Science Whole School Curriculum Pack

A complete Science curriculum for Year 1 to Year 6

What is the Science Whole School Curriculum Pack?

- Five Science schemes of work for each year group from Year 1 to Year 6 (one per half term, with one half term left free for consolidation, revision or extending Science learning beyond the curriculum)
- Each scheme of work contains between five and seven ready-to-teach Science lessons
- Each individual lesson includes a detailed plan, a slideshow presentation for the teaching input, differentiated activities and a range of printable resources.

Why use our Science Whole School Curriculum Pack?

- Deliver a complete Science curriculum that meticulously covers all the necessary National Curriculum objectives for Science across KS1 and KS2
- Embed consistency across year groups, phases and key stages
- Ensure confidence in teaching Science from all staff members
- High-quality prepared planning written by experienced teachers
- Clearly mapped knowledge and skills progression.

30 ready-to-teach Science schemes of work

Complete coverage of National Curriculum Science objectives

Built-in knowledge and skills progression

Science Whole School Curriculum Pack : Year 1 to Year 6

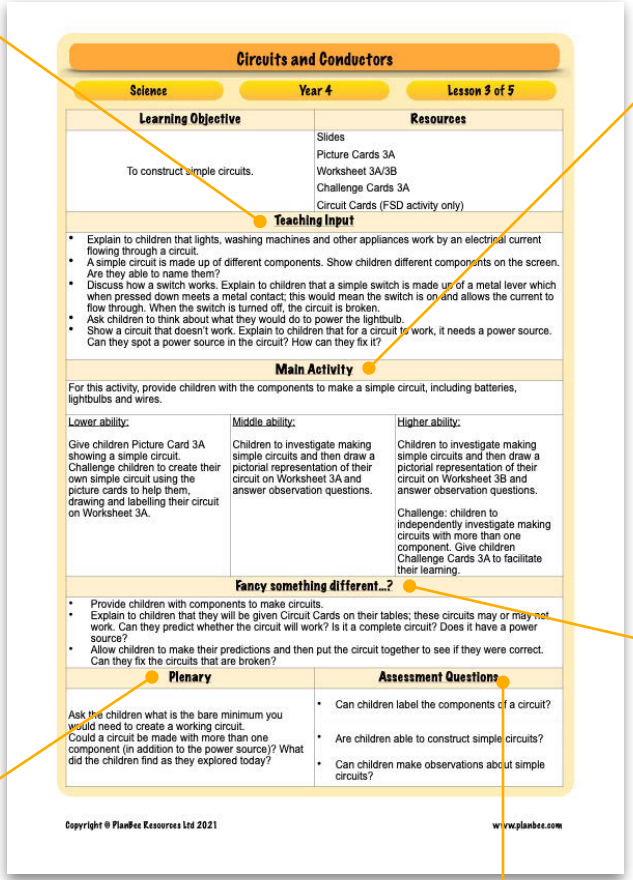
SKU: bulk1022

	Autumn Term		Spring Term		Summer Term
Year 1	My Body	Everyday Materials	Identifying Plants	Identifying Animals	Seasonal Changes
Year 2	Growth and Survival	Exploring Everyday Materials	Living in Habitats	Growing Plants	Super Scientists
Year 3	Rocks, Fossils and Soils	Light and Shadow	How Plants Grow	Health and Movement	Forces and Magnets
Year 4	States of Matter	Changing Sound	Living in Environments	Eating and Digestion	Circuits and Conductors
Year 5	Properties and Changes of Materials	Earth and Space	Life Cycles	Changes and Reproduction	Forces in Action
Year 6	Healthy Bodies	Seeing Light	Classifying Organisms	Evolution and Inheritance	Changing Circuits

Anatomy of a PlanBee Lesson:

PlanBee

Slides to guide you and your class through the teaching input



Circuits and Conductors

Science | Year 4 | Lesson 3 of 5

Learning Objective	Resources
To construct simple circuits.	Slides Picture Cards 3A Worksheet 3A/3B Challenge Cards 3A Circuit Cards (FSD activity only)

Teaching Input

- Explain to children that lights, washing machines and other appliances work by an electrical current flowing through a circuit.
- A simple circuit is made up of different components. Show children different components on the screen. Are they able to name them?
- Discuss how a switch works. Explain to children that a simple switch is made up of a metal lever which when pressed down meets a metal contact; this would mean the switch is on and allows the current to flow through. When the switch is turned off, the circuit is broken.
- Ask children to think about what they would do to power the lightbulb.
- Show a circuit that doesn't work. Explain to children that for a circuit to work, it needs a power source. Can they spot a power source in the circuit? How can they fix it?

Main Activity

For this activity, provide children with the components to make a simple circuit, including batteries, lightbulbs and wires.

Lower ability:	Middle ability:	Higher ability:
Give children Picture Card 3A showing a simple circuit. Challenge children to create their own simple circuit using the picture cards to help them, drawing and labelling their circuit on Worksheet 3A.	Children to investigate making simple circuits and then draw a pictorial representation of their circuit on Worksheet 3A and answer observation questions.	Children to investigate making simple circuits and then draw a pictorial representation of their circuit on Worksheet 3B and answer observation questions. Challenge: children to independently investigate making circuits with more than one component. Give children Challenge Cards 3A to facilitate their learning.

Fancy something different...?

- Provide children with components to make circuits.
- Explain to children that they will be given Circuit Cards on their tables; these circuits may or may not work. Can they predict whether the circuit will work? Is it a complete circuit? Does it have a power source?
- Allow children to make their predictions and then put the circuit together to see if they were correct. Can they fix the circuits that are broken?

Plenary	Assessment Questions
Ask the children what is the bare minimum you would need to create a working circuit. Could a circuit be made with more than one component (in addition to the power source)? What did the children find as they explored today?	• Can children label the components of a circuit? • Are children able to construct simple circuits? • Can children make observations about simple circuits?

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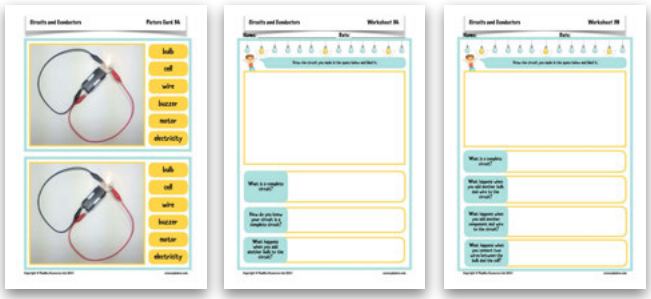
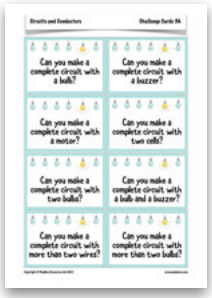
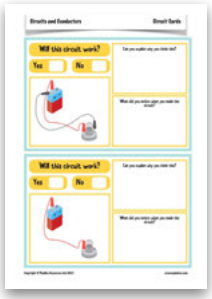


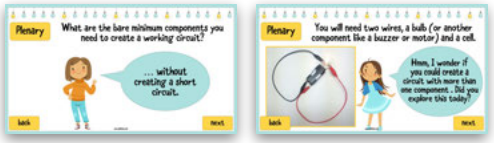


Printable resources to support the differentiated main activity for children's independent learning



Printable resources for the alternative 'Fancy Something Different...?' activity

Slides to bring your class back together for the plenary



Assessment questions to help you track progress (free editable assessment grids available for each scheme of work)

National Curriculum Objective Coverage

Science Objectives | KS1 | Year 1 | Curriculum Pack

PlanBee

Year 1 Objectives	Schemes of Work				
	Identifying Plants	Identifying Animals	My Body	Everyday Materials	Seasonal Changes
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					
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					
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					
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					
observe changes across the four seasons					
observe and describe weather associated with the seasons and how day length varies					

New Curriculum Science Schemes of Work

PlanBee

Year 1 | Overview Objectives	
Identifying Plants	• asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions • 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
Identifying Animals	• asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • identifying and classifying • 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)
My Body	• 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 • 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	• observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • 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	• 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 • observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies

Science Objectives | KS1 | Year 2 | Curriculum Pack

PlanBee

Year 2 Objectives	Schemes of Work				
	Living in Habitats	Growing Plants	Growth and Survival	Exploring Everyday Materials	Super Scientists
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					
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					
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					
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					
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					

New Curriculum Science Schemes of Work

PlanBee

Year 2 | Overview Objectives	
Living in Habitats	• observing closely, using simple equipment • identifying and classifying • using their observations and ideas to suggest answers to questions • 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
Growing Plants	• 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 • 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 • 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
Growth and Survival	• asking simple questions and recognising that they can be answered in different ways • 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 • 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
Exploring Everyday Materials	• 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 • 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
Super Scientists	• asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions • describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene

Science Objectives | KS2 | Year 3 | Curriculum Pack

Year 3 Objectives	How Plants Grow	Forces and Magnets	Rocks, Fossils and Soils	Light and Shadow	Health and Movement
asking relevant questions and using different types of scientific enquiries to answer them					
setting up simple practical enquiries, comparative and fair tests					
making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers					
gathering, recording, classifying and presenting data in a variety of ways to help in answering questions					
recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables					
reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions					
using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions					
identifying differences, similarities or changes related to simple scientific ideas and processes					
using straightforward scientific evidence to answer questions or to support their findings					
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					
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					
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					
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					
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					

New Curriculum Science Schemes of Work

PlanBee

Year 3 | Overview Objectives	
How Plants Grow	• asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings • 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
Forces and Magnets	• asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • using straightforward scientific evidence to answer questions or to support their findings • 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

New Curriculum Science Schemes of Work

PlanBee

	Year 3 | Overview Objectives
Rocks, Fossils and Soils	• setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • using straightforward scientific evidence to answer questions or to support their findings • 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 and Shadow	• setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using straightforward scientific evidence to answer questions or to support their findings • 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
Health and Movement	• asking relevant questions and using different types of scientific enquiries to answer them • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • identifying differences, similarities or changes related to simple scientific ideas and processes • 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

Science Objectives | KS2 | Year 4 | Curriculum Pack

PlanBee

Year 4 Objectives	Living In Envrionments	Eating and Digestion	States of Matter	Changing Sound	Circuits and Conductors
asking relevant questions and using different types of scientific enquiries to answer them					
setting up simple practical enquiries, comparative and fair tests					
making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers					
gathering, recording, classifying and presenting data in a variety of ways to help in answering questions					
recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables					
reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions					
using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions					
identifying differences, similarities or changes related to simple scientific ideas and processes					
using straightforward scientific evidence to answer questions or to support their findings					
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					
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					
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					
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					
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 4 | Overview Objectives	
Living in Environments	• making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • identifying differences, similarities or changes related to simple scientific ideas and processes • 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
Eating and Digestion	• asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings • 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	• asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • using straightforward scientific evidence to answer questions or to support their findings • 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

Year 4 | Overview Objectives	
Changing Sound	• asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • using straightforward scientific evidence to answer questions or to support their findings • 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
Circuits and Conductors	• asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • 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

Science Objectives | KS2 | Year 5 | Curriculum Pack

PlanBee

Year 5 Objectives	Changes and Reproduction	Properties and Changes of Materials	Earth and Space	Forces in Action	Life Cycles
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					
identifying scientific evidence that has been used to support or refute ideas or arguments					
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 the changes as humans develop to old age					
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					
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					
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					

New Curriculum Science Schemes of Work

PlanBee

	Year 5 | Overview Objectives
Changes and Reproduction	• 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 • identifying scientific evidence that has been used to support or refute ideas or arguments • describe the changes as humans develop to old age
Properties and Changes of Materials	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • 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 • 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	• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • 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

Year 5 | Overview Objectives	
Forces in Action	• 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 • 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 • 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
Life Cycles	• 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 • 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 • identifying scientific evidence that has been used to support or refute ideas or arguments • 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

Science Objectives | KS2 | Year 6 | Curriculum Pack

PlanBee

Year 6 Objectives	Classifying Organisms	Healthy Bodies	Evolution and Inheritance	Seeing Light	Changing Circuits
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					
identifying scientific evidence that has been used to support or refute ideas or arguments					
describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals					
give reasons for classifying plants and animals based on specific characteristics					
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					
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					
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.					
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					

Year 6 | Overview Objectives	
Classifying Organisms	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • 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 • 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
Healthy Bodies	• 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 • 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 • identifying scientific evidence that has been used to support or refute ideas or arguments • 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	• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • 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 • identifying scientific evidence that has been used to support or refute ideas or arguments • 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

Year 6 | Overview Objectives	
Seeing Light	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • 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 • 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
Changing Circuits	• 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 • 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 • identifying scientific evidence that has been used to support or refute ideas or arguments • 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

Knowledge and Skills Progression Document

Knowledge and Skills Progression
Year 1 to Year 6
Science Curriculum

Year	Term	Scheme of work	Plants	Working Scientifically
1	Aut	Identifying Plants	• I know that a plant is a living thing that grows. • I know that plants need sunlight, air and water. • I know that plants have seeds that grow into new plants. • I can recognise where the seeds are in a variety of plants. • I can plant a seed and describe what I expect it to look like in a few weeks time. • I can identify and describe a variety of garden plants. • I can identify the difference between a flower and a tree. • I can identify a variety of wild plants. • I can identify and describe a variety of trees. • I know the difference between an evergreen and a deciduous tree. • I can identify the roots, stem, leaves, flower and petals of a flower. • I know what roots are and why they are important. • I can describe the changes a seed goes through as it becomes a plant.	• I can observe plants closely and draw my findings. • I can use a simple classification key to identify wild flowers. • I can use close observation to explain how a seed changes to a plant.
2	Aut	Growing Plants	• I know that different seeds grow into different plants. • I can use information on a seed packet to tell me when a seed should be planted, how to plant it and how to care for the seed as it grows into a plant. • I can follow the instructions on a seed packet to plant a seed. • I know that seeds can be eaten by humans and animals. • I know that some plants grow from bulbs. • I can explain the life cycle of a plant grown from a bulb, such as a tulip. • I know that the bulb provides a store of food for the plant while it is in the ground during the winter months. • I know that the fruit of the plant is the part that carries the seeds. • I can explain why most plants grow lots of seeds instead of just one. • I can explain some of the ways in which seeds are dispersed. • I know that not all seeds will grow into a new plant and can explain reasons for this. • I know that the term 'germination' refers to the process when a seed starts to grow and produce shoots.	• I can carry out an experiment to observe how the roots of a bulb grow. • I can use close observation to examine different fruits to see how many seeds they have, making predictions beforehand. • I can plan and set up an experiment to find out which conditions are best for seed germination. • I can suggest how to make an experiment a fair test. • I can use the results of my experiment to draw a diagram explaining the best conditions for seed germination. • I can use observation to explain how a seed changes over time.
3	Aut	How Plants Grow	• I can identify and describe the functions of the roots, stem, leaf and flower of flowering plants. • I know that the root is the first part of the plant to grow from the seed and that the young root absorbs water and minerals from the soil to help the seed sprout. • I can describe each step in the growth of roots. • I can describe the process of water transportation in plants. • I can explain what the process of photosynthesis is. • I know that the plant uses minerals from the soil to make chlorophyll in its leaves. • I can explain what the process of pollination is. • I can explain some of the ways pollen grains get from the male stamen to the female part of the plant. • I can order the stages in the life cycle of flowering plants. • I can identify the ways in which a variety of different plants disperse their seeds. • I know that seeds have an outer coat to protect them that starts to absorb water and soften when it lands in soil. • I know that seeds can have one, two or three seed leaves that store food. • I know that seeds are an important source of food for animals.	• I can observe root growth over a period of time and record my observations in a table. • I can generate ideas for an experiment to test water transportation in plants. • I can plan, set up and carry out an experiment to show how water is transported in plants, making a prediction and recording my observations. • I can make a comic strip to explain the process of pollination, using vocabulary such as stamen, stigma, ovary, nectar and petals. • I can classify plants according to their seed dispersal method. • I can taste test a variety of different seeds. • I can gather data about our class's favourite seeds in a chart. • I can ask and answer questions about the seed data I have gathered.

Year	Term	Scheme of work	Animals, including Humans	Working Scientifically
1	Aut	Identifying Animals	• I can identify and name a variety of common UK pets. • I can identify a variety of UK mammals, birds, reptiles, fish and amphibians. • I know that mammals have backbones, feed their young with milk and have fur. • I can find a similarity or difference between pairs of mammals. • I know that birds have feathers, wings and a beak. • I know that lizards are cold-blooded vertebrates that lay eggs. • I can identify differences in the features of birds and lizards. • I know that fish and amphibians lay eggs. • I know the steps in the life cycles of amphibians and fish, and spot similarities and differences. • I know what a herbivore, carnivore and omnivore are. • I can identify common animals that are herbivores, carnivores and omnivores. • I can explain some of the ways in which people need to look after pets.	• I can use a Venn diagram to sort animals to show which are herbivores, carnivores and omnivores. • I can use a tally chart to gather data about our class's favourite pet. • I can use a tally chart to gather information about minibeasts I spot. • I can use information I have gathered in tally charts to answer simple questions.
1	Spr	My Body	• I can name the different parts of my body, such as arms, legs, head, wrist, fingernails, etc. • I can describe which parts of my body I use for different activities. • I can name the five senses. • I can describe why each of the five senses is important, and how we use each one. • I know that the senses of smell and taste are very closely linked.	• I can carry out a blind test to identify familiar smells. • I can gather facts about the sense of smell to answer questions. • I can taste different fruits and use appropriate vocabulary to describe them.
2	Spr	Growth and Survival	• I know that all species of animals have babies, including humans, and that if they didn't the species would become extinct. • I can match a variety of baby animals to their parents. • I know that some baby animals look very similar to their parents and some look very different. • I know that mammals give birth to live young and birds, reptiles and fish lay eggs. • I know that different animals are pregnant for different lengths of time, and that this is often dependent on the size of the animal. • I know that the eggs animals lay are vulnerable to predators and other dangers, which is why the parent animal often builds a nest to keep them safe and lays several eggs at once. • I know that some eggs have hard shells and some eggs have soft shells. • I can identify a variety of animals that give birth to live young and those that lay eggs. • I can explain the stages a human goes through to grow from a baby to an adult. • I know that all animals need food, water and air to stay alive, and that some animals breathe oxygen with their lungs while fish that live under water take in oxygen through their gills. • I know that animals need to live in different environments to get the food, water and oxygen they need. • I know that it is important to eat a healthy balance of foods because different foods are useful to our bodies for different things. • I can use the food pyramid and balanced plate model to find out how much carbohydrate, fruits and vegetables, protein, dairy, fats and sugars I should eat. • I can plan a healthy, balanced meal. • I know that exercise is important to keep our heart and lungs healthy, and that it keeps our muscles strong and flexible. • I know that exercise is important to keep us from getting overweight. • I can design an exercise to work my whole body using different apparatus.	• I can carry out my own research using simple sources to find out what a particular animal needs in order to survive.
2	Sum	Super Scientists	• I can explain the contributions Florence Nightingale, Joseph Lister and Alexander Fleming made to knowing what makes us ill and how to stop the prevention of germs and diseases.	• I know that scientists discover new things and make advances because they ask questions and work out how to find the answers. • I can carry out simple tests to test my reflexes, recording the results systematically in a table. • I can carry out an experiment to see how many germs are on our hands before and after we wash them. • I can make predictions about what will happen in an experiment.
3	Aut	Health and Movement	• I know that animals, including humans, get the nutrition they need from what they eat. • I know that the two main reasons humans need food is for growth and energy. • I know that we need proteins for growth and to help repair our bodies when we are ill or injured. • I know that starches, fats and sugars are good foods for energy. • I can explain how to eat a healthy, balanced diet. • I can design healthy, balanced meals for people who have dietary restrictions, e.g. vegetarians or people with wheat/dairy allergies. • I know that we have skeletons to support our bodies, protect our internal organs and to help us move. • I can name and locate some of the major bones in the human body. • I can describe similarities and differences between human and animal skeletons. • I know that all vertebrates have a backbone. • I can explain how invertebrates without an internal skeleton protect themselves. • I know that we need muscles to help us move. • I can explain the difference between smooth muscles, cardiac muscles and skeletal muscles. • I can explain the role of flexors and extensors in making our bones move.	• I can classify a variety of foods into different food groups. • I can carry out my own research to find out what foods different animals eat, and record my findings. • I can generate questions to investigate to find out what pets eat. • I can gather data in a tally chart and convert the results into a pictogram. • I can use data to draw conclusions and find the answer to my question. • I can label a diagram of the human skeleton. • I can use a variety of sources of information to find out how invertebrates protect themselves and report my findings. • I can ask and answer questions about muscles. • I can make different movements with my body and explain which muscles I am using.

