



Science

Learning Journey



The intent of the Science Curriculum at Grove Park is...

- To develop scientific knowledge and conceptual understanding through different types of scientific enquiry, in order to answer questions about the world.
- For our children to revisit and build upon their scientific knowledge and vocabulary.
- For our children to be given opportunities to play, explore, create and engage in active learning in every lesson.
- Have a carefully constructed curriculum so that scientific skills and knowledge are built upon, therefore children's understanding will develop over time.
- To provide an outdoor pedagogical approach to enhance children's understanding within the subject.
- To provide opportunities to develop scientific understanding across the curriculum.
- To provide opportunities for STEM learning for children, through practical projects, demonstrations and presentations from people from the scientific community.
- To ensure that all children will be provided with opportunities to explore science in both the local and wider community.
- To facilitate science lessons that ensure all students, including those with SEND, have an equal opportunity to see themselves as scientists, through a focus on scientific vocabulary and practical enquiry.

EYFS

Autumn 1

Seasons

Half Term

Autumn 2

Light and dark

Animals in different parts of the world

Nocturnal animals

Animals that hibernate

Changing matter

Winter

Christmas Holidays

Spring 1

Spring

Comparing environments

Half Term

Spring 2

Life-cycle of a butterfly

Life-cycle of a butterfly

Plants

Frogs

Plants

Easter Holidays

Summer 1

Comparing environments

Local environment

Local community

Half Term

Summer 2

Comparing environments

Habitats

Materials

End of the Year

Year 1

Autumn 1	Animals, Including Humans						
EQ: How is the human body different to other animals?	To understand how to work scientifically.	To understand what a scientist is and does.	To identify parts of the human body.	To identify internal parts of the body.	To identify how parts of the body change as we grow.	To compare the bodies of humans and other animals.	Assessment: How is the human body different to other animals?
Half Term							
Autumn 2	Everyday Materials						
EQ: Which material is best for protecting an egg?	To identify different materials.	To identify and describe the properties of different materials.	To design an experiment to investigate the properties of materials.	To conduct an experiment to investigate the properties of materials.	To evaluate the results of my investigation into the properties of materials.	Assessment: Which material is best for protecting an egg?	
Christmas Holidays							
Spring 1	Seasonal Changes						
EQ: Why does the weather change at different times of the year?	LO: To know the order the months and seasons.	LO: To identify changes across the seasons.	LO: To identify the weather associated with each season.	LO: To understand why the length of the day changes from summer to winter.	LO: To design an experiment to test a hypothesis.	LO: To conduct an experiment to test a hypothesis.	Assessment: Why does the weather change at different points of the year.
Half Term							
Spring 2	Animals, Including Humans						
EQ: Are all animals the same?	LO: To identify and research different types of animals.	LO: To group animals according to their characteristics.	LO: To group animals according to their diets.	LO: To compare animals according to their characteristics.	LO: To understand how some animals are adapted to different habitats.	Assessment: Are all animals the same?	
Easter Holidays							
Summer 1	Plants						
EQ: What does a plant need in order to grow?	LO: To identify and name common plants.	LO: To learn about what a seed needs in order to grow.	LO: To design an investigation into the best conditions for growing a plant.	LO: To conduct an investigation into the best conditions for growing a plant.	LO: To evaluate the results of my investigation into the best conditions for growing a plant.	Assessment: What does a plant need in order to grow?	
Half Term							
Summer 2	Working Scientifically – Marvellous Materials						
EQ: Are all materials the same?	LO: To design an investigation into waterproof and non-waterproof materials.	LO: To conduct and evaluate an investigation into waterproof and non-waterproof materials.	LO: To design an investigation into how absorbent materials are.	LO: To conduct and evaluate an investigation into how absorbent materials are.	LO: To design an investigation into which material is the strongest.	LO: To conduct and evaluate an investigation into which material is the strongest.	Assessment: Are all materials the same?
End of the Year							

