a variety of ways – tables, bar charts, line graphs</p> <p>Order results scientifically</p>

	<b>OBSERVATION AND CONCLUSION</b>	<b>ENQUIRY, PREDICTION, TESTING</b>	<b>DATA COLLECTION</b>	<b>RECORDING</b>
	<p>Begin to relate conclusions to patterns, previous knowledge and observational evidence</p> <p>Make judgements and conclusions about what has been seen, and support these with known facts</p> <p>Justify their own theories through observation and conclusion</p> <p>Use straightforward scientific evidence to answer questions or support findings</p>	<p>Offer explanations for differences</p> <p>Modify tests for accuracy</p> <p>Plan different types of scientific enquiries to answer questions</p> <p>Recognise and control variables</p> <p>Make practical suggestions about working methods and improvements</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements</p> <p>Develop further observations and experiments from results</p>	<p>Gather and classify data in a variety of ways</p> <p>Distinguish and discriminate between different elements of data</p>	<p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p>
	<p>Evaluate the results of observations</p> <p>Combine observations to give new hypotheses</p> <p>Look for and understand poor data</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes</p>	<p>Use a range of scientific enquiry to answer questions</p> <p>Use test results to make predictions and to set up further comparative and fair tests</p>	<p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Take accurate measurements using a range of equipment, including thermometers, with increasing accuracy and precision</p> <p>Repeat readings when appropriate</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results</p>