4	Aut	Eating and Digestion	• I can suggest similarities and differences in the diets of a variety of different animals. • I can identify herbivores, carnivores and omnivores in a variety of different habitats. • I can interpret and construct a variety of food chains with both producers and consumers. • I can suggest what might happen if one or more organisms was taken out of a food chain. • I can identify where canines, incisors and molars are in the human mouth. • I can explain the function of canines, incisors and molars. • I know that teeth have roots that hold the teeth in place in the gums. • I can suggest why different animals have different types of teeth. • I know that young children have 20 milk teeth that start growing through when they are around six months old. • I know that milk teeth fall out and are replaced by 32 adult teeth, which are permanent. • I know that tooth decay can cause teeth to rot and fall out. • I can suggest some ways of making sure my teeth stay healthy. • I can name the organs associated with the digestive system. • I can describe the functions of the basic parts of the digestive system.	• I can classify a wide variety of animals to show whether they are herbivores, carnivores or omnivores. • I can present information about how to keep teeth healthy. • I can draw a diagram to show what I think the digestive system looks like and how it works. • I can ask a variety of questions about the digestive system and use different sources to find out the answers. • I can label a diagram of the digestive system and describe how it works. • I can plan and carry out an experiment (making sure it is a fair test) to explore how acid affects the food in our stomachs.
5	Aut	Changes and Reproduction	• I can describe some of the ways our bodies change as we grow. • I know that our rate of growth is dependent on many different factors. • I can name the different stages in the human life cycle and put them in order. • I can describe the stages in the gestation period of humans and compare this to other animals. • I can describe the growth and development of children from age 0 to 11. • I understand the role of hormones in puberty. • I can describe the changes that occur to both boys and girls during puberty. • I can describe some of the ways teenagers can keep fit and healthy during all the changes that take place during puberty. • I know that a human is fully grown by the time they reach the age of around 20. • I know that the human body starts to deteriorate as it enters old age. • I can describe some of the ways in which humans can make sure they stay fit and healthy as they get older.	• I can create a bar chart to show the gestation period of a range of animals, and use this to answer questions. • I can compare gestation periods in animals with the female animal's weight, and use this to draw conclusions. • I can write a report about the development of children from age 0 to 11. • I can label diagrams of boys and girls to show the changes that take place during puberty.
6	Aut	Healthy Bodies	• I know that people have not always known that disease and illnesses were often related to diet, such as scurvy. • I know that James Lind is credited as being the scientist who conducted the world's first clinical trial to explore the effects of diet on scurvy. • I know that there are two groups of carbohydrates: sugars and starches. • I can describe the importance of the different food groups and why each one is important for keeping our bodies healthy. • I can name some different minerals and why they are important for our bodies. • I can use food labels to match foods to their nutritional values. • I can use food labels to assess how healthy a food is, explaining reasons for my choices. • I know that it is our circulatory system that transports nutrients around our bodies, and that the two organs associated with the circulatory system are the heart and lungs. • I can describe the functions of the heart and lungs. • I can describe how the circulatory system works. • I know that it is important to keep our hearts healthy and that exercise is a crucial part of this. • I know that it is the muscles in our bodies that allow us to move. • I can explain the difference between smooth muscles, cardiac muscles and skeletal muscles. • I can name some of the different muscle groups in the human body. • I can explain which muscles we use for a variety of different physical activities. • I can explain what happens to our muscles and the rest of our body when we exercise. • I can define what a drug is. • I know that some drugs are very beneficial and others are very harmful, and that some drugs are legal and some are illegal. • I can describe the short-term and long-term effects of drugs such as tobacco and alcohol. • I can make suggestions about the ways in which given characters can change their lifestyles to make them healthier.	• I can plan an experiment, as James Lind, to see whether eating different foods can cure scurvy. • I can suggest ways in which James Lind could have expanded his clinical trial. • I can plan a clinical trial to explore the effects of different foods on our bodies, explaining how I will make it a fair test and what I expect the results to show. • I can allocate a variety of foods to their correct food group. • I can assess a variety of food labels to assess which of a group of foods has e.g. the most and least fat, or the most and least carbohydrate. • I can use a diagram of the human heart to suggest how it works. • I can write a detailed report about how the circulatory system works. • I can dissect a heart to explore the heart's chambers, veins and arteries, writing a recount of my findings. • I can take my own pulse before and after exercise, recording the differences. • I can design an investigation to explore how exercise affects our heart rate and draw conclusions from my results. • I can label muscle groups on a diagram of the human body. • I can suggest some exercise that would train different muscle groups. • I can create a presentation to answer a particular question about drugs, using my own research to find answers.

Year	Term	Scheme of work	Materials and States of Matter	Working Scientifically
1	Spr	Everyday Materials	• I know what a material is. • I know the difference between a material and an object. • I can name a variety of materials. • I can describe a material's properties using adjectives. • I can explain why some materials are better suited for different purposes than others.	• I can follow instructions to perform a simple test to see whether a material is waterproof or not. • I can use my observations to suggest which materials would be best for an umbrella.
2	Spr	Exploring Everyday Materials	• I can use a range of appropriate vocabulary to describe the properties of different materials. • I know the difference between a natural and a man-made material. • I know that the same product, e.g. a table, can be made from a variety of different materials, and can suggest suitable materials for each object. • I can explain how glass, pottery and paper are made. • I know that some materials can change shape permanently, some can change shape and go back to their original shape, and some can't change shape. • I can name a variety of materials that can change shape, can change shape temporarily and cannot change shape. • I know that there are lots of different types of plastic that can be used for different purposes. • I can explore the suitability of plastic and metal for different purposes, and explain why each material has been chosen for each different purpose. • I know that paper and cardboard are made from wood and can describe the benefits of using paper and cardboard over wood for different purposes. • I can name some objects that can all be made from wood, plastic and metal, e.g. chairs. • I can suggest appropriate materials for an object to be made from, based on what the object will be used for and who will use it.	• I can suggest different ways of sorting materials based on their properties and characteristics. • I can sort materials into those that are natural and those that are man-made. • I can experiment with what happens to different materials when you bend, twist, stretch and squash them, recording my observations. • I can make predictions about how materials will behave. • I can experiment with ways of making a paper bridge that is strong enough to hold a toy car.
3	Spr	Rocks, Fossils and Soils	• I know that most of our planet is made up of rock and that rocks are made up of a mixture of minerals that are pressed tightly together. • I can distinguish between rocks that are naturally occurring and those that are not. • I know that erosion is the process when something is worn away by water, wind or other natural materials over time. • I know that a pedologist is a scientist that studies soil. • I can explain why soil is so important to our planet. • I know that there are different layers of soil and that each layer is known as a horizon. • I can describe the features of each different soil horizon. • I know that the three main types of soil are clay, sand and silt. • I know that scientists split rocks into three main groups: igneous rock, sedimentary rock and metamorphic rock. • I know that igneous, sedimentary and metamorphic rock can change over millions of years in a process known as the rock cycle. • I know that a fossil is the petrified remains of plants and animals from more than 10,000 years ago. • I can explain how fossils are formed. • I know that a palaeontologist is a scientist who studies fossils. • I know that some fossils are common and some fossils are very rare. • I can identify some organisms from their fossils.	• I can classify rocks that are natural and those that are man-made. • I can identify a variety of natural and man-made rocks in my local environment. • I can suggest which criterion has been used to sort rocks into two groups. • I can sort rocks into Venn diagrams and Carroll diagrams based on specific criteria. • I can use my own criteria for sorting rocks into a Carroll diagram. • I can generate ideas for an experiment to test different rocks to see how much they erode. • I can carry out an experiment to test the erosion rate of different rocks, making predictions and recording my findings appropriately. • I can use a variety of sources of information to help me find out about specific rocks and their uses. • I can use observation to explore different soil samples and rank them according to different criteria. • I can classify fossil samples according to various criteria.
4	Spr	States of Matter	• I know the difference between a liquid and a solid. • I know how to tell if a material is a liquid or a solid. • I know that gases have mass. • I can describe the properties of a solid, liquid and gas. • I can explain what would happen if a solid, liquid and gas were poured into a container. • I know that solids, liquids and gases behave differently because the particles of each behave differently. • I know that water turns from a liquid to a solid at 0°C and from a liquid to a gas at 100°C. • I know that metals all have different melting points and that these are usually very high temperatures. • I know that the process of a liquid turning into a gas is called evaporation. • I know that the process of a gas cooling and turning into a liquid is called condensation. • I can explain how evaporation and condensation are part of the water cycle.	• I can compare and classify materials according to whether they are solids or liquids. • I can carry out an investigation to see if air weighs anything and report on my findings. • I can draw diagrams to show how the particles in solids, liquids and gases behave differently. • I can experiment with pneumatics and make observations about what I'm doing. • I can research the melting points of a variety of materials. • I can plan and carry out an experiment to see the different melting points of chocolate and evaluate the fairness of my experiment. • I can give different everyday processes which involve melting and freezing. • I can draw diagrams and use written examples to show the processes of evaporation and condensation. • I can label a diagram of the water cycle to show what is happening.

5	Spr	Properties and Changes of Materials	• I know that some materials will dissolve in water to form a solution. • I know that not all materials react the same way when mixed with water; some will float, sink, dissolve or react. • I know that dissolving is a reversible change. • I know that soluble materials, such as sugar, are able to be separated from water through evaporation. • I know that filtering is a good way to separate water from insoluble materials, such as sand. • I can identify a range of mixing processes, dissolving processes or changes of state that are reversible. • I know that an irreversible change occurs when two materials react with each other to form a new substance. • I can explain what would happen to a variety of materials when they were heated and cooled, and explain whether these are reversible or irreversible changes. • I know that some materials change state when they are heated or cooled. • I know that when a material is burned, it produces a new product (e.g. gas or ash), which makes burning an irreversible change. • I can identify the properties of a variety of everyday materials, such as whether it is magnetic, conductive, soluble, flexible, etc.	• I can mix a variety of materials with water to see whether they will dissolve, float, sink or react, recording the results in a table. • I can classify materials depending on whether they dissolve, float, sink or react when mixed with water. • I can investigate different irreversible changes by mixing different materials together, observing the results and explaining what has happened. • I can compare and classify a variety of everyday materials based on their properties. • I can carry out a variety of investigations to explore the properties of materials to see if they e.g. conduct electricity, are magnetic, are soluble, etc. • I can give reasons, based on evidence from comparative and fair tests, for uses of everyday materials. • I can plan, set up and carry out a fair test, drawing conclusions and presenting the results.

Year	Term	Scheme of work	Living Things and their Habitats	Working Scientifically
2	Aut	Living in Habitats	• I know the difference between things that are living, things that are dead and things that have never been alive. • I can name the seven life processes that all living things need to be able to do to stay alive. • I know that all living things will eventually die. • I know what a habitat is. • I know that all living things need to live in a habitat that can provide them with the things they need to stay alive. • I can suggest what type of animals might live in a variety of different habitats. • I can match animals to their correct habitat. • I can identify and name some of the plants and animals that live in a seaside habitat. • I know that the plants and animals in a habitat are all dependent on each other for survival. • I can describe some habitats and their features in other parts of the world, such as rainforest, desert and Arctic habitats. • I can describe why some animals are well suited to their rainforest, desert or Arctic habitats. • I can describe what a microhabitat is. • I can identify some of the minibeasts that live in microhabitats. • I know that plants and animals in a habitat are linked to each other through food chains. • I know that plants get their energy from the sun. • I can construct some simple food chains for a variety of habitats.	• I can classify things that are living, things that are dead and things that have never been alive. • I can explore and observe microhabitats in the local environment. • I can experiment with ways of separating a variety of materials from water, choosing suitable equipment for the task.
4	Aut	Living in Environ-ments	• I can give a definition for the term 'habitat'. • I can suggest in which habitat you would find a variety of animals. • I can explain why it is important to be able to classify organisms. • I can identify animals that are vertebrates, invertebrates, mammals, birds, insects, fish, reptiles, amphibians, insects, annelids, crustaceans, arachnids, echinoderms and molluscs. • I can identify and classify a variety of British plants. • I know that changing just one thing in a habitat can have a big impact on all the organisms living there. • I can describe what deforestation is and why it is causing a big problem around the world. • I can describe some of the ways in which humans can both help sustain environments and ways in which they harm environments. • I can explain the negative impact draining a pond would have on the local environment, stating my case through a letter.	• I can explore my local area to see how many different habitats there are. • I can use a variety of clues in riddles to help me identify different animals. • I can classify a variety of organisms using my own and given criteria, sorting the results into tables and Carroll diagrams. • I can use a classification key to identify which group an animal belongs to. • I can use a classification key to identify unfamiliar organisms.

5	Aut	Life Cycles	• I can describe the process of sexual reproduction in flowering plants, using each of these terms: petal, anther, carpel, filament, ovary, stamen, stigma, sepal and style. • I can describe the process of asexual reproduction in plants, giving some examples of plants that reproduce asexually. • I can describe how and why humans clone plants. • I can describe the process of sexual reproduction in animals. • I know that some animals reproduce externally and others reproduce internally, giving examples for each. • I can describe how the environment in which an animal lives affects the way it reproduces. • I know that hermaphrodites are animals that have both male and female reproductive organs, such as snails. • I can identify animals that live in a British woodland environment. • I can compare different habitats around the world with a British woodland environment and suggest ways in which the living conditions may be more or less challenging for the organisms living there. • I can suggest ways in which the life cycles of different animals might vary in different environments around the world. • I can describe and compare the life cycles of a variety of mammals, reptiles, fish and other animals. • I can describe what a naturalist does. • I can explain the contribution of some famous naturalists to our understanding of nature and the importance of humans looking after the environment.	• I can label the parts of a flowering plant correctly using their scientific names. • I can dissect a flower to explore the male and female parts of the plant. • I can write scientifically accurate descriptions of asexual reproductions in plants using 100 words or less. • I can follow instructions to grow a new plant from cuttings. • I can classify a variety of animals according to how they reproduce. • I can create a scatter graph to show animal gestation and incubation periods, using the information to generate statements and answer questions. • I can research and present data and information about the organisms living in a variety of environments around the world. • I can compare the life cycles of a variety of animals. • I can carry out independent research to find out about the life and achievements of a famous naturalist.
6	Aut	Classifying Organisms	• I can match organisms to their correct group (plant, mammal, amphibian, reptile, bird, fish, insect, crustacean, arachnid or mollusc, as well as echinoderm, myriapod and annelid) using what I know about the features of each group. • I can explain why it is important to be able to classify organisms. • I know the difference between vascular and non-vascular plants. • I can describe the difference between flowering and non-flowering plants. • I know that Carl Linnaeus is known as the Father of Taxonomy because of the system he developed to help classify organisms. • I know that the Linnaeus system uses Latin names for organisms so that there was a globally recognised naming system. • I can describe what each of the seven levels on the classification system are: kingdom, phylum, class, order, family, genus and species. • I can describe what a micro-organism is. • I know that micro-organisms can be classified into the kingdoms of protists, bacteria and fungi. • I can describe some examples of micro-organisms, such as in food production and illnesses.	• I can classify a variety of organisms into groups according to their features. • I can use a classification key to help me identify which group unfamiliar animals belong to. • I can create a presentation with labelled diagrams to show the features of each group of animal. • I can use a variety of criteria to classify animals that belong to the same group, e.g. mammals. • I can create a classification key to help identify a variety of flowering and non-flowering plants. • I can gather plant samples (or photographs of plants) from the local area, then create a classification key to identify them. • I can find a variety of different ways to classify different plants. • I can use the Linnaeus classification system to identify the kingdom, phylum, class, order, family, genus and species of a variety of organisms. • I can use the Linnaeus classification system to answer questions about different organisms. • I can carry out my own research to create a report about a particular family of animals, including pictures, diagrams and information. • I can ask questions about micro-organisms and use my own research to answer them. • I can carry out a fair test to explore which foods yeast most likes to eat, recording the results and drawing conclusions. • I can gather samples of organisms in the local area (or take photos) to identify and classify organisms found in the local area. • I can carry out my own research to find out about different groups of organisms in a different part of the world, presenting my findings appropriately.

6	Spr	Evolution and Inheritance	• I know that living things produce offspring of the same kind, but that normally offspring vary and are not identical to their parents. • I can suggest some common inherited characteristics, e.g. hair colour, eye colour, height, etc. • I know that 'variation' occurs from generation to generation in a species. • I can identify examples of variation in animals that are cross-bred. • I can identify the features of the environment an animal lives in and can explain some of the ways in which the animal has adapted to suit its environment. • I know that some inherited features are advantageous and some are not. • I know that, over many generations, advantageous features may be spread across a whole species, making them better adapted to their environment. • I understand how the adaptation of plants and animals to suit their environment may lead to evolution. • I can explain Darwin's theory of evolution and the process of natural selection. • I know that Darwin explained each step in the Linnaeus classification system to show where part of a population developed a new variation and eventually formed a new species. • I know that some variations are caused by mutations, and that some of these are harmless, some are advantageous and some are disadvantageous. • I know that changes to an environment can affect the evolutionary process. • I know that palaeontologists study fossils to explore how species have evolved over time. • I understand how humans have evolved over time, and how human behaviour can affect changes in other species over time.	• I can identify features I have inherited from my parents and note variations. • As a class, we can arrange ourselves in different ways according to our inherited characteristics. • I can carry out my own research to find animals that live in a particular environment around the world, recording the features that make it advantageous for its habitat. • I can compare and contrast the features of two animals living in the same environment, explaining why each of their features are advantageous for that particular species. • I understand that scientists are always refining, changing and developing the ideas of other scientists, and that ideas can be refuted when further evidence is uncovered. • I can ask questions about evolution and use my own research to find the answers, presenting my findings. • I can create a fact file about Charles Darwin, using known facts and my own research. • I can read statements and write persuasive arguments to show whether I agree or disagree, drawing on my knowledge of evolution and inheritance.

Year	Term	Scheme of work	Forces	Working Scientifically
2	Sum	Super Scientists	• I know that Isaac Newton was the first person to identify gravity as a force. • I know that gravity is a force that makes things fall to the ground and stops things from floating around in the air.	• I can carry out an investigation to explore the effect adding paper clips to a spinner has on the length of time it takes the spinner to reach the ground. • I can design a marble run with the intention of it taking the longest possible time for the marble to reach the ground.
3	Sum	Forces and Magnets	• I know that a force is a push or a pull on an object, and that a force needs two objects where one pushes or pulls the other to make it move. • I can describe whether a push or a pull is being used to move an object, and describe which direction the forces are acting in. • I know what a forcemeter is and can use one to measure forces in newtons. • I know that some forces, like gravity and magnetism, do not need contact between two objects to make things move. • I know that magnets have a north pole and a south pole. • I can describe lots of different uses for magnets.	• I can carry out a fair test to explore whether objects need the same force to move them across different surfaces. • I can make predictions about the results of my investigation. • I can use my results to draw conclusions. • I can explore whether magnets attract or repel when north poles and south poles are put together. • I can draw diagrams to show the results of my findings. • I can predict which materials will be magnetic and which will not, then test my hypothesis. • I can carry out my own research to find out about uses for magnets and report my findings.
5	Sum	Forces in Action	• I know that the Earth's gravitational force causes objects to have weight, and that gravity pulls objects towards the centre of the Earth. • I know that friction is the force that acts as resistance between two objects when moving over one another. • I can explain examples of friction using photographs. • I know that air resistance is the force that occurs when air pushes against a moving object, making it slow down. • I can explain examples of how air resistance is used. • I know that water resistance is the force that pushes against objects as they pass through the water. • I know that the shape of an object dictates how much water resistance it will meet as it moves through the water. • I know that pulleys and levers make heavy objects easier to lift and can explain why. • I know that gears allow a smaller force to have a greater effect. • I know that two or more gears working together are called a transmission. • I can explain which direction a follower gear will turn based on the movement of the driver gear when two or more gears are used in a transmission. • I know that the force transmitted by gears in a transmission is called torque. • I can give some examples of how gears and transmissions are used in everyday life. • I can recognise some different types of gears, such as worm gears, rack gears and bevel gears.	• I can carry out an investigation to explore the effect of gravity on falling objects, taking careful measurements and observations to draw conclusions. • I can carry out independent research to find out about the roles Newton and Galileo played in helping our understanding of gravity, presenting my findings appropriately. • I can suggest ways to plan an experiment to find out which surface has the most friction when an object is moved across it. • I can carry out a fair test to explore the friction of different surfaces, recording my results accurately and using them to draw conclusions. • I can analyse a variety of statements, explaining which I agree with and why. • I can plan, set up and carry out an investigation to explore how the size of a parachute affects the speed at which it falls to the ground, recording my results appropriately and using them to draw conclusions. • I can make predictions about which shape of plasticine would fall quickest in a pot of water, giving scientific explanations for my choices. • I can carry out an experiment to test my predictions, recording my results using a stopwatch and using evidence to draw conclusions. • I can create some simple pulleys, exploring the different forces needed to pull the same object and drawing conclusions from my findings. • I can use card or construction toys to create different transmissions, exploring the movement and torque of the driver and follower gears.