Year 2

Autumn 1							
EQ: Are the basic needs of all animals the same?	Animals, Including Humans						
	To explain what the role of a scientist means to me.	To understand the basic needs of all animals.	To compare the needs of different animals.	To identify the life cycle of different animals.	To observe animals in our natural environment.	Assessment: Are the basic needs of all animals the same?	
Half Term							
Autumn 2							
EQ: Which material would allow a car to travel the quickest?	Materials						
	To identify materials and think about their uses.	To know that some materials occur naturally and some do not and are man-made	To design and conduct an investigation of the properties of materials.	To compare the suitability of materials for different uses.	To investigate the stability of materials.	To investigate how objects move on different materials.	Assessment: Which materials would allow a car to travel the quickest?
Christmas Holidays							
Spring 1							
EQ: What is the best design for a bug hotel?	Living Things and Their Habitats						
	To compare the difference between things that are living, dead and have never been alive	To understand how animals and plants are dependent on their habitats.	To understand how animals and plants are connected in a food chain.	To identify the habitats of different living things	To identify different microhabitats (Link to D-STEM and Outdoor Learning)	To design a bug hotel for our wildlife area (Link to D-STEM and Outdoor Learning)	Assessment: What is the best design for a bug hotel?
Half Term							
Spring 2							
EQ: How can we keep ourselves healthy?	Humans, Including Animals						
	To understand what changes happen when a baby grows into an adult.	To understand the basic need of a human baby.	To identify and categorise food into their food groups.	To design a healthy meal from different food groups.	To understand the importance of exercise in keeping us healthy.	Assessment: How can we keep ourselves healthy?	
Easter Holidays							
Summer 1							
EQ: What are the best conditions for plants to grow?	Plants						
	To design an investigation to test what plants need to stay healthy.	To conduct an investigation to test what plants need to stay healthy.	To evaluate our investigation into what plants need to stay healthy.	To apply my learning to successfully grow a cress plant.	To identify the different parts of a plant.	To understand the way different plants disperse their seeds.	Assessment: What are the best conditions for plants to grow?
Half Term							
Summer 2							
EQ: What is the strongest way to build a paper bridge?	Materials						
	To investigate the which material is the bounciest.	To investigate which fabric stretches the most.	To investigate the rigidity of materials.	To investigate the durability and toughness of materials.	To investigate which paper is the strongest.	To apply my understanding of materials to build a paper bridge strong enough to hold a toy car.	Assessment: What is the strongest way to build a paper bridge?
End of the Year							

Year 3

Autumn 1	Rocks and Soils						
EQ: What lies beneath our feet?	To identify the different layers of the Earth.	To understand how fossils are formed.	To create my own fossil.	To explain how soil is formed.	To investigate the permeability of different types of soil.	Assessment: What lies beneath our feet?	
Half Term							
Autumn 2	Forces and Magnets						
EQ: Why aren't all materials magnetic?	To identify the different forces acting on an object.	To investigate the effect of friction on an object.	To explore and categorise magnetic and non-magnetic materials.	To understand why some materials are magnetic, and some are not.	To understand how the magnetic poles impact on our lives.	Assessment: Why aren't all materials magnetic?	
Christmas Holidays							
Spring 1	Animals, Including Humans						
EQ: Do all animals need the same nutrients in order to stay healthy?	To identify different types of skeleton and their functions.	To explore how muscles help animals to move.	To explore what nutrients humans need to stay healthy.	To understand what is meant by a balanced diet and why it is important.	To understand that different animals can survive on different nutrients.	To design and create a bird feeder using the correct nutrients.	Assessment: Do all animals need the same nutrients in order to stay healthy?
Half Term							
Spring 2	Plants						
EQ: What are the best conditions for growing broad beans?	To explore what I know about what plants need to grow.	To identify the parts of a flowering plant.	To design an investigation to test the best conditions to grow broad beans.	To conduct an investigation to test the best conditions to grow broad beans.	To understand the different stages of the life-cycle of plants.	To evaluate our investigation to test the best conditions to grow broad beans.	Assessment: What are the best conditions for growing broad beans.
Easter Holidays							
Summer 1	Plants						
EQ: Do all plants spread their seeds in the same way?	To identify the parts of a plant responsible for fertilisation and explain their role.	To explore the role of different pollinators play in the reproduction of plants.	To explain how fruits form from pollinated plants.	To identify and categorise different types of fruit.	To investigate and explain how plants disperse their seeds.	To identify native and non-native British plants.	Assessment: Do all plants spread their seeds in the same way?
Half Term							
Summer 2	Light						
EQ: How do shadow-puppet shows work, and can I make my own?	To understand what light is.	To investigate reflective and non-reflective surfaces.	To understand why some surfaces are reflective and others are not.	To investigate how shadows are formed.	To investigate how and why shadows change length.	To understand the dangers of looking at the Sun.	Assessment: How do shadow-puppet shows work, and can I make my own.
End of the Year							