Year	Term	Scheme of work	Light and Sound	Working Scientifically
2	Sum	Super Scientists	• I know that Isaac Newton worked out that the light from the sun is made up of lots of different colours mixed together, and that we see this as white light. • I know that you can reverse the process of splitting light with a prism by passing the light through a lens to turn it back into white light. • I can use what I know about light to explain why we have rainbows.	• I can observe what happens when light passes through a prism and record my findings. • I can generate questions to help find out about Alexander Graham Bell and his invention of the telephone. • I can carry out investigations to explore how sound travels using a string telephone.
3	Spr	Light and Shadow	• I know that we need light in order to see. • I can name a variety of natural and man-made light sources. • I know that the Sun is the most powerful light source. • I know that we have night and day because the Earth rotates on its axis once every 24 hours. • I can describe the difference between dawn and dusk. • I know that shadows are formed when light is blocked by an object. • I know that we have more shadows on a sunny day than on a cloudy day and can explain why. • I know the difference between transparent, translucent and opaque objects. • I know that opaque objects will cast a shadow, translucent objects will cast a faint shadow, and transparent objects will not cast a shadow. • I know that we can see objects because light is reflected from their surfaces; light travels in a straight line from the source to the objects, then bounces off the object to our eyes. • I know that some objects reflect more light than others. • I know that when a surface is very smooth, like a mirror, it reflects a lot of light which is why we can see a reflection.	• I can identify a variety of light sources around my school. • I can predict which light sources would be strongest, comparing my predictions with a partner and discussing any differences. • I can explain in my own words why we have night and day, using appropriate vocabulary. • I can test whether an object is transparent, translucent or opaque by testing what kind of shadow it casts. • I can explain which shadow diagram is correct, using what I know about how shadows are formed. • I can investigate how shadows behave, finding ways to make shadows move and make them longer and shorter. • I can record results from my shadow experiments using diagrams. • I can predict what I think will happen to a shadow throughout the day. • I can carry out an experiment to find out what happens to shadows throughout the day, recording my results in a table. • I can draw conclusions from my shadow investigation to say what I have found out. • I can experiment with using mirrors to see around corners.
4	Spr	Changing Sound	• I know that sound travels through the air in waves and that sound waves are caused by vibrations in the air. • I know that sound waves pass through some materials more easily than others. • I know that sometimes sound needs to be muffled for safety or convenience. • I can name a variety of musical instruments, describe what they sound like and explain how the sound is made. • I know what the terms 'pitch' and 'volume' mean. • I can identify when the pitch and volume of a sound changes, and explain what has happened. • I can explain how the length, thickness and tightness of a string affects its pitch. • I can explain how the length of the air column in wind instruments changes the pitch.	• I can investigate a range of objects that show visible vibrations to help me understand how sound waves work. • I can predict how well sound will travel through a variety of different materials. • I can plan, set up and carry out an experiment to answer the question, 'Do sound waves travel through all materials equally?' • I can generate questions to investigate what happens to a sound as you get further away from it. • I can plan, set up and carry out an experiment to see which materials are best for soundproofing. • I can draw conclusions from my investigations to answer a question. • I can make predictions about the pitch and volume an instrument will produce, using my knowledge of how sound works. • I can draw a diagram to show how and why the pitch changes on a glockenspiel. • I can investigate a variety of stringed instruments to explore how the pitch changes according to the length, thickness and tightness of the string, and record my findings. • I can predict which bottle would produce the highest pitch when different amounts of water are inside, then test my prediction and record my results.
6	Spr	Seeing Light	• I can name the different parts of the eye and describe their function. • I know that light can only travel in a straight line. • I can explain how mirrors can be used to reflect light. • I can explain how objects such as periscopes and rear-view mirrors work and why they are useful. • I know that the angle the light lands on the mirror will affect which angle the light changes direction to, and I know that this is called the angle of reflection. • I know that some surfaces reflect more light than others. • I can explain the difference between a shadow and a reflection. • I can explain how a mirror could make a shadow and a reflection at the same time.	• I can draw on my previous knowledge of light and shadow to answer a variety of questions. • I can use careful observation to identify the pupil, cornea, iris and sclera of the human eye. • I can use arrows to draw the direction light travels. • I can label a cross-section diagram of the human eye, explaining the function of each part. • I can present information about how the eye works in a variety of different ways. • I can use what I know about the angle of reflection to draw the angle light will reflect off a mirror. • I can use what I know about the angle of reflection to shine a light beam to a goal using mirrors. • I can make predictions about which surfaces will reflect a lot of light and which won't. • I can investigate a variety of surfaces to see which reflect a lot of light and which don't, noting similarities and differences between the two groups. • I can suggest a variety of investigations to explore how shadows behave. • I can carry out an investigation to explore what happens to the size and shape of a shadow when an object is moved further away from a light source, recording my results in graphs and tables.

Year	Term	Scheme of work	Electricity	Working Scientifically
2	Sum	Super Scientists	• I know that Edison invented the first light bulb that could last for more than 12 hours. • I know that a circuit needs a bulb, battery and wire to work. • I know that a circuit needs to be complete for it to work. • I know the symbols for wire, bulb and battery. • I can create a simple working circuit.	• I can answer questions I have generated and suggest how to find answers to questions that I haven't answered yet.
4	Sum	Circuits and Conductors	• I know that atoms generate electricity when they are rubbed together. • I can explain the difference between static electricity and current electricity. • I know that current electricity needs a complete circuit in order to work properly. • I can use diagrams to explain which circuits will and won't work. • I can explain the difference between mains and battery-powered electricity. • I can describe some of the ways in which people can stay safe when using mains electricity. • I can distinguish between objects that use mains electricity and those that use battery-powered electricity. • I can write a definition for the words 'conductor' and 'insulator'. • I can explain why some appliances are made with conductors on the inside and insulators on the outside. • I can explain how switches work to complete a circuit.	• I can test different materials using a simple circuit to see whether they are conductors or insulators. • I can use what I found out about conductors and insulators to draw conclusions. • I can classify objects into those that are conductors and those that are insulators. • I can draw diagrams to show appliances that have conductors on the inside and insulators on the outside. • I can experiment with a variety of objects and materials in a simple circuit to create a working switch. • I can incorporate a buzzer into a circuit that makes a sound when the switch is on. • I can plan, set up and carry out an investigation to find out how you can change the brightness of a bulb, making sure it is a fair test.
6	Sum	Changing Circuits	• I can define each of these terms: circuit, current, conductor, insulator, volt, component, battery, motor. • I know the difference between a series circuit and a parallel circuit. • I know that if there are too many volts running through a circuit, it will blow the component. • I can recognise and use conventional symbols used in circuit diagrams.	• I can work independently to create a series and a parallel circuit. • I can create series and parallel circuits to match a circuit diagram. • I can use what I know about voltage to predict the brightness of a bulb or bulbs in a variety of different circuits. • I can experiment with the best way to make the bulb in a circuit as bright as possible, recording my results on a scale. • I can draw a circuit diagram that includes conventional circuit symbols. • I can create series and parallel circuits to match a circuit diagram that uses conventional circuit symbols. • I can plan, set up and carry out a fair test to see how changing the wire in a circuit affects the brightness of a bulb. • I can use the results of my experiment to answer questions. • I can ask questions about circuits I would like to find the answer to, and decide how to find the answers. • I can design and create a circuit for a particular purpose.

Year	Term	Scheme of work	Earth and Space	Working Scientifically
1	Sum	Seasonal Changes	• I know that the weather is always changing and that we have many different types of weather. • I know that there are four seasons in the UK. • I can name the months each season occurs in. • I can identify the main features of each of the different seasons. • I can describe different clothing that is appropriate to wear during each season. • I can identify differences between each of the four seasons. • I can describe how animals are affected by each of the four seasons, and how their behaviour changes during each one. • I can describe some of the ways humans adapt to the different seasons, e.g. by what we wear, eat and do. • I know that some foods are seasonal. • I know that the number of hours of daylight changes throughout each of the four seasons. • I know that there are more hours of sunlight during the summer than during the winter.	• I can transfer data from a tally chart into a pictogram to show what seasonal clothing was worn. • I can use collected data to answer questions.
5	Spr	Earth and Space	• I know that the Sun, Earth and Moon are roughly spherical in shape. • I can describe what the Sun, Earth and Moon are using appropriate vocabulary. • I know that Earth orbits the Sun and the Moon orbits the Earth. • I can describe how the rotation of the Earth creates night and day. • I know that as well as orbiting the Sun, the Earth rotates on its axis, and that it takes one full day (24 hours) for a complete rotation. • I understand why there are different time zones in the world. • I can describe why the length of daylight changes throughout the year. • I know that the tilt of the Earth's axis is what causes the four seasons of the year. • I know that the Northern and Southern Hemispheres experience seasons at different times of year and can explain the reason for this. • I can describe why the Moon appears to change shape throughout a lunar month. • I can describe the different phases of the Moon using appropriate vocabulary. • I can describe what a solar eclipse is and why it occurs. • I can describe how theories about our solar system have changed over time, explaining the difference between geocentric and heliocentric models. • I know that we are in a galaxy called the Milky Way. • I know that there are three main types of planets in our solar system and can describe the difference between terrestrial, gas giant and ice giant planets. • I can name the planets in our solar system and order them by their distance from the Sun. • I know that the length of a year is different on each planet because of the time it takes each one to orbit the Sun.	• I can draw a labelled diagram of the Sun, Earth and Moon to show how they are related to one another. • I can create a moving model of the Sun, Earth and Moon, and write a description to describe what is happening. • I can make a simple sundial and set it up to observe how shadows change throughout the day. • I can record my observations and use these to draw conclusions. • I can use the internet to research which time zones different cities around the world are in. • I can label diagrams to show which season both the Northern and Southern Hemispheres will be experiencing depending on the Earth's position and tilt. • I can create a graph to show the average day length by month, and use the data to answer questions. • I can create a labelled diagram of the phases of the moon. • I can sort fact cards to show which apply to the geocentric and which apply to the heliocentric explanations of the solar system. • I can use the internet to explore the night sky, stating which planets and constellations will be visible on a given day. • I can carry out my own research to find out key facts about each planet in the solar system. • I can create a 3D model of the solar system.

Science Curriculum Pack
Scheme of Work
Overviews

Identifying Plants : Science : Year 1

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To find out what a plant is.	Children will learn about what a plant is, then either go plant hunting, or plant seeds.	• Can the children identify plants? • Can the children describe the features of different plants? • Can the children identify similarities and differences between plants?	• Slides • Worksheet 1A/1B/1C/1D/1E • Seeds, pots, compost, magnifying glasses • Digital camera (FSD? activity only) • Growing Seeds Video (Plenary)
Lesson 2	To identify and describe garden plants.	Children will learn about a variety of common garden plants, identify some of their features, and consider why they are appealing to people, e.g. easy to grow, or attracts insects.	• Can the children name garden plants? • Can the children describe the features of different garden plants? • Can the children identify similarities and differences between plants?	• Slides • Worksheet 2A/2B/2C/2D • Picture Cards
Lesson 3	To identify and describe wild plants.	Children will identify some wild plants, and begin to consider how their seeds — which they grew from — came to be there. They will then sort, match or describe some wild plants.	• Can the children name wild plants? • Can the children describe the features of different wild plants? • Can the children identify similarities and differences between plants?	• Slides • Worksheet 3A/3B/3C • Picture Cards A/B/C • Domino Cards A/B (FSD? activity only)
Lesson 4	To identify and describe a range of trees.	Children will identify and name trees, then learn some differences between deciduous and evergreen trees. They may then either sort trees into groups or go tree hunting.	• Can the children name some trees? • Can the children describe the features of different trees? • Can the children use the terms 'evergreen' and 'deciduous'?	• Slides • Worksheet 4A/4B/4C/4D • Picture Cards A/B • Tree Identification Chart A/B (FSD? activity only)
Lesson 5	To identify the different parts of a plant.	Children will identify the main parts of a variety of plants and describe their functions. They will then either examine plants (and identify features) or draw and label plant diagrams.	• Can the children name the main parts of a plant? • Do the children know parts of the plant have different functions? • Can the children identify similarities and differences between the parts of different plants?	• Slides • Worksheet 5A/5B/5C/5D • A selection of flowers with stems and leaves (FSD? activity only)
Lesson 6	To make observations of growing plants.	Children will identify ways in which plants change over time. They may either study and describe plants they have grown themselves, or identify ways in which plants around school have changed over time.	• Do children know that plants grow? • Can children name the main parts of a plant? • Can children describe and make observations about how plants change?	• Slides • Worksheet 6A/6B/6C/6D • Time Lapse Video • Seed Story Wheel A/B/C • Photos from lesson one (FSD? activity only) • Digital camera (FSD? activity only) • End of Unit Quiz (Plenary)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Identifying Animals : Science : Year 1

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to identify and name a variety of common animals.	Children will identify, name and describe a variety of common animals kept as pets.	• Can the children identify various pets? • Can the children name various pets? • Can the children describe various pets?	• Slides • Worksheet 1A/1B/1C • Pet Cards (FSD? activity only) • Name Cards (FSD? activity only) • Clue Cards (FSD? activity only)
Lesson 2	To be able to identify and name a variety of common UK mammals.	Children will identify a variety of mammals and compare and describe some of their features.	• Can the children identify various mammals? • Can the children name various mammals? • Can the children compare various mammals?	• Slides • Worksheet 2A/2B/2C/2D • Word Bank • Picture Cards (FSD? activity only)
Lesson 3	To be able to identify and compare a variety of common UK birds and reptiles.	Children will compare the characteristics of a variety of birds and reptiles, then answer questions or describe animals in their own words.	• Can the children identify and name various birds? • Can the children identify and name various reptiles? • Can the children compare reptiles and birds?	• Slides • Worksheet 3A/3B/3C/3D • Fact Sheet • Picture Cards (FSD? activity only)
Lesson 4	To be able to identify and compare a variety of common UK fish and amphibians.	Children will consider similarities and differences between some fish and amphibians. They will also learn about some fish/amphibian life cycles and describe what they have learned in their own words.	• Can the children identify and name various fish? • Can the children identify and name various amphibians? • Can the children compare fish and amphibians?	• Slides • Worksheet 4A/4B/4C/4D • Amphibian Life Cycle Cards • Fish Life Cycle Cards • Life Cycle Sheet (FSD? activity only)
Lesson 5	To be able to identify and sort carnivores, herbivores and omnivores.	Children will describe what a variety of different animals eat, then sort animals using Venn diagrams or tables.	• Do the children understand different animals eat different things? • Can the children classify animals by what they eat? • Can the children use the terms carnivore, herbivore and omnivore?	• Slides • Worksheet 5A/5B/5C/5D/5E • Picture Cards A/B
Lesson 6	To be able to take care of animals.	Children will consider the needs of a variety of animals, and explain how best to care for them.	• Can the children identify what an animal needs? • Can the children explain why it is important to take care of an animal? • Do the children understand different animals need different things?	• Slides • Worksheet 6A/6B/6C/6D • Sentence Cards • True or False Cards (FSD? activity only)
Lesson 7	To collect data about animals and answer questions.	Children will collect, present and interpret data about pets or mini beasts.	• Can the children identify and name a variety of animals? • Can the children record information in a table or a graph? • Can the children answer questions about their data?	• Slides • Worksheet 7A/7B/7C/7D/7E/7F

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

My Body : Science : Year 1

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to identify, name and label body parts.	Children will identify and name several body parts and identify their location on their own bodies. They will then label and/or draw diagrams.	• Can children identify various body parts? • Can children name various body parts? • Can children label various body parts?	• Slides • Worksheet 1A/1B/1C • Body Parts Cards (FSD? activity only)
Lesson 2	To explore what parts of our bodies we use for different activities.	Children will consider which parts of their body are used during a variety of different activities. They will then describe how body parts are used, or how they move.	• Can children name various body parts? • Can children identify where various body parts are? • Can children describe which body parts are used for different activities?	• Slides • Worksheet 2A/2B • Activity Cards • Challenge Cards (FSD? activity only)
Lesson 3	To find out about the five senses, in particular the sense of sight.	Children will consider why sight is an important sense, and conduct tasks where they will have to use their own sense of sight.	• Do children know what the five senses are? • Do children know that eyes are used for seeing things? • Can children use their eyes to look carefully at pictures and objects?	• Slides • Worksheet 3A/3A SOLUTION/3B/3C • Picture Card A/B • Colour Sheets (FSD? activity only)
Lesson 4	To explore the sense of touch.	Children will consider that their whole bodies can sense touch, but that we mostly use our hands to feel things. They will then feel and describe a variety of objects.	• Can children name the five senses? • Do children know that our whole bodies can use the sense of touch? • Can children describe how a variety objects feel using appropriate vocabulary?	• Slides • Worksheet 4A/4B • Word Mat • Variety of objects to feel
Lesson 5	To explore the sense of smell.	Children will consider what our sense of smell is used for and, optionally, conduct a smell investigation.	• Do children know what the five senses are? • Do children know that the nose is used for the sense of smell? • Can children identify use their noses to identify smells?	• Slides • Worksheet 5A/5B/5C/5D • Question Sheet • Fact Cards • Plastic pots (FSD? activity only) • Variety of objects to smell (FSD? activity only) • Tin foil and elastic bands (FSD? activity only)
Lesson 6	To explore the sense of taste.	Children will think about the different tastes of foods and use a range of vocabulary to describe taste. They may either sort and describe given images of foods, or conduct a taste investigation.	• Do children know that we use our mouths to taste things? • Can children use appropriate vocabulary to describe different flavours? • Can children express preferences about foods they like and dislike?	• Slide • Worksheet 6A/6B/6C • Picture Cards • Fruit Cards (FSD? activity only) • Variety of fruits to taste (FSD? activity only)
Lesson 7	To explore the sense of sound.	Children will explore ways in which we use our sense of sound. They may then either produce information text to show what they have learned during this, and previous lessons, or conduct a sound investigation.	• Can children name the five senses? • Can children identify which part of the body each sense uses? • Can children listen carefully to sounds to identify them?	• Slides • Worksheet 7A/7B/7C/7D • Flap Templates • Digital recorder (FSD? activity only) • End of Unit Quiz Sheet

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Everyday Materials : Science : Year 1

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to identify a variety of common materials.	Children will learn what materials are, identify some common materials, and describe some of their uses.	• Do children know what a material is? • Can children identify a variety of common materials? • Do children know where some materials come from?	• Slides • Worksheet 1A/1B/1C • Sorting Cards A/B • Label Cards (FSD? activity only)
Lesson 2	To be able to distinguish between an object and the material from which it is made.	Children will look at a variety of objects and identify some of the materials they are made from. To show what they have understood, children may write lists, match objects to labels or sort objects and materials.	• Can children identify a variety of common materials? • Can children distinguish between an object and the material from which it is made? • Can children identify which material a variety of common objects are made from?	• Slides • Worksheet 2A/2B/2C/2D • Materials Cards (FSD? activity only) • Variety of materials to sort (FSD? activity only) • Picture Cards (FSD? activity only)
Lesson 3	To be able to describe materials according to their properties.	Children will use words such as 'soft', 'smooth', 'hard', or 'bendy' to describe and/or sort a variety of materials and objects.	• Can children use a variety of appropriate words to describe what various materials are like? • Can children match materials to various properties? • Can children group objects and materials according to their properties?	• Slides • Variety of objects e.g. oil, felt, stones, corrugated cardboard, elastic bands, marbles, plastic cups, etc. • Worksheet 3A/3B • Word Mat • Question Cards
Lesson 4	To be able to describe why some materials suit certain objects better than others.	Children will consider why the properties of materials make them suitable for certain uses. They will then select appropriate materials for use in a range of objects.	• Can children identify and describe a variety of materials? • Can children suggest why a material has been chosen for a particular purpose? • Can children identify materials that are inappropriate for certain uses and offer alternatives?	• Slides • Worksheet 4A/4B/4C • Statement Cards • Game Cards A/B (FSD? activity only)
Lesson 5	To carry out an experiment to find out which materials are waterproof.	Children will devise methods for testing materials to determine whether or not they are waterproof. They may then either test materials, or produce a model of a waterproof product.	• Can children make suggestions for how to test which materials are waterproof and which aren't? • Can children test a variety of materials to see which are waterproof and which aren't? • Can children draw conclusions from their experiment?	• Slides • Worksheet 5A/5B/5C • Materials to test • Plastic cups • Elastic bands • Water • Spoons • Plastic trays • Materials to construct umbrella frames (FSD? activity only)
Lesson 6	To recap what we have learnt about everyday materials.	Children will recap prior learning (done during previous lessons), then show what they have understood by making models or matching objects to labels and descriptions.	• Can children identify a variety of everyday materials and describe their properties? • Can children distinguish an object from the material from which it is made? • Can children identify materials that are suitable for a particular purpose?	• Slides • Wheel Template A/B/C • Booklet Template • Challenge Cards (FSD? activity only) • Variety of materials (FSD? activity only) • End of Unit Quiz