Year 4

Autumn 1 EQ: How do ear-defenders reduce the volume of sounds that we hear?	Sound						
	To identify common sounds that we hear.	To understand and explain how sound travels.	To understand and explain how we hear sound.	To investigate why sounds for an echo.	To investigate how sounds can be altered through pitch and loudness.	To learn about how sound insulators work.	Assessment: How do ear defenders reduce the volume of sounds that we hear.
Half Term							
Autumn 2 EQ: How does a wire-buzzer game work, and can I make my own?	Electricity						
	To identify ways we use electricity in our everyday lives.	To understand how electricity flows around a circuit.	To investigate building a working electrical circuit.	To explore and explain how common conductors and insulators work.	To apply my learning about electricity to design a wire-buzzer game.	To build and test my own wire-buzzer game.	Assessment: How does a wire-buzzer game work, and can I make my own?
Christmas Holidays							
Spring 1 EQ: How can water be a solid, a liquid and a gas?	States of Matter						
	To understand what is meant by a solid, a liquid and a gas.	To investigate gases in liquids.	To investigate the how materials change state.	To investigate the evaporation and condensation of water.	To understand how evaporation and condensation links to the water cycle.	Assessment: How can water be a solid, a liquid and a gas?	
Half Term							
Spring 2 EQ: Why is a change in an animal's habitat potentially dangerous to their survival?	Living Things and their Habitats						
	To understand the life-processes of all living things.	To identify the types of organism we are likely to find in a habitat .	To classify organisms using a branching diagram.	To understand how living things are connected in a food chains.	To investigate how environmental change can impact on the survival of living things.	Assessment: Why is a change in an animal's habitat potentially dangerous to their survival?	
Easter Holidays							
Summer 1 EQ: How can we protect the habitats of different living things?	Living Things and their Habitats						
	To classify different vertebrates according to their characteristics.	To classify different invertebrates according to their characteristics.	To recognise that environments can change and this can pose an issue for animals	To understand how habitats change over the seasons and how animals adjust to these changes	To make a guide protecting the habitats of different living things.	Assessment: How can we protect the habitats of different living things?	
Half Term							
Summer 2 EQ: Why should we look after our teeth, and how can we do this?	Animals Including Humans						
	To identify and name the parts of the digestive system	To understand the functions of the human digestive system	To identify the different types of teeth and their function	To understand the structure of the tooth	To experiment which materials damage our teeth	To describe the actions that can be taken to prevent tooth decay	Assessment: Why should we look after our teeth,, and how can we do this?
End of the Year							