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Seasonal Changes : Science : Year 1

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To find out about different seasons and how to describe them.	Children will describe the weather they can directly observe and other types of weather they know of. They will describe what the weather is normally like during different seasons, and what people might wear in different weather conditions.	• Can the children name the seasons? • Do children know that weather changes for each season? • Do children know that weather affects human activity?	• Slides • Worksheet 1A/1B/1C • Outfit Cards • Picture Cards (FSD? activity only only) • Thesaurus and sticky notes (FSD? activity only)
Lesson 2	To find out about the seasons and how they are different.	Children will study images, looking for clues as to which season it is – including weather conditions and plant growth.	• Can the children identify the seasons? • Can the children say how the seasons differ? • Do children know any features of the seasons?	• Slides • Worksheet 2A/2B/2C/2D • Seasons Jigsaws • Sentence Cards • Word Mat (FSD? activity only)
Lesson 3	To find out about how animals are affected by the seasons.	Children will consider ways in which the changing conditions of the seasons affect the lives of animals, focussing on the behaviour of robins during each season. They may either undertake sequencing activities, or work in groups to learn about behaviours of other animals.	• Can the children say how the seasons differ? • Can the children say how the different seasons affect animal behaviour? • Can children explain the terms 'adapt' and 'hibernate'?	• Slides • Worksheet 3A/3B/3C • Robin's Jobs Sheet • Challenge Card (FSD? Activity only) • Hedgehog Fact Sheet (FSD? Activity only) • Story Sheet - plenary
Lesson 4	To find out about how humans are affected by the seasons.	Children will learn about how humans adapt their behaviour to survive during the changing seasons. They may then either explore in detail the ways in which clothing worn may change, or what food is available at different times of year.	• Can the children explain how the seasons affect what we wear? • Can the children explain how the seasons affect what we do? • Do children understand that different food grows in different seasons?	• Slides • Worksheet 4A/4B/4C • Vegetables Picture Cards (FSD? activity only) • Vegetables Clue Cards (FSD? activity only) • Vegetables Name Cards (FSD? activity only) • Fruit Picture Cards (FSD? activity only) • Fruit Clue Cards (FSD? activity only) • Fruit Name Cards (FSD? activity only)
Lesson 5	To find out about the day length is affected by the seasons.	Children will learn how the length of day and night, and the times at which they occur, change throughout the year. They may either answer questions about given information, or sort activities into the seasons for which they are most appropriate.	• Can the children identify which season has the shortest days? • Can the children identify which season has the longest days? • Do the children know the sun rises in the morning and sets in the evening?	• Slides • Worksheet 5A/5B/5C/5D • Timeline A/B • Activity Cards (FSD? activity only)
Lesson 6	To investigate the weather during the seasons.	Children will complete given pictograms using given sets of data to show changes in weather, or frequency of different types of clothes worn, during each season.	• Can children gather weather data over a period of time? • Can children use data to create a pictogram? • Can children answer questions about their data?	• Slides • Seasons Cards • Blank Weather Sheet • Worksheet 6A/6B/6C • Pictogram Sheets • End of Unit Quiz

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Living in Habitats : Science : Year 2

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to identify things that are living, things that are dead and things that have never been alive.	Children will begin to identify some life processes which indicate that animals and plants are alive. They will then identify and sort objects and organisms into group: living and non-living things.	• Can children identify living things? • Can children identify living things that have died? • Can children identify things that have never been alive?	• Slides • Worksheet 1A/1B • Picture Cards A/B • Trays/bags for collecting objects (FSD? activity only)
Lesson 2	To understand that living things need to live in suitable habitats.	Children will learn about what a habitat is, and what animals and plants need to survive in them. They will then identify and group animals by their habitats.	• Do children know what a habitat is? • Do children know that animals and plants need to live in habitats they are suited to? • Can children match animals and plants to suitable habitats?	• Slides • Worksheet 2A/2B/2C • Habitat Cards (FSD? activity only) • Animal Cards (FSD? activity only)
Lesson 3	To explore the plants and animals that live in seaside habitats.	Children will identify features of seaside habitats and discuss which plants and animals might live in it, and where. They may then either identify and name a variety of organisms, or sort organisms into those found in seaside habitats, and those found in other habitats.	• Can children identify some animals in a seaside habitat? • Can children identify some plants in a seaside habitat? • Do children recognise how animals and plants in a seaside habitat are linked together?	• Slides • Worksheet 3A/3B/3C • Domino Cards • Picture Cards (FSD? activity only)
Lesson 4	To be able to explore plants and animals in an unfamiliar habitat.	Children will identify characteristics of animals which give clues about the habitats they live in. They will then discuss what a variety of habitats are like, then either describe what they provide for the organisms that live in them, or how organisms are adapted to suit their habitat.	• Can children name some different types of habitats? • Can children describe different types of habitats • Can children compare habitats and the animals and plants that live in them?	• Slides • Worksheet 4A/4B/4C • Picture Cards • Animal Cards (FSD? activity only) • Habitat Cards (FSD? activity only)
Lesson 5	To be able to explore and describe a micro-habitat.	Children will learn about micro-habitats and the organisms that live in them. They may then either explore micro-habitats outside, or describe and categorise given sets of mini-beasts according to some of their characteristics.	• Do children know what a micro-habitat is? • Can children name some micro-habitats? • Can children identify and describe some of the animals that live in micro-habitats?	• Slides • Worksheet 5A/5B/5C • Picture Cards (FSD? activity only)
Lesson 6	To explore food chains in a habitat.	Children will begin to understand how organisms in a habitat are dependent upon one another, and that these dependencies can be shown as food chains. They may then either complete given food chains, or try to make food chains from a given set of organisms.	• Do children know that animals and plants in a habitat are dependent on each other for food? • Can children construct a simple food chain? • Can children construct food chains that include humans?	• Slides • Worksheet 6A/6B/6C/6D • Label Cards (FSD? activity only) • End of Unit Quiz

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Growing Plants : Science : Year 2

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To understand that different seeds grow into different plants and to describe them.	Children will look at seeds and seed packets and establish what can be learned from them and how best to plant and grow different seed types. They may then either design seed packets or plant seeds.	• Do the children know seeds grow into plants? • Can the children name any plants that grow from seeds? • Do the children understand seed packets tell us what seeds need to grow?	• Slides • Worksheet 1A/1B/1C • Plant Sheet • A variety of seeds (FSD? activity only) • Seed Labels (FSD? activity only)
Lesson 2	To understand that plants can be grown from bulbs.	Children will learn about bulbs: their large food source, and the times of year at which they grow. They may then either undertake a sequencing activity to show bulb growth, or plant bulbs.	• Do the children know plants grow from seeds and bulbs • Can the children name any plants that grow from bulbs? • Can the children explain why some plants need to grow from a bulb?	• Slides • Worksheet 2A/2B/2C • Picture Cards A/B/C • A variety of bulbs (FSD? activity only) • Bulb Labels (FSD? activity only)
Lesson 3	To be able to explain why and how seeds are dispersed.	Children will learn about fruits: The seeds they contain and some ways in which they are dispersed. They may then either study a variety of fruits or explain how seeds are dispersed in their own words.	• Can children explain why seeds need to be dispersed? • Can children give suggestions as to why fruits have so many seeds? • Can children describe some of the ways in which seeds can be dispersed?	• Slides • Worksheet 3A/3B/3C/3D • Variety of seeded fruits (FSD? activity only)
Lesson 4	To plan, carry out and evaluate an investigation into the conditions that affect germination.	Children will learn about germination, then devise tests to determine the various conditions seeds need to germinate. They may then either conduct an investigation or study and interpret a given set of results.	• Can children ask questions that can be investigated scientifically and suggest how to answer them? • Can children plan and carry out an investigation, making sure it is a fair test? • Can children evaluate their results and draw conclusions?	• Slides • Worksheet 4A/4B/4C/4D • Seeds/Plant pots/Soil/Measuring cylinders/ Water • Results Sheet (FSD? activity only)
Lesson 5	To observe and describe how a plant changes as it matures.	Referring back to prior learning, children will consider how plants change over time. They may then either undertake sequencing activities, or describe stages in the growth of their own plant.	• Can the children explain how their plant has changed over time? • Can the children use scientific words to explain each stage of the plants development? For example 'germination', 'growth', 'leaves', 'stem', 'shoots', 'roots'? • Do the children understand what a plant needs to grow?	• Slides • Worksheet 5A/5B/5C/5D • Time lapse video • Plants grown from seeds or bulbs in lesson 1 or 2 • Picture Cards (FSD? activity only) • End of Unit Quiz slides and sheets

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different…?' activity within the lesson plan

Growth and Survival : Science : Year 2

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To find out about the offspring of a variety of different animals.	Children will consider why animals have babies, then match parent animals to their offspring.	• Do children know that all animals, including humans, have offspring that grow into adults? • Can children match a variety of adult animals to their offspring? • Do children know that growth from offspring to adult is a gradual process?	• Slides • Worksheet 1A/1B/1C • Picture Cards A/B/C/D
Lesson 2	To find out about the different ways in which animals reproduce.	Children will begin to learn about how animals who give birth to live offspring, and those who lay eggs, reproduce. They will then match and sort animals according to various criteria.	• Do children know that animals have offspring that grow into adults? • Can children describe some of the different ways animals have offspring? • Do children know that not all animals reproduce in the same way?	• Slides • Worksheet 2A/2B/2C/2D • Information Sheet • Animal Cards (FSD? activity only)
Lesson 3	To explore how humans grow as they get older.	Children will learn about ways in which the body grows over time, then either describe some changes in their own words, or conduct a height investigation.	• Do children know that humans grow as they get older? • Do children know that body parts will grow in proportion? • Can children describe the stages of human development?	• Slides • Worksheet 3A/3B/3C/3D • Tape measures/metre rulers (FSD? activity only)
Lesson 4	To find out what animals, including humans, need to survive.	Children will think about the basic needs of animals, such as eating, drinking and breathing. They will consider how these needs vary between species, then explain the needs of various animals in their own words.	• Do children know that all animals, including humans, need food to survive? • Do children know that all animals, including humans, need water to survive? • Do children know that all animals, including humans, need air to survive?	• Slides • Worksheet 4A/4B/4C/4D • Challenge Cards (FSD? activity only) • Various sources of information, e.g. books, internet, fact sheets from pet stores, etc. (FSD? activity only)
Lesson 5	To explore the environment as a factor of survival for animals, including humans.	Children will learn about ways in which habitats provide some things that animals need, and how animals are best suited to specific environments.	• Do children know that animals need air, water and food to survive? • Do children know that an animal's survival often depends on its environment? • Can children suggest reasons for why a species might become extinct?	• Slides • Worksheet 5A/5B/5C/5D • Research Cards (FSD? activity only) • Variety of information sources (FSD? activity only)
Lesson 6	To find out how to eat a healthy, balanced diet.	Children will learn about foods: which are more/less healthy, then either sort foods, or plan, prepare and describe some healthy foods.	• Do children know why we eat and why it is important to eat a balanced diet? • Do children know which foods we should eat most and least of? • Can children suggest meals that would be good for them?	• Slides • Worksheet 6A/6B/6C/6D • Picture Cards • Balanced Plate sheet • Food Pyramid sheet • Variety of fruits and vegetables (FSD? activity only)
Lesson 7	To find out why exercise is important to keep our bodies healthy.	Children will consider the importance of exercise, and how different exercises, sports and activities affect different parts of the body. They may then either undertake a sorting activity, or plan a course of exercises.	• Do children know that exercise is an important part of keeping our bodies healthy? • Can children identify some of the changes that take place in our body when we exercise? • Can children name various ways they can exercise different parts of their bodies?	• Slides • Worksheet 7A/7B • Picture Cards • PE equipment, e.g. bean bags, hoops, etc. (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Exploring Everyday Materials : Science : Year 2

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to identify a variety of materials and sort them according to a variety of criteria.	Children will identify and describe some common materials, then think of similar materials that could be grouped in the same ways.	• Can children identify and name a variety of different materials? • Can children organise a variety of materials into groups according to given criteria? • Can children organise a variety of materials into groups according to their own criteria?	• Slides • Picture Sheet • Worksheet 1A/1B/1C • Variety of different materials (FSD? activity only) • Hoops (FSD? activity only)
Lesson 2	To be able to identify natural and man-made materials.	Children will identify some natural and man-made materials and describe them, then continue to find out about, sort and describe a range of materials.	• Can children recognise that some materials are naturally occurring and some are not? • Can children name some naturally occurring materials? • Can children identify objects that are made from naturally occurring materials?	• Slides • Worksheet 2A/2B/2C • Variety of natural and man-made materials (FSD? activity only) • Paper, glue, scissors for collages (FSD? activity only)
Lesson 3	To identify that some materials can change shape by squashing, bending, stretching and twisting, and others can't.	Children will squash, bend, twist and stretch a range of materials, then predict how other materials might behave. They will also conduct investigations, recording their findings.	• Do children know that some materials change shape when you bend, squash, stretch or twist them? • Can children identify some materials that can change shape temporarily? • Can children identify some materials that cannot change shape at all?	• Slides • Worksheet 3A/3B/3C/3D • Plasticine, elastic bands, stones • Variety of objects to test (FSD? activity only)
Lesson 4	To identify the suitability of metal and plastic for a variety of purposes	Children will look at a variety of objects made using metal or plastic and consider why each material has been used. They will go on to sort and describe a range of plastic and metal objects.	• Do children know that metal and plastic are different materials? • Can children identify some different things metal and plastic are used for? • Can children explain why a particular material is chosen to be made into an object.	• Slides • Worksheet 4A/4B/4C • Variety of metal and plastic objects • Fact Cards (FSD? activity only)
Lesson 5	To identify different products that can be made from wood and their features and purposes.	Children will learn about how trees are turned into materials we use. They will then either describe how paper is made in their own words, or make and test paper models.	• Do the children know that paper and cardboard are made from wood? • Can the children identify features of wood, cardboard and paper? • Can children explain the advantages and disadvantages of using different wood products?	• Slides • Worksheet 5A/5B/5C • Fact Sheet A/B • Challenge Card (FSD? activity only) • Eight sheets of paper per group, sticky tape, one toy car, rubber (FSD? activity only)
Lesson 6	To identify different materials that are used for the same product.	Children will consider why different objects are made using metal or plastic, then describe the uses of objects and the materials they are made from.	• Do the children know that different materials can be used to make the same product? • Can the children identify which materials have been used in a product? • Can children explain how the purpose of a product might affect the material that is used?	• Slides • Worksheet 6A/6B/6C/6D/6E • Objects: teddy bear, pencil, book, bottle, table, spade, wall, fence (FSD? activity only)
Lesson 7	To identify material inventions and discoveries.	Children will learn about some man-made materials, their uses and their inventors. They will then describe some products and do an end of unit quiz.	• Do the children know that products are improved and changed over time? • Can the children identify the different ways materials have been used? • Can children explain why their invention is an improvement on the original product?	• Slides • Worksheet 7A/7B/7C/7D • Reason Cards • Invention Sheet A/B/C (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Super Scientists : Science : Year 2

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To investigate the effect gravity has on everyday objects.	Children will learn about some of the work of Isaac Newton, then explore ways in which the speed of of falling objects can be affected during either included practical activity.	• Can the children use their own knowledge to make predictions? • Can the children observe patterns? • Can the children talk about what they have found out?	• Slides • Worksheets 1A/1B/1C • Spinner Template • Equipment: stopwatches/metre rulers/paper clips/scissors • Equipment: stopwatches/marbles/cardboard boxes/cardboard tubes/tape (FSD? activity only)
Lesson 2	To investigate what happens to light when it passes through different transparent objects.	Children will learn about Isaac Newton's work and discoveries regarding light, then conduct practical investigations where they will change the ways in which light passes through transparent objects.	• Can the children use their own experiences to make predictions? • Can the children observe patterns? • Can the children talk about what they have found out?	• Slides • Mindmap • Worksheets 2A/2B/2C • Equipment: variety of prisms/torches • Coloured paper • Modelling Sheet A/B • Telescope Instructions (FSD? activity only) • Equipment: magnifying glasses (different strengths), thin cardboard, tape (FSD? activity only) • Tray of water/mirror/torch (Plenary only)
Lesson 3	To investigate the wind.	Children will learn about Maggie Aderin-Pocock and her work. Then they will explore the wind by either making and using a wind vane or an anemometer. Children will be encouraged to ask questions and make observations.	• Can the children use their own experiences to make predictions? • Can the children ask questions and make observations? • Can the children talk about what they have found out?	• Slides • Mindmap • Wind Vane Instructions A/B • Arrow Templates • Equipment: card, rulers, scissors, pencils, paper straws, glue/tape, plasticine, skewers, paper plates, pen lids • Anemometer Instructions A/B (FSD? activity only) • Equipment: paper cups, single-hole punches, wooden skewers, bottle, tape, sand/water, pencils, plasticine, scissors, stopwatch (Plenary only)
Lesson 4	To investigate whether sound can pass through materials.	Children will learn about some of the work of Alexander Graham Bell, then conduct practical investigations to explore ways in which sound travels through different materials.	• Can the children use their own experiences to make predictions? • Can the children observe patterns? • Can the children talk about what they have found out?	• Slides • Mindmap • Worksheets 4A/4B/4C • Telephone Instructions • Equipment: cups/string/wool/scissors/modelling clay • Screen to divide each child, paper and building blocks (FSD? activity only) • Picture Cards A/B (FSD? activity only)
Lesson 5	To investigate our senses and reflexes.	Children will learn about some significant historical discoveries about the body, then conduct practical investigations where they either test their reflexes, or use their senses of touch, taste and smell.	• Can the children use their own experiences to make predictions? • Can the children observe patterns? • Can the children talk about what they have found out?	• Slides • Mindmap • Worksheets 5A/5B/5C/5D • Rulers • Feely bags or boxes/a variety of objects to put inside them/a selection of things to smell and fruits and vegetables to taste/plastic cups/cotton wool/plates (FSD? activity only) • Three slices of bread/three sealable sandwich bags/ cup of water/tablespoon (Plenary)
Lesson 6	To investigate how germs are transferred by touching things.	Children will learn about the work of significant scientists who studied how diseases. They will then either create information texts about staying healthy, or explore how germs are transmitted using a scientific model.	• Can the children use their own experiences to make predictions? • Can the children observe patterns? • Can the children talk about what they have found out?	• Slides • Mindmap • Worksheets 6A/6B • Fact Sheet • A4 paper/video camera • Washing Hands Rhyme (FSD? activity only) • Equipment: basins of cold water/cooking oil/glitter or cinnamon/paper towels (FSD? activity only)
Lesson 7	To investigate electrical circuits to make a light bulb light up.	Children will learn about some of the work of Thomas Edison, then make, test, change or improve their own electrical circuits.	• Can the children use their own experiences to make predictions? • Can the children observe patterns? • Can the children talk about what they have found out?	• Slides • Mindmap • Worksheets 7A/7B/7C/7D/7E/7F • Quiz Instructions • Fact Sheet • Equipment: split pins/wires/bulb/bulb holder/battery • Equipment: wires/bulb/bulb holder/battery (FSD? activity only) • Symbol Key - optional (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Rocks, Fossils and Soils : Science : Year 3

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to identify naturally occurring rocks and explore their uses.	Children will learn where rocks come from, then consider differences between naturally occurring rocks and man-made objects which are similar to rocks. They will then identify, describe and/or sort rocks and man-made objects.	• Do children know that rocks are used for a variety of purposes? • Can children identify some common rocks? • Can children identify rocks that are naturally occurring and those that are man-made?	• Slides • Worksheet 1A/1B/1C/1D • Picture Cards A • Picture Cards B (plenary) • Hoops
Lesson 2	To be able to group rocks according to their characteristics.	Children will consider ways in which rocks can be sorted according to different criteria. They may then either sort given rock samples, or study and sort pictures of rocks according to various criteria.	• Can children suggest ways of grouping rocks according to their characteristics? • Can children observe and compare rocks, and put them into different categories? • Can children justify their choices and explain their decisions?	• Slides • Worksheet 2A/2B/2C • Rock samples • Picture Cards (FSD? activity only)
Lesson 3	To be able to plan, carry out and evaluate experiments to compare rocks.	Children will start to learn about erosion. They will also consider how different rocks may be tested to determine how quickly they erode and whether they are permeable. Following this, children will conduct practical erosion/permeability investigations.	• Do children know what the terms 'erosion' and 'permeable' mean? • Can children plan and carry out an experiment to compare rocks based on certain characteristics? • Can children evaluate their results and draw conclusions?	• Slides • Worksheet 3A/3B/3C • Question Sheet • Rock Samples • Stopwatches • Beakers of water (FSD? activity only) • Pipettes (FSD? activity only)
Lesson 4	To identify rocks that are used for particular purposes.	Children will consider what sources may help them find out about a rock's uses, then carry out research to help them describe the characteristics of rocks and their uses.	• Can children use a variety of sources to find out information about rocks and their uses? • Can children organise the information they have found out? • Can children present the information they have found out clearly?	• Slides • Worksheet 4A/4B • Information Sheet • Books, CD ROMs, access to internet, etc. • A3 and A5 paper • Rock Cards (FSD? activity only)
Lesson 5	To explore soil and how it is formed.	Children will learn about soil: how it is formed and its uses. They will also study different types of soil. Following this, children will study and describe a variety of soil samples.	• Do children know that soil is made up of rocks and decaying organic matter? • Do children know that there are different types of soil? • Do children know that there are different layers of soil?	• Slides • Worksheet 5A/5B/5C • Three different soil samples • Graded sieves • Trowels and containers (FSD? activity only)
Lesson 6	To explore what fossils are and how they are formed.	Children will learn about how fossils are formed, then either describe this process in their own words or conduct a practical, 'fossil-making' activity.	• Do children know that rocks move in a continuous cycle? • Do children know what a fossil is? • Can children explain how fossils are formed?	• Slides • Worksheet 6A/6B/6C • Sentence Cards • Help Sheet (FSD? activity only) • Plasticine, plaster of Paris, petroleum jelly, card, paint (FSD? activity only)
Lesson 7	To be able to identify fossilised remains.	Children will study images of fossilised remains and discuss what can be learned about the animal by doing this. They may then either conduct research to find out about given images of fossils, or do a practical, 'fossil excavation' activity.	• Can children describe how fossils are formed? • Can children identify a variety of common fossils? • Do children know where fossils are more likely to be found and why?	• Slides • Worksheet 7A/7B/7C • Picture Cards • Cameras - optional • Chocolate chip biscuits (FSD? activity only) • Tools e.g. tweezers, cocktail sticks, etc. (FSD? activity only) • End of Unit Quiz Sheet

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Light and Shadow : Science : Year 3

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To recognise that we need light in order to see.	Children will learn that darkness is the absence of light, and that without light we cannot see. They will then identify, describe and sort a variety of light sources.	• Do children know that we need light in order to see things? • Do children know that dark is the absence of light? • Can children identify a variety of light sources?	• Slides • Worksheet 1A/1B/1C/1D • Picture Cards (FSD? activity only)
Lesson 2	To explore the Sun as a light source and identify the difference between night and day.	Children will learn about some differences between night and day, including starting to understand how the Sun rises and sets. They may then describe differences between night and day in their own words by answering questions, producing diagrams or writing poetry.	• Can children define the difference between night and day? • Do children know why the Sun rises and sets each day? • Do children know that we need light to see and that darkness is the absence of light?	• Slides • Worksheet 2A/2B/2C • Poem Template sheets (FSD? activity only)
Lesson 3	To investigate what shadows are and why they are formed.	Children will share their ideas about how objects could be tested to determine whether or not they will make a shadow. They may then either test their ideas, or explore the way shadows are created, using shadow puppets.	• Do children know that shadows are formed when light is blocked? • Do children know the difference between objects that are transparent, translucent and opaque? • Can children explore shadows using torches and express their findings?	• Slides • Worksheet 3A/3B/3C • Variety of opaque, transparent and translucent objects • Torches • Cardboard boxes, card, sticks, greaseproof paper (FSD? activity only) • Help Sheet (FSD? activity only)
Lesson 4	To investigate how shadows behave.	Children will continue to learn about how shadows are created, then conduct practical shadow investigations where they will predict, test and draw/write to show their findings.	• Do children know that shadows are formed when the light from a light source is blocked by a solid object? • Can children use simple equipment to explore how shadows behave? • Can children record findings using drawings and diagrams?	• Slides • Worksheet 4A/4B/4C • Variety of small objects • Torches • Challenge Cards (FSD? activity only) • Large sheets of paper (FSD? activity only)
Lesson 5	To investigate how the size of shadows change throughout the day.	Children will discuss and predict what will happen to a shadow cast by a stick in sunlight throughout the day. They may then conduct a shadow investigation and present their findings using bar graphs.	• Can children explain why shadows created by the Sun change position during the course of a day? • Can children plan and carry out an investigation? • Can children find patterns in the way the size of shadows change?	• Slides • Worksheet 5A/5B/5C/5D • Shadow stick, ruler and chalk • Access to computers (FSD? activity only)
Lesson 6	To explore how light is reflected from surfaces.	Children will learn that some surfaces reflect more light than others. They may then either identify and describe a range of reflective surfaces, or conduct a reflection investigation using mirrors.	• Do children know that light travels in a straight line? • Do children know that we need light in order to see? • Do children know that we see when light is reflected from a surface?	• Slides • Worksheet 6A/6B/6C • Mirrors • Challenge Card (FSD? activity only) • End of Unit Quiz

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

How Plants Grow : Science : Year 3

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To identify and describe the functions of the roots of flowering plants.	Children will recap the main features of flowering plants, then learn about how roots grow, and what their functions are. They will then plan an experiment where they will grow beans, measuring root growth.	• Can children name the main parts of flowering plants? • Can children explain the function of roots? • Can children record findings and draw conclusions?	• Slides • Worksheets 1A/1B/1C • Growing Beans worksheet • Dried bean seeds (butter beans, kidney beans or similar) • Cotton wool • Clear pots or jars • Water
Lesson 2	To investigate the way in which water is transported within plants.	Children will learn how water, absorbed by the roots is distributed around the plant via the stem. They will then conduct experiments where the capillary action in plant stems can be observed.	• Can children explain where plants get their water from? • Can children name the parts of the plant that transport water? • Can children plan and carry out simple investigations? • Can children draw simple conclusions?	• Slides • Worksheets 2A/2B/2C • Celery, food dye, water, plastic containers • Plastic cups, kitchen roll (FSD? activity only)
Lesson 3	To identify and describe the functions of leaves in flowering plants.	Children will start to learn how plants make their own food using air and sunlight. They will then either describe parts of this process in their own words, or plan and conduct an experiment to show the importance of light for plant growth.	• Can children say what plants need to produce their own food? • Can children explain the function of leaves in flowering plants? • Can children start to explain some stages in the life cycle of flowering plants?	• Slides • Worksheets 3A/3B/3C • Life Cycle Flowchart • Equipment as listed below (FSD? activity only)
Lesson 4	To explore the part that flowers play in the life cycle of flowering plants, including **pollination**, **seed formation** and seed dispersal.	Children will start to identify the parts of a flower, and how pollination occurs. They will then continue to identify and label the parts of a flower by drawing diagrams or dissecting flowers.	• Can children name the main parts of flowers? • Can children describe the functions of the main parts of flowers? • Are children able to describe one of the ways in which flowering plants reproduce? • Do children know how and where seeds are formed in flowering plants?	• Slides • Worksheets 4A/4B/4C • Dissecting Flowers worksheet (FSD? activity only) • Double-sided sticky tape (FSD? activity only) • Sticky tape or sticky-backed plastic (FSD? activity only) • Tweezers (FSD? activity only) • Flowers (FSD? activity only)
Lesson 5	To explore some of the ways in which flowering plants disperse their seeds.	Children will learn how the ovaries of flowering plants grow to form seeds, and how they may be dispersed in a variety of ways. They will then either continue to study in-depth some ways in which seeds are dispersed, or identify seeds found outside.	• Can children explain why flowering plants need to disperse their seeds? • Can children describe some ways in which seeds are dispersed? • Can children identify how seeds are dispersed based on their appearance?	• Slides • Worksheets 5A/5B/5C • Fruits and Seeds sheet • Seed Dispersal Fact File (FSD? activity only)
Lesson 6	To understand the structure of seeds and their importance as a food source.	Children will learn about the structure of seeds and how plants grow from them. They will then either taste and compare seeds, or make seed cake bird feeders.	• Can children name the parts of a seed and describe their functions? • Can children identify the parts of a seed? • Do children know why seeds are an important food source for animals?	• Slides • End of Unit Quiz • Worksheets 6A/6B/6C • A variety of different edible beans and seeds • Bird Seed Cakes sheet (FSD? activity only) • Bird seed mix (FSD? only) • Lard or equivalent (FSD? only) • Bread crumbs, cheese, oats, dried fruit {optional} (FSD? only) • Yogurt pots (FSD? only) • String (FSD? only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Health and Movement : Science : Year 3

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To identify that humans get the nutrition they need from what they eat.	Children will learn about the need for a varied diet in order to get the right nutrition, then either sort food into groups, giving reasons, or visit a supermarket to learn more about different food groups.	• Do children know that humans get nutrition from what they eat? • Can children identify and group a variety of foods? • Can children recognise foods for growth and foods for energy?	• Slides • Worksheet 1A/1B/1C/1D • Picture Cards • Group Cards • Digital cameras - optional (FSD? activity only)
Lesson 2	To identify that a balanced diet is needed in order to stay healthy.	Children will continue to learn about the need for a varied, balanced diet by looking at food pyramids and examples of healthy meals (and planning their own). They will also consider ways in which people with dietary restrictions can have a balanced diet.	• Do children know that humans need to eat to grow and move? • Do children understand what is meant by the term 'balanced diet'? • Can children identify and describe which food groups we should eat most of and which food groups we should eat least of?	• Slides • Worksheet 2A/2B/2C • Food Pyramid sheet (FSD? activity only)
Lesson 3	To investigate which foods different animals eat.	Children will find out about what some animals eat. They will use technical vocabulary to describe different types of animal, and present their findings (following research about animals, their habitats and their diets) in their own words.	• Do children know that different animals have different diets? • Can children use secondary sources to find out about the diets of different animals? • Can children recognise whether an animal is a herbivore, carnivore or omnivore?	• Slides • Worksheet 3A/3B/3C/3D • Books, internet, etc. • Animal Cards (FSD? activity only)
Lesson 4	To carry out an investigation to find out what pets eat.	Children will think about what questions could be asked to learn more about what pets eat. They may then either plan and conduct an investigation, or study a given set of results. In either case, children will present data using pictograms or bar graphs.	• Can children pose questions that can be investigated? • Can children gather data systematically? • Can children present and evaluate the results of an investigation?	• Slides • Worksheet 4A/4B/4C/4D/4E • Results Sheet (FSD? activity only)
Lesson 5	To explore human and animal skeletons.	Children will learn about bones in humans and other animals. They will then either label skeleton diagrams, or identify similarities between the skeletons of a variety of animals.	• Do children know that animals with a skeleton are called vertebrates? • Can children identify different bones in the human skeleton? • Can children compare bones in animal and human skeletons?	• Slides • Worksheet 5A/5B/5C/5D • Books, access to internet, etc. • Picture Cards (FSD? activity only) • Skeleton Sheet (FSD? activity only)
Lesson 6	To find out about how the skeleton supports and protects the body and to investigate how invertebrates are supported.	Children will learn about the functions of the skeleton in vertebrates, and how some invertebrates move and are protected in different ways. They will then research and describe various invertebrates.	• Do children know the difference between vertebrates and invertebrates? • Do children know that internal skeletons support and protect the body? • Do children know how the bodies of invertebrates support and protect them?	• Slides • Worksheet 6A/6B/6C • Books, access to internet, etc. • Picture Cards (FSD? activity only) • Label Cards (FSD? activity only)
Lesson 7	To find out what muscles are and how skeletal muscles help us to move.	Children will continue to learn about how the body moves, focussing on the ways muscles work. They will then study a variety of sources to find out more about muscles, noting their findings.	• Do children know that muscles help us move? • Do children know that muscles work in pairs to move different parts of the body? • Do children know that some animals have strong muscles for particular purposes?	• Slides • Worksheet 7A/7B/7C • Fact Cards • Challenge Cards (FSD? activity only) • End of Unit Quiz

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Forces and Magnets : Science : Year 3

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explore what forces are and notice that some forces need contact between two objects.	In this initial lesson the children will identify forces as a push or a pull that will create, or stop a movement. They will identify the forces in different situations noting that many need contact in order for the force to be applied. The children will be challenged to identify forces using an arrow or to discuss how forces can create movement in different situations.	• Can children explain what a force is? • Do children know that some forces need contact between two objects? • Can children identify pushes and pulls and explain the forces in action?	• Slides • Forces Cards 1A/1B • Worksheet 1A • Close Slip 1A • Question Cards 1A (FSD? activity only)
Lesson 2	To compare how things move on different surfaces.	In this lesson the children will investigate how the texture of a surface affects how things move across them. They will be show how to use and read a force meter and conduct an experiment to measure the force it takes to move different objects. Alternatively, they can conduct a similar experiment, testing how far a toy car can travel across different surfaces.	• Do children know that forces can be measured in newtons using a force meter? • Can children set up and carry out an investigation to explore how objects move on different surfaces? • Can children draw conclusions from their observations?	• Slides • Worksheet 2A/2B/2C • Force meters • Access to a variety of surfaces, e.g. carpet, concrete, grass, wood, bubble wrap, etc. • Ramp and toy car (FSD? activity only) • Metre rulers/tape measures (FSD? activity only) • Class Results Sheet 2A (FSD? activity only) • Pre/Post-investigation Cards 2A (FSD? activity only)
Lesson 3	To explore how magnetic forces work.	Children will be introduced to magnets, and how they can exert a force on certain objects without touching them. They will explore the different forces a magnetic field can exert, depending on which poles are facing each other. In their independent activities, they will show their understanding of this by using the correct scientific vocabulary.	• Do children understand that a magnet does not need contact with an object for the force to be applied? • Can children explain what happens when the opposite poles of two magnets are placed close together? • Can children explain what happens when the same poles of two magnets are placed close together?	• Slides • Bar magnets • Worksheet 3A/3B/3C • Word Bank • Exploration Cards (FSD? activity) • Magnets of varying strengths and sizes, paper clips, string, tape (FSD? activity only) • Worksheet 3D (FSD? activity only)
Lesson 4	To be able to identify magnetic materials.	In this lesson, children recap on what they already know about magnets, before beginning to discuss and predict what other materials could be attracted to magnets. In their independent activities, children test a variety of materials, and are encouraged to notice what the magnetic materials have in common.	• Can children make and test predictions about whether materials are magnetic or not? • Can children make careful observations? • Can children group objects on the basis of whether or not they are magnetic?	• Slides • Worksheet 4A/4B/4C/4D • Magnets • Variety of materials to test (e.g. paper clips, rubbers, metal and wooden spoons, safety pins, aluminium cans, coins, pencils, scissors, keys etc.)
Lesson 5	To investigate uses for magnets.	In this final lesson the children will be challenged to discuss how magnets are used in everyday places as well as some more specific ways. They will then be asked to think about the strength of magnets and how this might affect the use of that magnet. They will conduct an investigation into the strength of magnets or, alternatively, they can make their own compasses using magnets.	• Can children name some uses for magnets? • Are children able to suggest ways in which magnets can be used to solve common problems? • Can children briefly describe how a compass works?	• Slides • Strength Experiment Sheet 5A • Worksheet 5A/5B/5C • Challenge Cards 5A/5B (FSD? activity only) • Worksheet 5D (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

States of Matter : Science : Year 4

PlanBee™

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To compare and group materials together according to whether they are solids or liquids.	Challenge your class to define what solids and a liquids are and sort materials into groups based on their state. Children will discuss the different items that may not seem to fit and look closely at how they're made up including pourable solids such as rice or sand. Alternatively, explore and make observations of non-newtonian fluids as you make slime together.	• Can children provide a definition of solid or liquid? • Are children able to sort objects into solids and liquids? • Can children explain why they have placed an object into either group?	• Slides • Object Cards 1A • Sorting Cards 1A/1B/1C • Worksheet 1A/1B • Slime Recipe Cards 1A (FSD? activity only) • Ingredients for slime (FSD? activity only) • Challenge Cards 1A (FSD? activity only) • Worksheet 1C (FSD? activity only)
Lesson 2	To identify and explore the properties of gases.	Take a look at the third state that a material can be in and explore if gases have mass. Look at the different ways that gases are used in everyday life and how their different properties make them useful for different purposes.	• Can children name some of the properties of gases? • Are children able to write a scientific definition of a gas? • Can children use their scientific knowledge to draw conclusions about their experiment's results?	• Slides • Bottles with lids • Sponges • Containers of water • Experiment Card 2A • Worksheet 2A/2B/2C • Fizzy drink • Electronic scales • Syringes of different sizes (FSD? activity only) • Plastic tubes* (FSD? activity only) • Balloons (FSD? activity only) • Pneumatics Card 2A (FSD? activity only) • Worksheet 2D (FSD? activity only)
Lesson 3	To observe that materials change state when they are heated or cooled.	In this lesson the children will take a closer look at the particles in solids, liquids and gases and how they behave in these states. They will then use this knowledge to describe what happens when solids and liquids freeze and melt.	• Can children describe the difference between the particles in solids, liquids and gases? • Can children describe what melting is? • Can children describe what freezing is?	• Slides • Worksheet 3A/3B/3C • Recipe Cards 3A (FSD? activity only) • Ingredients (FSD? activity only) • Cooking equipment (FSD? activity only) • Party Cards 3A (FSD? activity only)
Lesson 4	To research the temperature in degrees Celsius (°C) at which materials change state.	This lesson challenges your class to research the melting points of different materials. They can use the internet to find the melting points of materials such as gallium, olive oil and gold. Alternatively, have your class design and reflect on an investigation about the melting points of different chocolate.	• Do children understand that different materials have different freezing/melting points? • Can children use their research skills to find the melting points of less common materials? • Can children evaluate an experiment's fairness and suggest improvements?	• Slides • Access to the internet • Sorting Cards 4A • Worksheet 4A/4B/4C • Experiment Card 4A (FSD? activity only) • Worksheet 4D (FSD? activity only) • Milk, white and dark (80% cocoa) chocolate (FSD? activity only) • Warm water (FSD? activity only) • Timers (FSD? activity only) • Foil trays (FSD? activity only)
Lesson 5	To understand the process of evaporation.	In this lesson the children will be asked to focus on the process of a liquid turning into a gas. They will think about the everyday examples of evaporation including puddles 'disappearing' throughout the day as well as the cooling effects of sweat on our skin. They will discuss the differences between evaporating and boiling as well as highlighting the boiling point of water. They are challenged to conduct an investigation into the rates of evaporation and how heat and air can affect them.	• Can children describe the process of evaporation? • Can children give an everyday example of water evaporating? • Can children describe a way to increase the rate of evaporation?	• Slides • Hand sanitiser • Teacher Notes 5A • Worksheet 5A/5B • Experiment equipment • Challenge Card 5A (FSD? activity only) • Ideas Sheet 5A (FSD? activity only) • Investigation Planner 5A (FSD? activity only) • Investigation equipment (FSD? activity only) • Design Sheet 5A (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

States of Matter : Science : Year 4

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 6	To understand the process of condensation.	In this lesson the children will look at the opposite process to evaporation: condensation. They will think about what causes water to condense and look at some examples of this. They are then challenged to recreate a situation where they can see water condensing, including its use in a solar still to remove the salt from sea water.	• Can children name each of the ways a material can change state? • Are children able to describe condensation and when it happens? • Can children create a diagram to help them explain condensation?	• Slides • Teacher Notes 6A • Cling film or other flexible plastic • Ice cubes • Worksheet 6A/6B/6C • Challenge Card 6A (FSD? activity only) • Worksheet 6D (FSD? activity only) • Salt water (FSD? activity only) • Bowls and beakers (FSD? activity only) • Small weights (FSD? activity only)
Lesson 7	To identify the part played by evaporation and condensation in the water cycle.	This final lesson draws upon the children's learning of evaporation and condensation to describe the water cycle. They will look at four simplified steps of the water cycle and how these processes play a part.	• Do children know what the water cycle is? • Can children name the different stages of the water cycle? • Do children know that evaporation and condensation are processes that can be reversed?	• Slides • Teacher Notes 7A • Worksheet 7A/7B • Word Bank 7A • Water Cycle Diagram 7A (FSD? activity only) • Challenge Card 7A (FSD? activity only) • Sealable sandwich bags or plastic wallets (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Changing Sound : Science : Year 4