Year 5

Autumn 1	Space						
EQ: Why does the Earth orbit the Sun, and will this always happen?	To explain how and why the planets, Earth and moon move in their orbits.	To explore the relative sizes of the planets in the solar system.	To understand the phases of the moon.	To understand the life cycle of a star.	To research the lives and contributions of significant people in space exploration	Assessment: Why does the Earth orbit the Sun, and will this always happen?	
Half Term							
Autumn 2	Forces						
EQ: Why doesn't a parachutist simply fall to the Earth?	To identify the forces acting on an object	To know how forces are measured.	To understand the term friction and identify what variables change because of friction	To understand what air resistance is, and to design an investigation to test its impact on an object.	To conduct an investigation to test its impact of air resistance on an object and evaluate the outcome.	Assessment: Why doesn't a parachutist simply fall to the Earth?	
Christmas Holidays							
Spring 1	Forces (Link to D-STEM)						
EQ: How can I use gears, pulleys and levers to solve a problem?	To understand what water resistance is, and to design an investigation to test its impact on an object.	To conduct an investigation into water resistance, and to evaluate the results.	To understand how gears, levers and pulleys work in a pinball machine.	To understand how gears, levers and pulleys work to lift a drawbridge.	To apply knowledge of gears, pulleys and levers in order to make a Rube-Goldberg machine.	Assessment: How can I use gears, levers and pulleys to solve a problem?	
Half Term							
Spring 2	Materials and their Properties						
EQ: Which materials would be best for containing food and liquid?	To classify different types of materials according to their properties.	To investigate the properties of insulating materials to keep items hot or cold.	To investigate the best material for packaging food.	To investigate which materials are the toughest and most absorbent.	To investigate which materials are best for keeping us safe from electricity.	Assessment: Which materials are best for containing food and liquid?	
Easter Holidays							
Summer 1	Living things and their Habitats						
EQ: Are the life-cycles of all living things the same?	To investigate how flowering plants reproduce.	To investigate what is meant by asexual reproduction in plants.	To compare the life-cycles of insects and amphibians.	To compare the life-cycles of mammals and birds.	To research the life-cycle of an animal from around the world.	To research and present information about a famous natural scientist.	Assessment: Are the life-cycles of all living things the same?
Half Term							
Summer 2	Living things and their Habitats (Link to PSHE/RHE curriculum)						
EQ: Which changes are the same and different in boys and girls as we grow older?	To explore how gestation periods are different for living things (science).	To understand the process of conception (RHE).	To explore how the foetus develops in the womb (science)	To explain how the bodies of boys and girls change during puberty (RHE).	To explore the changes that happen to the human body as we reach old age (science).	To apply my knowledge of human develop to create a timeline of human life.	Assessment: Which changes are the same and different in boys and girls as we grow older?
End of the Year							

Year 6

Electricity							
Autumn 1 EQ: How can an electrical system help to solve a problem?	To understand the function of electrical components and identify their symbols in a circuit diagram	To investigate the effects of changing voltage in an electrical circuit	To understand, compare and explain how electrical components function in a simple circuit	To understand, compare and explain how components function in a circuit	To understand, compare and explain how components function in a circuit	To design, test and review an electrical circuit that solves a problem	Assessment: How can an electrical system help to solve a problem?
Half Term							
Light							
Autumn 2 EQ: How can light help us see around corners?	To explore making shadows	To investigate how light travels	To investigate how light reflects	To investigate how shadows are formed	To explore how we see colours	To investigate how we can use light to see around corners	Assessment: How can light help us to see around corners?
Christmas Holidays							
Evolution & Inheritance							
Spring 1 EQ: Why does the blue whale have fingers?	To explore the journey of life on Earth	To understand the contribution of Mary Anning to our understanding of evolution	To understand the contribution of Charles Darwin to our understanding of evolution	To understand how natural selection impacts on the evolution of living things	To understand adaptation and variation impacts on how living things evolve	Assessment: Why does the blue whale have fingers?	
Half Term							
Living things and their Habitats							
Spring 2 EQ: How many living things are there on planet Earth, and how do we know?	To understand how living things can be classified.	To identify the features of different classifications of living things.	To identify different types of microorganism.	To identify different types of arthropod.	To understand the contribution Jane Goodall had on the study of living things.	Assessment: How many living things are there on planet Earth, and how do we know?	
Easter Holidays							
Animals Including Humans							
Summer 1 EQ: How is the human body similar and different to other living things?	To identify similarities and differences in the bone structures of animals, including humans.	To identify how the circulatory system works in animals, including humans.	To describe the ways in which nutrients and water are transported in animals, including humans.	To recognise the impact of a diet, exercise and lifestyle on the body of animals, including humans.	Assessment: How is the human body similar and different to other living things?		
Half Term							
Themed Science Project & links to PSHE/RHE curriculum							
Summer 2 EQ: Can I design, test, evaluate and present my findings for my own investigation?	To understand the impact of tobacco, alcohol and drugs on the human body (science)	To explain how girls' and boys' bodies change during puberty (RHE)	To describe how a baby develops from conception to birth (RHE)	To design an investigation on a science topic (science)	To conduct and evaluate an investigation on a science topic (science)	Science Fair! Assessment: Can I design, test, evaluate and present my findings for my own investigation?	
End of the Year							