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To find out that sounds are made when objects and materials vibrate.	Children will learn about how sounds are created, then explore the way sounds are produced by a variety of instruments or resonant objects.	• Do children know that sounds are made when objects or materials vibrate? • Can children make careful observations? • Can children draw conclusions about sounds from their observations?	• Slides • Worksheet 1A/1B/1C • Variety of musical instruments if available • Rice and drum; elastic bands; tuning fork and beaker of water; rulers; stereo speakers (if available) • Question Cards (FSD? activity only)
Lesson 2	To investigate whether sounds can travel through different materials.	Children will learn about how sounds travel through different materials. They will give reasons why they think some materials will transmit sound better/ worse than others, then investigate.	• Do children know that vibrations from sound sources travel through different materials to the ear? • Do children know sound can travel through solids, liquids and gases? • Do children know that some materials allow sound to pass through them more easily than others?	• Slides • Worksheet 2A/2B/2C • Drum/cymbal/something else loud! • Waterproof buzzer or ticking clock • Boxes with lid, water and sand with suitable containers (FSD? activity only) • Pre-prepared 'string telephones'
Lesson 3	To explore the relationship between distance and volume.	Children will explore ways in which sounds change as you move further away from its source. They will suggest reasons for their findings.	• Do children know that sounds get fainter as the distance from the sound source increases? • Can children carry out an investigation to explore what happens to sound as it gets further away? • Can children draw conclusions and describe what they have found out?	• Slides • Worksheet 3A/3B • Objects to make sounds • Metre sticks, tape measures, etc.
Lesson 4	To find out that some materials are effective in preventing vibrations from sound sources reaching the ear.	Children will learn about why it is sometimes necessary to prevent sounds from travelling, then investigate the soundproofing effectiveness of a range of materials.	• Can children name some of the reasons why preventing sound to travel is sometimes important? • Can children plan a test to measure how well different materials muffle sound? • Can children draw conclusions about which materials muffle sound the best?	• Slides • Worksheet 4A/4B • Buzzers/rattles/ticking clocks • Materials to test (e.g. foam sheets, fabric, newspaper, bubble wrap, tin foil, kitchen roll, clingfilm, paper towels, cotton wool, etc.)
Lesson 5	To investigate how sounds can be different pitches and volumes.	Children will learn about pitch and volume, then investigate ways in which they may be altered by a variety of instruments or resonant objects.	• Do children know that the term 'pitch' describes how high or low a sound is? • Can children recognise changes in pitch and identify high and low notes? • Can children investigate different instruments and make generalisations about pitch?	• Slides • Worksheet 5A/5B/5C • Xylophones/glockenspiels • Books, CD ROMs, access to internet, etc. • Variety of drums (FSD? activity only)
Lesson 6	To find out how the length, thickness and tightness of a string affects its pitch.	Children will consider how the pitch of notes produced by stringed instruments is altered, then investigate further by experimenting with instruments or by making instruments.	• Do children know that the pitch of a stringed instrument depends on the length, thickness and tightness of the string? • Can children suggest ways of testing what happens to the pitch of a string when you alter the length, tightness and thickness? • Can children draw conclusions from their observations?	• Slides • Worksheet 6A/6B/6C • Variety of stringed instruments • Elastic bands, boxes, tubes, etc. (FSD? activity only)
Lesson 7	To find out how sounds can be made by air vibrating and how to change the pitch of notes produced by vibrating air.	Children will learn how sounds can be made by air vibrating, then explore ways in which the pitch of these sounds can be altered.	• Do children know that sounds can be made by air vibrating? • Can children suggest ways to change the pitch of a sound made by air? • Can children describe how to change the length of the air column vibrating to change pitch?	• Slides • Worksheet 7A/7B/7C • Empty bottles • Water • Xylophones/glockenspiels • Recorders (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different…?' activity within the lesson plan

Living in Environments : Science : Year 4

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to identify a variety of habitats and explore why organisms live in different habitats.	Children will identify habitats, and consider why their conditions are important for the animals living in them. They will then either describe habitats in their own words, or explore a local habitat.	• Do children know what a habitat is? • Can children identify a variety of habitats? • Do children know that animals live in habitats that are suited to their needs?	• Slides • Habitat Cards • Riddle Cards • Animal Cards • Worksheet 1A/1B (FSD? activity only)
Lesson 2	To be able to group organisms according to their characteristics.	Children will organise animals into groups according to some of their characteristics. They may then either continue to sort animals according some of their own criteria, or examine some animals and group them based on observations.	• Can children identify similarities and differences between similar organisms? • Can children group animals and explain the criteria that has been used to sort them? • Can children make careful observations to identify the characteristics of different organisms?	• Slides • Worksheet 2A/2B/2C/2D • Animal Cards • Pots, trowels, etc. (FSD? activity only) • Microscopes/hand lenses (FSD? activity only)
Lesson 3	To be able to classify animals into specific groups according to their characteristics.	Children will use classification keys to identify and sort animals into groups. They may also study a range of sources to find out about a particular group of animals.	• Do children know that animals can be categorised into broad groups according to their characteristics? • Can children use a classification key to help them identify which group an animal belongs to? • Can children identify a variety of animals that are vertebrates, invertebrates, mammals, amphibians, insects, reptiles, fish and birds?	• Slides • Worksheet 3A • Animal Cards A/B/C • Animal Classification Key • Challenge Cards (FSD? activity only)
Lesson 4	To be able to use a classification key to identify animals.	Children will identify a range of animals from different environments using classification keys. Optionally, they may create and test their own classification keys.	• Can children use a classification key to identify unfamiliar animals? • Can children use close observations to identify an animal's characteristics? • Can children create their own classification keys to help identify an animal?	• Slides • Worksheet 4A/4B/4C • British Animals Classification Key A/B • Animal Cards (FSD? activity only)
Lesson 5	To be able to identify and classify a variety of British plants.	Children will use Venn Diagrams and Carroll diagrams to sort plants according to some of their characteristics. Some children may choose their own ways of sorting and classifying plants, too.	• Can children group a variety of plants according to their characteristics? • Can children use a classification key to identify plants? • Can children use other sources to help them identify a variety of local plants?	• Slides • Worksheet 5A/5B • Plant Cards • Digital cameras (FSD? activity only) • Books, access to internet, etc. (FSD? activity only)
Lesson 6	To explore the human impact on habitats and environments.	Children will consider ways in which animals living in environments are affected by human behaviour, then suggest ways in which we can help protect and sustain habitats.	• Do children know how one change in a habitat can affect all the organisms within that environment? • Can children list positive ways in which humans can impact the environment? • Can children list negative ways in which humans can impact the environment?	• Slides • Worksheet 6A/6B/6C • Scenario Cards

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Eating and Digestion : Science : Year 4

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to identify and classify carnivores, herbivores and omnivores.	Children will identify similarities and differences between the diets of different organisms, then sort and describe them using technical vocabulary such as herbivore, carnivore, and omnivore.	• Can children explain why all animals, including humans, need to eat? • Can children identify animals that are carnivores, herbivores and omnivores? • Can children classify animals according to their diet?	• Slides • Worksheet 1A/1B/1C • Animal Cards A/B • Books, access to internet, etc. • Challenge Cards (FSD? activity only)
Lesson 2	To be able to construct and interpret a variety of food chains.	Children will learn about food chains, then organise a variety of organisms using food chains.	• Do children know what the terms 'producer' and 'consumer' mean in relation to food chains? • Can children interpret food chains? • Can children construct food chains?	• Slides • Worksheet 2A/2B/2C/2D/2E • Organisms Sheet • Name Tags (FSD? activity only)
Lesson 3	To identify the different types of teeth in humans and identify their functions.	Children will identify different types of human teeth and their functions. They will then sort, draw, label or describe teeth.	• Can children identify the different types of human teeth? • Do children know that the shape of teeth make them useful for different purposes? • Can children suggest reasons why animals might have different types of teeth?	• Slides • Worksheet 3A/3B/3C/3D • Mirrors (FSD? activity only)
Lesson 4	To explore different ways of keeping teeth healthy.	Children will learn about what happens to teeth during the lifetime of humans, and consider ways in which we can ensure our teeth stay healthy.	• Do children know that humans have two sets of teeth during their lifetime? • Can children explain why it is important to look after teeth? • Can children describe ways in which people can make sure their teeth stay healthy?	• Slides • Worksheet 4A • Poster Template • Information Sheet
Lesson 5	To investigate how the digestive system works.	Children will start to learn about the digestive system: its organs and their functions. They will then use a variety of sources to learn more and answer questions.	• Can children ask relevant questions? • Can children use different sources of information to find the answers to questions they have asked? • Can children name some of the organs associated with the digestive system?	• Slides • Worksheet 5A/5B/5C • Fact Cards • Additional information sources, e.g. books/posters • Question Cards (FSD? activity only)
Lesson 6	To be able to describe the functions of the basic parts of the digestive system.	Children will continue to learn, in greater depth, about the organs of the digestive system and their functions. They will then either draw and label diagrams to show what they have learned, or conduct a digestion experiment.	• Can children name the organs associated with the digestive system? • Can children describe the basic functions of the organs associated with the digestive system? • Can children describe the process of digesting food?	• Slides • Worksheet 6A/6B/6C/6D • Label Cards • Help Sheet (FSD? activity only) • Equipment for experiment - see Help Sheet (FSD? activity only) • End of Unit Quiz

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Circuits and Conductors : Science : Year 4

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To identify common appliances that run on electricity.	In this initial lesson the children will discuss what electricity is and how we use it in our day-to-day lives. They will think about which appliances around them use electricity and begin to think about batteries and plugs.	• Are children able to identify common appliances powered by electricity? • Can children say what we use electricity for and why it is important? • Are children able to describe electricity as a form of energy?	• Slides • Worksheet 1A/1B/1C • Sorting Sheet 1A • Electricity Hunt Sheet 1A
Lesson 2	To understand how to keep safe around electrical appliances.	This lesson leads a discussion with your class about how we can all stay safe when using electrical devices. The children will have the opportunity to spot potential hazards and discuss how they can be made safe.	• Can children explain some of the dangers of electricity? • Are children able to explain the difference between battery and mains electricity? • Are children able to say how they can stay safe around electricity?	• Slides • Worksheet 2A/2B/2C • Poster Template sheet (FSD? activity only)
Lesson 3	To construct simple circuits.	This lesson challenges your class to begin constructing simple circuits with single or multiple components, observing what they see as they do so. The children will learn about what a complete circuit is, as well as the names of different components and short circuits.	• Can children label the components of a circuit? • Are children able to construct simple circuits? • Can children make observations about simple circuits?	• Slides • Circuits equipment • Picture Cards 3A • Worksheet 3A/3B • Challenge Cards 3A • Circuit Cards (FSD activity only)
Lesson 4	To recognise common conductors and insulators.	In this lesson the children will discuss how electricity can flow through, or not flow through, different materials. They will experiment with, and sort materials based on if they are electrical conductors or insulators, making predictions about the materials. Alternatively, they can make a switch using given objects to use as a buzzer in a quiz game.	• Can children set up a fair test? • Can children make predictions about whether a material is a conductor or insulator? • Are children able to say whether a material is a conductor or insulator?	• Slides • Circuits equipment • Worksheet 4A/4B/4C • Picture Card 4A • Quiz Questions 4A (FSD? only activity)
Lesson 5	To make a simple device which includes a circuit.	In this lesson the children will use all they have learnt about electrical components to create an electrical circuit which will be used to power a simple device. The children will need to work together to discuss and figure out how they can use a circuit in their device.	• Can children create a simple circuit with a switch? • Are children able to create a simple, functioning device which uses electricity? • Can children troubleshoot and solve problems with their circuit?	Slides Challenge Card 5A/5B/5C Flexible, thick wire Circuits equipment including bulbs and buzzers Challenge Card 5D/5E (FSD? activity only) Sturdy cardboard (FSD? activity only) Worksheet 5A (FSD? activity only) End of Unit Quiz

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Properties and Changes of Materials : Science : Year 5

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To know that some materials will dissolve in liquid to form a solution	Children will explore what happens to substances when they are mixed with water. In their independent activities, they will conduct a fair test to find out which substances are soluble, and which are insoluble. In the FSD? activity, children will explore what factors other than temperature can help jelly cubes to dissolve more quickly.	• Do children understand the terms 'dissolve', 'soluble', 'insoluble' and 'solution'? • Can children make and explain their predictions about soluble and insoluble materials? • Can children conduct a fair test involving soluble and insoluble materials?	• Slides • Beakers, teaspoons, stopwatch, water • Sugar, pepper, cooking oil, flour, wax flakes, food colouring • Worksheet 1A/1B/1C • Challenge Card A/B/C/D (FSD? activity only) • Beakers, thermometers, stopwatch, water (warm), jelly cubes, knives, spoons (FSD? activity only) • Worksheet 1D (FSD? activity only)
Lesson 2	To use knowledge of solids, liquids and gases to decide how mixtures and solutions might be separated	Children will explore ways in which the original materials in some mixtures and solutions may be recovered, by the process of evaporation, or by sieving or filtering. In their independent activities they will use their knowledge and understanding of soluble and insoluble substances to explain how mixtures could be separated.	• Do children know what the terms soluble and insoluble mean? • Do children know that evaporation can be used to separate soluble materials from water? • Do children know that filtering can be used to separate insoluble materials from water?	• Slides • Worksheets 2A/2B/2C • Investigation Cards (FSD? activity only) • Worksheet 2D (FSD? activity only) • Beakers, water, filter paper, different sizes of sieve, teaspoons, pepper, rice, glitter, marbles, sand, salt, sugar, paperclips (FSD? activity only)
Lesson 3	Explain that some changes form new materials, and that these changes are not usually reversible	Children will identify solutions which are the product of irreversible reactions between the substances that were dissolved. They will then carry out practical investigations involving irreversible reactions.	• Do children know that when some materials are mixed together they cannot be separated again? • Do children know that when an irreversible change takes place a new substance is produced? • Do children know how to tell if the new substance produced is a gas?	• Slides • Worksheets 3A/3B/3C • Water, lemon juice, sugar, baking soda, plaster of Paris • Worksheet 3D • Diet Coke, Mentos (FSD? activity only) • Film canister, water, effervescent tablets
Lesson 4	To identify when a change caused by heating or cooling is reversible or irreversible	Children will learn about reversible and irreversible changes caused by heating or cooling materials. They will then either predict and sort materials according to what may happen when they are heated or cooled, or explore irreversible reactions by cooking.	• Do children know that heating and cooling materials can cause them to change? • Can children recognise reversible and irreversible changes caused by heating and cooling? • Can children explain how to reverse a change caused by heating or cooling?	• Slides • Worksheets 4A/4B/4C • Recipe Sheet (FSD? activity only) • Cooking Safely Poster (FSD? activity only) • Ingredients and equipments as listed on Recipe Sheet (FSD? activity only)
Lesson 5	To investigate the materials needed for something to burn and the new materials formed by burning	Children will consider what happens when materials are burned, including what new materials are produced. They will carry out investigations involving burning a candle and explain what is happening.	• Do children know that new materials are formed when materials are burned? • Can children describe what happens when a candle burns? • Can children identify and assess hazards associated with burning materials?	• Slides • Worksheets 5A/5B/5C • Candle Video • Candle, glasses, safety matches, stopwatch, heat safety mats • Teacher Notes (FSD? activity only) • Observation Sheet 5A (FSD? activity only) • Water, shallow bowl or dish, glasses x3, candle, tea light, tile, safety matches (FSD? activity only)
Lesson 6	To compare and group together everyday materials on the basis of their properties	Children will identify and discuss several different properties of a range of materials (conductive, magnetic, soluble, flexible, transparent etc.), then either sort and group given sets of materials, or use their scientific enquiry skills to explore the properties of some materials.	• Can children describe everyday materials according to their properties? • Can children compare and group everyday materials according to their properties? • Can children explain why some everyday materials are useful due to their properties?	• Slides • Worksheets 6A/6B/6C • Materials Cards • Activity Cards (FSD? activity only) • Batteries, bulbs and wires; magnets; torches; weights; water and a variety of materials to be tested according to their properties (FSD? activity only)
Lesson 7	To give reasons for the particular uses of everyday materials in relation to their properties	Children will first recap on the vocabulary used to describe the properties of different materials, before taking a closer look at some of them, and why materials with these properties are used for certain purposes. In their independent activities, children will use their knowledge and reasoning skills to explain how the properties of a material make it useful for a specific purpose.	• Can children list and explain some of the different properties that materials can have? • Do children understand that the properties materials have can affect how they are used/what they are used for? • Can children explain why a certain material has been chosen for a specific purpose, based on its properties?	• Slides • Worksheet 7A/7B/7C • Challenge Cards (FSD? activity only) • This vs That Cards (FSD? activity only) • Picnic Items Cards (FSD? activity only) • Picnic Priorities Sheet (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Earth and Space: Science : Year 5

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To describe the movements of the Sun, Earth and Moon.	Children will learn about the celestial bodies of the Sun, Moon and Earth and how they are related to one another. They will learn that each of them are a roughly spherical shape and investigate and define the word 'orbit'. They will use these scientific words in a brief description of the Sun, Earth and Moon's movements around each other.	• Can children describe the Sun, Earth and Moon's shape as roughly spherical? • Are children able to clearly define the word orbit? • Can children describe the Sun, Earth and Moon's movements in relation to one another?	• Slides • Teacher Notes 1A • Worksheet 1A/1B/1C • Fact Cards 1A • Worksheet 1D/1E (FSD? Activity only) • Template 1A (FSD? activity only) • Split pins (FSD? Activity only)
Lesson 2	To explore how the rotation of Earth creates day and night.	Children will learn that the rotation of Earth on its axis is what creates day and night. They will conduct an investigation using sundials and make observations on what they record throughout the experiment. Alternatively, they will explore time zones using the internet and how, and why, locations have different time zones.	• Can children explain how the rotation of Earth on its axis creates day and night? • Can children explain the apparent movement of the sun across the sky? • Can children identify how long it takes Earth to make a full rotation?	• Slides • Worksheet 2A/2B/2C • Pencils • Sticky-tac • Time Zone Cards 2A (FSD? activity only) • Access to the internet (FSD? activity only) • Question Cards 2A (FSD? activity only) • City Cards 2A (FSD? activity only)
Lesson 3	To learn about how Earth's tilt creates seasons.	Children will learn about how the seasons are created because of the tilt of Earth's axis. They will learn how Earth is split into its Northern and Southern Hemispheres and how the seasons are different for the two halves of the planet. They will identify the seasons for the Northern Hemisphere based on the location of Earth in its orbit. Alternatively the children will investigate day length and how it changes seasonally using data and graphs.	• Can children describe the different changes that happen between seasons? • Can children use Earth's tilted axis to explain how seasons are created? • Can children describe the differences in seasons between two locations in opposite hemispheres?	• Slides • Worksheet 3A/3B • Season Labels 3A/3B • Statistics Cards 3A/3B (FSD? Activity only) • Graph Paper 3A (FSD? Activity only) • Worksheet 3C (FSD? Activity only) • Question Cards 3A/3B (FSD? Activity only)
Lesson 4	To learn about the phases of the Moon.	Children will be guided through the lunar month and the eight phases of the Moon that can be seen as the Moon orbits Earth. They will learn to identify the shapes of each phase and the names of these shapes, including if the phase is waxing or waning. They will create their own spinning diagram of each of these phases.	• Can children name the different phases of the moon? • Are children able to order the phases of the moon? • Can children describe how the phases of the moon are created?	• Slides • Teacher Notes • Worksheet 4A/4B • Split pins • Template 4A • Moon Cards 4A • Moon Cards 4B (FSD? activity only)
Lesson 5	To discover how theories about our solar system have changed.	Children will learn about and discuss how the ideas about the solar system developed and changed over the years until we arrived at the model we have today. The children will compare the similarities and differences between a geocentric and heliocentric model of the solar system.	• Are children able to define what a solar system is? • Can children explain what the differences between geo- and heliocentric models of the solar system are? • Can children compare the ideas of the solar system we know now, with those held by Ptolemy and Copernicus?	• Slides • Solar System Fact Cards 5A/5B • Worksheet 5A/5B/5C • Access to the internet (FSD? activity only) • Worksheet 5D (FSD? activity only)
Lesson 6	To investigate the planets in the solar system.	Children will conduct their own research into the planets within our solar system. They will discuss the objects in our solar system as a class, including natural satellites, comets, asteroids (and the asteroid belt), planets and dwarf planets. They will work to create their own fact book or model of the solar system.	• Can children name the eight planets in our solar system? • Are children able to name the eight planets in order from nearest to farthest from the Sun? • Can children use researching skills to find relevant information on a topic?	• Slides • Mnemonic Strip 6A • Templates 6A/6B/6C • End of of Unit Quiz • Flag Template 6A (FSD? activity only) • Polystyrene balls (FSD? activity only) • Skewer sticks (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Life Cycles : Science : Year 5

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To describe the process of sexual reproduction in flowering plants.	Children will recap the names of parts of a flower and learn about how flowering plants reproduce sexually. They will then either label diagrams of flowering plants or dissect flowers.	• Can children name and describe the functions of the main parts of flowers? • Can children describe the life process of sexual reproduction in flowering plants? • Can children identify and label the parts of flowers?	• Slides • Worksheets 1A/1B/1C • Dissecting Flowers (FSD? activity only) • Double-sided sticky tape, tweezers, flowers (FSD? activity only)
Lesson 2	To describe the process of asexual reproduction in plants.	Children will learn about some ways in which non-flowering plants reproduce asexually, then either describe one of these processes in their own words or grow plants from cuttings.	• Do children understand what asexual reproduction is? • Can children explain some ways in which plants reproduce asexually? • Can children describe the life cycles of some asexually reproducing plants?	• Slides • Worksheets 2A/2B/2C • Growing Cuttings (FSD? activity only) • Plant Picture Cards • Word Bank
Lesson 3	To describe the process of sexual reproduction in animals.	Children will learn about sexual reproduction in animals, including some ways in which some reptiles and fish reproduce. They will then either sort and classify animals, or compare their life expectancies and gestation periods.	• Can children define some of the ways in which sexual reproduction in animals occurs? • Can children compare species that reproduce in different ways and consider reasons why? • Can children record data using scientific graphs and/or diagrams?	• Slides • Worksheets 3A/3B/3C • Animal Fact Cards • Animal Offspring (FSD? activity only)
Lesson 4	To observe and compare the life cycles of animals in our local environment with other animals around the world.	Children will study and compare the life cycles of animals living in a variety of environments. They will then either research animals living in different environments, or compare the life cycles of two animals living in different environments.	• Can children describe the conditions in a local environment as well as other environments around the world? • Can children establish causal links between the life cycle of animals and their environment? • Can children compare the life cycles of animals living in different environments?	• Slides • Challenge Card • Books, atlases, CD ROMs, internet etc. • Comparing Life Cycles (FSD? activity only)
Lesson 5	To compare how different animals reproduce and grow.	Children will learn more about the life cycles of animals, focussing on gestation periods and growth. They will then explain the life cycles of animals in their own words, using technical vocabulary.	• Using scientific vocabulary, can children explain some of the ways in which different animals reproduce? • Can children compare the life cycles and methods of reproduction of different animals? • Are children able to give reasons for the differences between life cycles of different animals?	• Slides • Picture Book 5A/5B/5C • Animal Fact Cards • Write A Class Book! (FSD? activity only)
Lesson 6	To find out about the work of naturalists.	Children will learn about the work of naturalists and animal behaviourists, then research and write in-depth about a well-known naturalist.	• Do children understand what naturalists do? • Can they explain why the work of naturalists is important? • Can children give reasons why secondary sources of scientific evidence cannot always be trusted?	• Slides • Worksheets 6A/6B/6C • Famous Naturalists (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Changes and Reproduction : Science : Year 5

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To recognise the stages of growth and development in humans.	Children will learn about, then order, the main stages in the life cycle of humans. They will then consider and describe factors which may affect the rate of growth in humans.	• Can children name the main stages in the life cycle of humans? • Can children correctly order the main stages? • Can children broadly define the age ranges for each of the main stages? • Can children explain some of the physical changes that occur at different stages in the life cycle of humans?	• Slides • Worksheets 1A/1B/1C • Newborn Baby worksheet (FSD? activity only) • Books, websites etc. about babies (FSD? activity only)
Lesson 2	To know the stages in the gestation period of humans and compare them to other animals.	Children will learn about sexual reproduction, fertilisation and pregnancy for humans. They may then compare the gestation periods of humans with other animals.	• Can children describe the main stages of gestation in humans? • Can children explain how embryos and fetuses grow and develop in the womb? • Can children define and use key vocabulary to describe gestation in humans?	• Slides • Worksheets 2A/2B/2C • Gestation Periods cards (FSD? activity only) • Sticky notes and digital cameras (FSD? activity only)
Lesson 3	To recognise the stages of development during childhood and understand the needs of children at those stages.	Children will learn about changes during infancy and childhood, then consider the needs of children, and how these change over time as they develop.	• Can children describe the needs of a newborn baby? • Can they compare the needs of a human baby to those of other mammals? • Can they describe the stages of development that occur during childhood? • Can they describe how the needs of humans change at different points in their life cycle?	• Slides • Worksheets 3A/3B/3C • Childhood Fact Sheet (FSD? activity only) • Typical Day Agenda worksheet (FSD? activity only)
Lesson 4	To understand the initial changes inside and outside of the body during puberty.	Children will learn about the roles of some hormones in the body, and how they affect changes in boys and girls at the start of puberty. They will also identify and describe or label changes that occur inside and outside the body.	• Can children explain the initial changes that occur inside and outside the body at the start of puberty? • Can children correctly identify the parts of the body that change during puberty? • Can children explain in simple terms the role played by hormones in the growth of humans and other animals?	• Slides • Worksheets 4A/4B/4C • Puberty: Initial Changes • Comic Strip (FSD? activity only)
Lesson 5	To know the changes that occur during puberty and how they differ for boys and girls.	Children will learn about later changes during puberty and adolescence, including sperm production and menstruation. They will then consider and describe ways in which children can stay fit and healthy during puberty.	• Can children remember some of the initial changes during puberty? • Can children explain some of the ways in which boys' and girls' bodies start to differ during puberty? • Can children suggest some ways in which teenagers can look after themselves and stay fit and healthy during puberty?	• Slides • Worksheets 5A/5B/5C • Keeping Fit • Puberty Problems (FSD? activity only)
Lesson 6	To understand how the body changes during adulthood and old age.	Children will learn about some changes in the body that occur during adulthood and old age. They may then either describe ways in which they may change as they get older, or discuss some problems associated with stereotypical views regarding the elderly.	• Can children explain some ways in which the body changes during old age? • Can children describe some ways in which older people can stay fit and healthy?	• Slides • Worksheets 6A/6B/6C • Photographs of children in your class (optional) • Old-age Stereotypes (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Forces in Action : Science : Year 5

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.	Children will consider what weight is, and how the impact caused by falling objects can vary, depending on their size, shape, mass, and the height they fall from.	• Can children explain why objects fall towards the centre of the Earth? • Do children understand the causal link between the mass of an object and the amount of force with which gravity acts on it?	• Slides • Worksheets 1A/1B/1C • Large trays, flour, cocoa/chocolate powder, marbles, ball bearings, golf balls etc. • Challenge Cards (FSD? activity only) • Books, internet etc. (FSD? activity only)
Lesson 2	To identify the effects of friction acting between moving surfaces.	Children will learn about what friction is and some ways in which it can be measured. They will also identify instances of high and low friction and conduct friction investigations.	• Can children define friction? • Do children know that friction can be useful and give some examples? • Can children carry out an investigation, making sure that it is a fair test?	• Slides • Worksheets 2A/2B/2C/2D • Forcemeters • Variety of surfaces to test • Rubbers (FSD? activity only) • Challenge Sheet (FSD? activity only)
Lesson 3	To identify and explain the effects of air resistance.	Children will learn about ways in which air resistance affects moving objects, then plan and conduct investigations where they will determine how air resistance affects falling objects.	• Do children know that air resistance is a force that slows objects moving through the air? • Can children plan, carry out and assess experiments to investigate air resistance? • Can children draws conclusions from their investigations?	• Slides • Worksheets 3A/3B/3C/3D • Plastic Bag Parachute sheet • Plastic bags, string/wool, paper clips, rubber bands • Spinner Template (FSD? activity only)
Lesson 4	To identify and explain the effects of water resistance.	Children will learn about water resistance and how it affects objects moving through water. They will then conduct water resistance investigations.	• Do children know that water resistance slows an object moving through water? • Can children plan and carry out an experiment, making sure it is a fair test? • Can children identify trends in results and draw conclusions?	• Slides • Worksheets 4A/4B/4C/4D • Measuring cylinders or equivalent • Water • Plasticine • Stopwatches • Results Sheet (FSD? activity only)
Lesson 5	To recognise that levers and pulleys allow a smaller force to have a greater effect.	Children will learn how simple machines can make it easier to move objects. They will then make and test models which have pulleys or levers.	• Do children recognise that that levers and pulleys allow a small force to have a greater effect? • Can children make and improve models that use pulleys or levers? • Can children explore the effects of changing parts of their model?	• Slides • Worksheets 5A/5B/5C • Lollipop sticks, rubber bands (FSD? activity only) • Lolly Stick Catapult sheet (FSD? activity only) • Marshmallows or play dough (FSD? activity only) • Milk/water bottles with handles • String, cord or thin rope • Broomsticks or thick dowel rods
Lesson 6	To recognise that gears allow a smaller force to have a greater effect.	Children will learn about how gears work together in transmissions and look at a variety of transmission. They will then make models to explore in greater depth how gears work.	• Do children recognise that the speed or amount of force transmitted is affected by changing the size of the gears in a transmission? • Can children make transmissions where two or more gears work together?	• Slides • Worksheets 6A/6B/6C • Cut-out Gears • Types of Transmission sheet (FSD? activity only)

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Healthy Bodies : Science : Year 6

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To find out how scientific ideas about food and diet were tested in the past and how this has contributed to our knowledge of a balanced diet.	Children will learn about historical health problems caused by poor diet, and how the work of scientists such as James Lind helped develop a better understanding of how diet affects health. They will then consider and describe how medical tests and trials might be conducted, or improved.	• Can children describe some examples of how doctors in the past tested ideas about food and diet? • Do children know how these tests in the past have affected our ideas about healthy eating today? • Do children know that in order to be healthy we need a balanced diet which includes different food groups?	• Slides • Worksheet 1A/1B/1C/1D • Information Sheet • Question Cards (FSD? activity only)
Lesson 2	To investigate some different food groups and find out why a variety of foods is important for a healthy diet.	Children will learn about food groups: what they provide our bodies with, and what quantities of each we need in a balanced diet. They will then either design balanced meals or study food labelling.	• Can children name some of the different food groups? • Do children know which types of foods are included in different food groups? • Do children know why each different food group is important for a healthy lifestyle?	• Slides • Worksheet 2A/2B/2C/2D/2E • Information Sheet • Food Label Cards (FSD? activity only)
Lesson 3	To find out how nutrients and water are transported in the human body.	Children will learn about the functions of the heart, lungs and circulatory system, then either draw and label diagrams, or perform a heart dissection to study its internal structure.	• Do children know that the circulatory system transports blood and nutrients to the different parts of the body? • Can children describe how the circulatory system works? • Can children record their own resting pulse rate accurately?	• Slides • Worksheet 3A/3B • Label Cards • Heart Dissection Sheet (FSD? activity only) • Equipment for dissection as listed on sheet (FSD? activity only)
Lesson 4	To investigate what happens to the heart when we exercise and why.	Children will learn about what happens to the heart when we exercise, then conduct practical investigations where heart rate is measured.	• Can children describe the functions of the heart? • Can children investigate how the heart is affected through exercise and draw conclusions? • Do children know that hearts need to have exercise to stay healthy?	• Slides • Worksheet 4A/4B/4C/4D • Clocks and/or stopwatches
Lesson 5	To investigate how muscles move the skeleton and how muscle activity requires increased blood flow.	Children will learn about how muscles work, and how they work in groups to move the skeleton. They will then explore in greater depth how blood flow increases to different muscle groups during different types of exercise.	• Do children know that muscles work in pairs to move different parts of the skeleton? • Do children know that when muscles exercise they need an increased flow of blood because the muscles are working harder? • Can children explain why their pulse rate increases when they exercise?	• Slides • Worksheet 5A/5B/5C • Human Muscles Diagram
Lesson 6	To investigate the effects of tobacco, alcohol and other drugs.	Children will learn about what drugs are, how some are helpful and some are harmful. They will also consider ways in which drugs have side effects. Following this, children may explain differences between drugs, or their effects, in their own words.	• Do children know that drugs affect the way the mind or body works? • Do children know that some drugs are beneficial even though they may have unpleasant side-effects? • Are children aware of some of the negative effects of tobacco and alcohol on the body?	• Slides • Worksheet 6A/6B/6C • Information sources • Challenge Cards (FSD? activity only)
Lesson 7	To evaluate what we can do to keep our bodies healthy.	In the light of prior learning about the functions of the human body, children will gather their ideas about staying healthy, and present them in a variety of ways. They will also do an end of unit quiz.	• Can children describe the impact that diet has on the body? • Can children describe why exercise is important for a healthy lifestyle? • Can children describe the harmful effects some drugs can have on the body?	• Slides • Worksheet 7A/7B • Profile Cards • Challenge Card (FSD? activity only) • Video cameras (FSD? activity only) • End of Unit Quiz

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Seeing Light : Science : Year 6

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To recall facts about how shadows are formed.	Children revisit their knowledge about how shadows are formed and the objects which create them. They focus specifically on the shapes of the shadows and why shadows are the shape of the object which creates them.	• Are children able to identify light sources and describe how light travels? • Can children use their knowledge of how light travels to explain how a shadow is created? • Can children explain why a shadow takes the shape of the object casting it?	• Slides • Worksheet 1A/1B/1C • Word Bank 1A • Shadow Puppet Sheet 1A (FSD? activity only) • Light sources e.g. torches and plain paper (FSD? activity only)
Lesson 2	To investigate how we can change shadows.	Children conduct an investigation into how we can change and manipulate shadows 'shape, length, intensity and in particular, size. They conduct an experiment, identifying the key variables, and observe the results. They then draw conclusions from their results.	• Can children give a clear, scientific description of translucent, transparent and opaque and how this property affects an object's shadow? • Are children able to describe and explain how an object's shadow can be manipulated? • Can children make informed conclusions from their investigations?	• Slides • Challenge Cards 2A/2B/2C • Worksheet 2A/2B/2C/2D • Light sources e.g. torches, lamps etc. • Investigation Cards 2A (FSD? activity only)
Lesson 3	To understand how our eyes allow us to see.	In this lesson the class will take a closer look at the anatomy of our eyes and how the different parts allow us to see. The children will complete diagrams to explain and identify the different parts of the eye.	• Can children name the parts of the eye? • Can children describe what the main parts of the eye do to help us see? • Do children understand that without light, we cannot see?	• Slides • Worksheet 3A/3B/3C • Eye Diagram 3A • Word Bank 3A • Answer Cards 3A (FSD? activity only) • Question Strips 3A (FSD? activity only)
Lesson 4	To understand how we see objects.	This lesson will teach the children that all objects reflect and absorb different amounts of light. They will discover that it is these reflections that allow us to see objects. They will complete diagrams of how we can see different objects and write explanations of the process.	• Can children name the parts of the eye and briefly describe what the main parts do? • Can children complete a diagram to show how light allows us to see an object? • Do children understand that all objects reflect an amount of light?	• Slides • Worksheet 4A/4B/4C • Mirrors (optional) • Diagram Cards 3A (FSD? activity only)
Lesson 5	To investigate reflection.	Children will learn about the law of reflection and use their knowledge and understanding of identifying and measuring angles to predict reflected light rays. They will identify the angle of incidence and reflection and use these to complete a light maze.	• Can children give a scientific definition of the word 'reflect'? • Do children understand that the angle of incidence is equal to the angle of reflection? • Can children think of examples of how angled mirrors can be used in different ways?	• Slides • Light Maze • Light Angles Poster 5A • Mirrors, protractors, torches • Teacher Notes • Instructions Sheet 5A & Template 5A (FSD? activity only) • Worksheet 5A (FSD? activity only)
Lesson 6	To learn about refraction	Children will learn about how refraction can bend and change the direction of light rays. They will then need to differentiate between whether or not an object will reflect or refract light.	• Can children give a brief description of what happens to light when it's refracted? • Are children able to differentiated between if an object will reflect or refract light? • Can children give some examples of objects which use refraction in a useful way?	• Slides • Sorting Cards 6A/6B • Worksheet 6A/6B • What if? Cards 6A (FSD? activity only) • Any text e.g. a newspaper, clear plastic, water (FSD? activity only)
Lesson 7	To investigate the colours in white light.	Children will investigate how white light can be split into the seven colours of the rainbow. They will find out about Isaac Newton's experiments with prisms and discuss how we see colours.	• Do children understand that white light can be split into a spectrum of seven colours? • Are children able to name the seven colours that light can be split into? • Can children explain how the light is refracted based on the colours' wavelengths?	• Slides • Worksheet 7A/7B/7C • Prisms, light sources and coloured pencils/pens • Newton Colour Wheel Video (FSD? activity only) • Instruction Sheet 7A (FSD? activity only) • String and thick cardboard/polystyrene circles (FSD? activity only)

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Classifying Organisms : Science : Year 6

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To recap ways of grouping organisms according to their characteristics.	Children will learn about some of the broad groups used to classify animals, then identify, sort or describe organisms within those groups according to some of their characteristics.	• Do children know that organisms can be grouped according to their characteristics? • Can children describe the characteristics of different classifications of animals? • Can children match animals to their group according to their characteristics?	• Slides • Worksheet 1A/1B • Classification Key • Animal Cards A/B • Challenge Cards A/B (FSD? activity only)
Lesson 2	To explore ways of distinguishing between organisms that have similar characteristics.	Children will consider ways in which animals which belong to the same broad group can be distinguished and further classified.	• Can children classify organisms according to broad characteristics? • Can children find ways to distinguish between organisms that are similar? • Can children use appropriate scientific vocabulary to describe organisms and their features?	• Slides • Worksheet 2A/2B • Insect Cards • Bird Cards • Mammal Cards • Flowering Plant Cards A/B (FSD? activity only)
Lesson 3	To be able to classify plants according to their characteristics.	Children will learn some ways in which plants are classified by botanists, then take photos, collect samples, or research, then classify plants.	• Do children know that plants can be sorted into groups according to their characteristics? • Can children explain the difference between vascular and non-vascular plants? • Can children explain the difference between flowering and non-flowering plants?	• Slides • Worksheet 3A/3B/3C/3D • Plant Cards - optional • Digital cameras - optional • Plant books, access to internet, etc.
Lesson 4	To find out about Carl Linnaeus and his classification system.	Children will learn about the development of Linnaeus' classification system, then use it to help them identify, classify, and answer questions about a number of different organisms.	• Do children know who Carl Linnaeus is and how he contributed to science? • Do children know that animals can be assigned to specific groups based on their characteristics? • Can children give reasons for why classification systems are important?	• Slides • Worksheet 4A/4B/4C • Animal Classification System - Examples of Reptiles • Animal Classification System - Examples of Mammals • Animal Families sheets (FSD? activity only) • Question Sheet (FSD? activity only) • Challenge Card (FSD? activity only)
Lesson 5	To explore what micro-organisms are and how they can be grouped.	Children will learn about some ways in which micro-organisms are classified, and what they need to survive. Following this, they may either write in-depth about micro-organisms, or conduct an experiment to determine what food a micro-organism prefers.	• Do children know what micro-organisms are? • Do children know that micro-organisms can be classified into groups? • Do children understand that some micro-organisms can be harmful and others can be helpful?	• Slides • Worksheet 5A/5B/5C/5D • Yeast Experiment Sheet (FSD? activity only) • Equipment and ingredients as listed on the Yeast Experiment sheet (FSD? activity only)
Lesson 6	To be able to identify and classify organisms in the local area.	Children will either look at a local environment, or study one in another country. They will identify and classify organisms in that environment.	• Can children identify a variety of different organisms found in their local environment? • Can children classify a variety of organisms appropriately? • Can children use a variety of sources of information to identify organisms they are unfamiliar with?	• Slides • Worksheet 6A/6B • Classification Cards • Clipboards • Magnifying glasses • Digital Cameras • Books, internet, posters, etc.

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Evolution and Inheritance : Science : Year 6

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.	Children will learn about traits that are passed from one generation by the next, and consider ways in which in which some inherited characteristics may vary. They may then identify ways in which families or groups of people have some similar or shared characteristics.	• Do children recognise that animals produce offspring that are like themselves? • Can children explain why variation in offspring occurs?	• Slides • Worksheets 1A/1B/1C • Family Traits • Inherited Characteristics (FSD? activity only)
Lesson 2	To identify how animals and plants are adapted to suit their environment in different ways.	Children will learn about how random mutations may or may not be passed from one generation to the next, and how this process results in variation. They will then consider whether certain variations are advantageous, giving reasons why.	• Can children describe the conditions of an environment? • Can children identify characteristics which help an organism to be well suited to its environment? • Do children understand why different organisms in the same environment may have different characteristics?	• Slides • Worksheets 2A/2B/2C • Environment Posters • Advantageous Adaptations sheet (FSD? activity only)
Lesson 3	To understand that adaptation of plants and animals to suit their environment may lead to evolution.	Children will learn about how, if traits are advantageous to a species, they may be passed on and that evolution can occur. They may then undertake some of a range of activities where they will identify advantageous traits of species, learn more about evolutionary scientists, or sequence description of evolutionary processes.	• Do children know that not all inherited characteristics are advantageous? • Can children explain why advantageous characteristics are more likely to be passed from generation to generation? • Do children understand that whole species can evolve in this way?	• Slides • Task Charts 3A/3B/3C • Task Instructions • Task Resources A-F
Lesson 4	Evolution and Inheritance: Darwin	Children will learn about the contributions of ancient Greek scientists to our understanding of evolution. They will also study in greater depth the work of Carl Linnaeus and, particularly, that of Charles Darwin.	• Do children know that our understanding of process of evolution has developed over time? • Can children share what they have learned about the process of evolution? • Can children share what they have learned about the life and work of Charles Darwin?	• Slides • Worksheets 4A/4B/4C • Evolution Questions (FSD? activity only)
Lesson 5	To recognise that living things have changed over time and that a number of factors can affect a species' evolution.	Children will learn about mutations, and how external factors can affect the evolution of a species. They will then either summarise their learning about how the fossil record provides evidence of this, or summarise given technical vocabulary in their own words, drawing on prior knowledge and learning.	• Do children understand that a species can change over time due to mutations? • Do children understand that a species can change over time due to external factors such as competition from other species, disease or climate change?	• Slides • Worksheets 5A/5B/5C • The Fossil Record • Audio recorders (optional) • Evolution and Inheritance Game (FSD? activity only) • Die/Spinner, timer (FSD? activity only)
Lesson 6	To understand how humans have evolved over time, and how human behaviour can affect change in species over time.	Children will learn about human adaptations which allow us to thrive, then consider some impacts of human behaviour on other species. They will then either discuss these impacts in greater depths, or discuss some beliefs and misconceptions about evolution.	• Do children know that primate species (including humans) have changed over time? • Can children explain some ways in which human behaviour has changed the characteristics of other species? • Can children identify positive and negative consequences of this human behaviour?	• Slides • Worksheets 6A/6B/6C • Evolution Discussion Cards

NB: 'FSD? Activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Changing Circuits : Science : Year 6

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To recap what electricity is and investigate static electricity.	In this initial lesson your class will recap their knowledge and understanding of electricity before discussing what static electricity is and how it can affect other things. They will either answer questions about electricity or investigate static electricity in different ways.	• Can children distinguish the differences between static and current electricity? • Can children describe what electrical charge is? • Can children give an example of where static electricity might be generated?	• Slides • Worksheet 1A • Question Cards 1A/1B • Balloons • Static Electricity Investigation Cards 1A (FSD? activity only) • Observation Sheet 1A (FSD? activity only) • Equipment listed on investigation cards (FSD? activity only)
Lesson 2	To recap our knowledge and understanding of circuits.	In this lesson the children will focus more on their understanding of circuits, including parallel circuits. They will build and explore circuits and their components, discussing why some circuits will work and others won't.	• Do children know what the main components of a circuit are? • Do children recognise what the difference between a series and a parallel circuit is? • Can children draw and/or construct working circuits?	• Slides • Worksheet 2A/2B/2C • Wires, batteries, bulbs/motors, switches (FSD? activity only) • Circuit Cards 2A (FSD? activity only) • Sticky notes
Lesson 3	To be able to recognise and use conventional symbols for circuits.	The children are challenged to match known circuit components to their corresponding circuit symbol. They will build circuits from diagrams and draw their own.	• Do children know why symbols are used to draw circuit diagrams? • Can children recognise the symbols for various common circuit components? • Can children use conventional circuit symbols to draw and/or construct circuits?	• Slides • Worksheet 3A/3B/3C • Circuit Cards 3A (FSD? activity only) • Wires, batteries, bulbs, buzzers, switches, motors (FSD? activity only) • Camera - optional (FSD? activity only)
Lesson 4	To investigate ways in which the brightness of a bulb or speed of a motor is changed.	Children investigate how the number of components and batteries affects the voltage in a circuit and so affects how brightly a bulb will shine. They will use their knowledge of circuit symbols to draw and discuss different circuits and suggest which may potentially overload the components, breaking them.	• Do children know that the brightness of a bulb or the speed of a motor can be changed in a circuit? • Do children know that the brightness of a bulb or speed of a motor depends on how much power is supplied to each component? • Do children know that bulbs and motors will blow out if too high a voltage is used?	• Slides • Worksheet 4A/4B/4C/4D • Question Cards 4A (FSD? activity only) • Batteries, bulbs/motors, wires, switches (FSD? activity only)
Lesson 5	To be able to plan, carry out and evaluate an experiment to see how changing the wire in a circuit affects the brightness of a bulb.	After investigating how the number of batteries and bulbs in a circuit affect bulb brightness, your class will plan and conduct an investigation to see how different wires can affect the brightness of a bulb. The children will look at improving an existing investigation as well as discussing anomalous results in experiments and how we can spot them.	• Do children know that the brightness of the bulb in a circuit can be altered by changing the wires? • Can children suggest questions to investigate, decide what to do and what equipment to use to test the question? • Can children make fair comparisons and draw conclusions from their results?	• Slides • Worksheet 5A/5B/5C • Batteries and bulbs • Different thicknesses of fuse wire • Worksheet 5D (FSD? activity only) • Results Sheet 5A (FSD? activity only)
Lesson 6	To create a simple device using a circuit.	In this final lesson the children will put their knowledge and understanding of electricity and circuits to the test as they make their own burglar alarms or other devices.	• Can children design a simple circuit for a purpose? • Are children able to build a working circuit for a purpose? • Can children use their knowledge of circuits and components such as switches to create more complex circuits?	• Slides • Challenge Card 6A/6B • Worksheet 6A • Device Cards 6A • Circuit equipment • Pegs, aluminium foil, craft wire, paper tubes, cardboard • Challenge Card 6C (FSD? activity only) • End of Unit Quiz

NB: 'FSD? activity only' refers to the alternative 'Fancy Something Different...?' activity within the lesson plan

Equipment and Resources List

PlanBee Science Curriculum Pack - Equipment and Resources

Year 1	Lesson 1	2	3	4	5	6	7	Complete Series resources to collect
My Body	• Slides • Worksheet 1A/1B/1C • Body Parts Cards (FSD? activity only)	• Slides • Worksheet 2A/2B • Activity Cards • Challenge Cards (FSD? activity only)	• Slides • Worksheet 3A/3A SOLUTION/3B/3C • Picture Card A/B • Colour Sheets (FSD? activity only)	• Slides • Worksheet 4A/4B • Word Mat • Variety of objects to feel	• Slides • Worksheet 5A/5B/5C/5D • Question Sheet • Fact Cards • Plastic pots (FSD? activity only) • Variety of objects to smell (FSD? activity only) • Tin foil and elastic bands (FSD? activity only)	• Slide • Worksheet 6A/6B/6C • Picture Cards • Fruit Cards (FSD? activity only) • Variety of fruits to taste (FSD? activity only)	• Slides • Worksheet 7A/7B/7C/7D • Flap Templates • Digital recorder (FSD? activity only) • End of Unit Quiz Sheet	• Variety of objects to feel, smell and taste • Plastic Pots • Tin foil • Elastic bands • Digital audio recorder
Everyday Materials	• Slides • Worksheet 1A/1B/1C • Sorting Cards A/B • Label Cards (FSD? activity only)	• Slides • Worksheet 2A/2B/2C/2D • Materials Cards (FSD? activity only) • Variety of materials to sort (FSD? activity only) • Picture Cards (FSD? activity only)	• Slides • Variety of objects e.g. oil, felt, stones, corrugated cardboard, elastic bands, marbles, plastic cups, etc. • Worksheet 3A/3B • Word Mat • Question Cards	• Slides • Worksheet 4A/4B/4C • Statement Cards • Game Cards A/B (FSD? activity only)	• Slides • Worksheet 5A/5B/5C • Materials to test • Plastic cups • Elastic bands • Water • Spoons • Plastic trays • Materials to construct umbrella frames (FSD? activity only)	• Slides • Wheel Template A/B/C • Booklet Template • Challenge Cards (FSD? activity only) • Variety of materials (FSD? activity only) • End of Unit Quiz		• Variety of materials to sort, e.g. oil, felt, stones, corrugated cardboard, elastic bands, marbles, plastic cups, etc. • Water • Spoons • Plastic trays • Materials to construct umbrella frames
Identifying Plants	• Slides • Worksheet 1A/1B/1C/1D/1E • Seeds, pots, compost, magnifying glasses • Digital camera (FSD? activity only) • Growing Seeds Video (Plenary)	• Slides • Worksheet 2A/2B/2C/2D • Picture Cards	• Slides • Worksheet 3A/3B/3C • Picture Cards A/B/C • Domino Cards A/B (FSD? activity only)	• Slides • Worksheet 4A/4B/4C/4D • Picture Cards A/B • Tree Identification Chart A/B (FSD? activity only)	• Slides • Worksheet 5A/5B/5C/5D • A selection of flowers with stems and leaves (FSD? activity only)	• Slides • Worksheet 6A/6B/6C/6D • Time Lapse Video • Seed Story Wheel A/B/C • Photos from lesson one (FSD? activity only) • Digital camera (FSD? activity only) • End of Unit Quiz (Plenary)		• Seeds • Pots • Compost • Magnifying glasses • Digital camera • A selection of flowers with stems and leaves
Identifying Animals	• Slides • Worksheet 1A/1B/1C • Pet Cards (FSD? activity only) • Name Cards (FSD? activity only) • Clue Cards (FSD? activity only)	• Slides • Worksheet 2A/2B/2C/2D • Word Bank • Picture Cards (FSD? activity only)	• Slides • Worksheet 3A/3B/3C/3D • Fact Sheet • Picture Cards (FSD? activity only)	• Slides • Worksheet 4A/4B/4C/4D • Amphibian Life Cycle Cards • Fish Life Cycle Cards • Life Cycle Sheet (FSD? activity only)	• Slides • Worksheet 5A/5B/5C/5D/5E • Picture Cards A/B	• Slides • Worksheet 6A/6B/6C/6D • Sentence Cards • True or False Cards (FSD? activity only)	• Slides • Worksheet 7A/7B/7C/7D/7E/7F • End of Unit Quiz	
Seasonal Changes	• Slides • Worksheet 1A/1B/1C • Outfit Cards • Picture Cards (FSD? activity only only) • Thesaurus and sticky notes (FSD? activity only)	• Slides • Worksheet 2A/2B/2C/2D • Seasons Jigsaws • Sentence Cards • Word Mat (FSD? activity only)	• Slides • Worksheet 3A/3B/3C • Robin's Jobs Sheet • Challenge Card (FSD? Activity only) • Hedgehog Fact Sheet (FSD? Activity only) • Story Sheet - plenary	• Slides • Worksheet 4A/4B/4C • Vegetables Picture, Clue and Name Cards (FSD? activity only) • Fruit Picture, Clue and Name Cards (FSD? activity only)	• Slides • Worksheet 5A/5B/5C/5D • Timeline A/B • Activity Cards (FSD? activity only)	• Slides • Seasons Cards • Blank Weather Sheet • Worksheet 6A/6B/6C • Pictogram Sheets • End of Unit Quiz		• Variety of objects to feel, smell and taste • Plastic Pots • Tin foil • Elastic bands • Digital audio recorder

NB: Resources marked in red are not included as a PlanBee resource and must be provided separately.

PlanBee Science Curriculum Pack - Equipment and Resources

PlanBee

Year 2

	Lesson 1	2	3	4	5	6	7	Complete Series resources to collect
Living in Habitats	• Slides • Worksheet 1A/1B • Picture Cards A/B • Trays/bags for collecting objects (FSD? activity only)	• Slides • Worksheet 2A/2B/2C • Habitat Cards (FSD? activity only) • Animal Cards (FSD? activity only)	• Slides • Worksheet 3A/3B/3C • Domino Cards • Picture Cards (FSD? activity only)	• Slides • Worksheet 4A/4B/4C • Picture Cards • Animal Cards (FSD? activity only) • Habitat Cards (FSD? activity only)	• Slides • Worksheet 5A/5B/5C • Picture Cards (FSD? activity only)	• Slides • Worksheet 6A/6B/6C/6D • Label Cards (FSD? activity only) • End of Unit Quiz		• Trays/bags for collecting objects
Growing Plants	• Slides • Worksheet 1A/1B/1C • Plant Sheet • A variety of seeds (FSD? activity only) • Seed Labels (FSD? activity only)	• Slides • Worksheet 2A/2B/2C • Picture Cards A/B/C • A variety of bulbs (FSD? activity only) • Bulb Labels (FSD? activity only)	• Slides • Worksheet 3A/3B/3C/3D • Variety of seeded fruits (FSD? activity only)	• Slides • Worksheet 4A/4B/4C/4D • Seeds/Plant pots/Soil/ Measuring cylinders/ Water • Results Sheet (FSD? activity only)	• Slides • Worksheet 5A/5B/5C/5D • Time lapse video • Plants grown from seeds or bulbs in lesson 1 or 2 • Picture Cards (FSD? activity only) • End of Unit Quiz slides and sheets			• Seeds • Bulbs • Pots • Compost • Variety of seeded fruit • Measuring cylinders • Water
Growth and Survival	• Slides • Worksheet 1A/1B/1C • Picture Cards A/B/C/D	• Slides • Worksheet 2A/2B/2C/2D • Information Sheet • Animal Cards (FSD? activity only)	• Slides • Worksheet 3A/3B/3C/3D • Tape measures/metre rulers (FSD? activity only)	• Slides • Worksheet 4A/4B/4C/4D • Challenge Cards (FSD? activity only) • Various sources of information, e.g. books, internet, fact sheets from pet stores, etc. (FSD? activity only)	• Slides • Worksheet 5A/5B/5C/5D • Research Cards (FSD? activity only) • Variety of information sources (FSD? activity only)	• Slides • Worksheet 6A/6B/6C/6D • Picture Cards • Balanced Plate sheet • Food Pyramid sheet • Variety of fruits and vegetables (FSD? activity only)	• Slides • Worksheet 7A/ 7B • Picture Cards • PE equipment, e.g. bean bags, hoops, etc. (FSD? activity only)	• Metre stick/measuring tapes • Sources of information on taking care of pets and a variety of animals and what they need to survive • Variety of fruits and vegetables • PE equipment
Exploring Everyday Materials	• Slides • Picture Sheet • Worksheet 1A/1B/1C • Variety of different materials (FSD? activity only) • Hoops (FSD? activity only)	• Slides • Worksheet 2A/2B/2C • Variety of natural and man-made materials (FSD? activity only) • Paper, glue, scissors for collages (FSD? activity only)	• Slides • Worksheet 3A/3B/3C/3D • Plasticine, elastic bands, stones • Variety of objects to test (FSD? activity only)	• Slides • Worksheet 4A/4B/4C • Variety of metal and plastic objects • Fact Cards (FSD? activity only)	• Slides • Worksheet 5A/5B/5C • Fact Sheet A/B • Challenge Card (FSD? activity only) • Eight sheets of paper per group, sticky tape, one toy car, rubber (FSD? activity only)	• Slides • Worksheet 6A/6B/6C/6D/ 6E • Objects: teddy bear, pencil, book, bottle, table, spade, wall, fence (FSD? activity only)	• Slides • Worksheet 7A/ 7B/7C/7D • Reason Cards • Invention Sheet A/B/C (FSD? activity only)	• Variety of different materials to sort, including natural and man-made, plastic and metal (see left for examples) • Hoops • Paper for collage • Elastic bands • Stones • Sponges • Plasticine
Super Scientists	• Slides • Worksheets 1A/1B/1C • Spinner Template • Stopwatches, metre ruler, paper clips, scissors • Stopwatches, marbles, cardboard boxes, cardboard tubes, tape (FSD? activity only)	• Slides • Mindmap • Worksheets 2A/2B/2C • Variety of prisms, torches • Coloured paper • Modelling Sheet A/B • Telescope Instructions (FSD? activity only) • Magnifying glasses (different strengths), thin cardboard, tape (FSD? activity only) • Tray of water, mirror, torch (Plenary only)	• Slides • Mindmap • Wind Vane Instructions A/B • Arrow Templates • Card, rulers, scissors, pencils, paper straws, glue/ tape, plasticine, skewers, paper plates, pen lids • Paper cups, single-hole punches, wooden skewers, bottles, tape, sand/water, pencils, plasticine, scissors, stopwatch (FSD? activity only) • Anemometer Instructions A/B (FSD? activity only)	• Slides • Mindmap • Worksheets 4A/4B/4C • Telephone Instructions • Cups, string, wool, scissors, modelling clay • Screen to divide each child, paper and building blocks (FSD? activity only) • Picture Cards A/B (FSD? activity only)	• Slides • Mindmap • Worksheets 5A/5B/5C/5D • Rulers • Feely bags or boxes, a variety of objects to put inside them, a selection of things to smell and fruits and vegetables to taste, cups, cotton wool, plates (FSD? activity only) • Three slices of bread, three sealable sandwich bags, cup of water, table spoon (Plenary)	• Slides • Mindmap • Worksheets 6A/6B • Fact Sheet • A4 paper, video camera • Washing Hands Rhyme (FSD? activity only) • Basins of cold water, cooking oil, glitter or cinnamon, paper towels (FSD? activity only)	• Slides • Mindmap • Worksheets 7A/7B/7C/7D/ 7E/7F • Quiz Instructions • Fact Sheet • Split pins, wires, bulb, bulb holder, battery • Wires, bulb, bulb holder, battery (FSD? activity only) • Symbol Key - optional (FSD? activity only)	• Stopwatches, metre rulers, paper clips, scissors • Stopwatches, marbles, cardboard boxes, tubes, tape • Variety of prisms, torches • Coloured paper • Magnifying glasses, thin cardboard, tape • Tray of water, mirror, torch • Card, rulers, scissors, paper straws, glue/ tape, plasticine, skewers, paper plates, pen lids • Paper cups, single-hole punches, wooden skewers, bottles, tape, sand/water, pencils, plasticine, scissors, stopwatch • Paper cups, string/wool, scissors, modelling clay • Screen to divide each child, building blocks • Rulers • Feely bags, variety of feely objects. fruit and vegetables • Bread, sandwich bags, water, spoon • Video camera • Oil, glitter/cinnamon • Split pins, wires, bulbs, bulb holders, battery

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PlanBee Science Curriculum Pack - Equipment and Resources

PlanBee

Year 3	Lesson 1	2	3	4	5	6	7	Complete Series resources to collect
How Plants Grow	• Slides • Worksheets 1A/1B/1C • Growing Beans worksheet • Dried bean seeds (butter beans, kidney beans or similar) • Cotton wool • Clear pots or jars • Water	• Slides • Worksheets 2A/2B/2C • Celery, food dye, water, plastic containers • Plastic cups, kitchen roll (FSD? activity only)	• Slides • Worksheets 3A/3B/3C • Life Cycle Flowchart • Sealable plastic containers; transparent and opaque (FSD? activity only) • Capillary paper, kitchen roll or similar material (FSD? activity only) • Radish seeds, green bean seeds or similar fast-growing seed (FSD? activity only) • Water (FSD? activity only)	• Slides • Worksheets 4A/4B/4C • Dissecting Flowers worksheet (FSD? activity only) • Double-sided sticky tape (FSD? activity only) • Sticky tape or sticky-backed plastic (FSD? activity only) • Tweezers (FSD? activity only) • Flowers (FSD? activity only)	• Slides • Worksheets 5A/5B/5C • Fruits and Seeds sheet • Seed Dispersal Fact File (FSD? activity only)	• Slides • End of Unit Quiz • Worksheets 6A/6B/6C • A variety of different edible beans and seeds • Bird Seed Cakes sheet (FSD? activity only) • Bird seed mix (FSD? only) • Lard or equivalent (FSD? only) • Bread crumbs, cheese, oats, dried fruit {optional} (FSD? only) • Yogurt pots (FSD? only) • String (FSD? only)		• Dried bean seeds • Cotton wool • Clear pots or jars • Water • Celery • Food dye • Kitchen roll • Transparent & opaque containers • Radish seeds or similar • Double-sided tape • Tweezers • Flowers • Edible beans and seeds • Bird seed mix • Lard • Yoghurt pots • String
Health and Movement	• Slides • Worksheet 1A/1B/1C/1D • Picture Cards • Group Cards • Digital cameras - optional (FSD? activity only)	• Slides • Worksheet 2A/2B/2C • Food Pyramid sheet (FSD? activity only)	• Slides • Worksheet 3A/3B/3C/3D • Books, internet, etc. • Animal Cards (FSD? activity only)	• Slides • Worksheet 4A/4B/4C/4D/4E • Results Sheet (FSD? activity only)	• Slides • Worksheet 5A/5B/5C/5D • Books, access to internet, etc. • Picture Cards (FSD? activity only) • Skeleton Sheet (FSD? activity only)	• Slides • Worksheet 6A/6B/6C • Books, access to internet, etc. • Picture Cards (FSD? activity only) • Label Cards (FSD? activity only)	• Slides • Worksheet 7A/7B/7C • Fact Cards • Challenge Cards (FSD? activity only) • End of Unit Quiz	• Digital cameras • Topic books
Rocks, Fossils and Soils	• Slides • Worksheet 1A/1B/1C/1D • Picture Cards A • Picture Cards B (plenary) • Hoops	• Slides • Worksheet 2A/2B/2C • Rock samples • Picture Cards (FSD? activity only)	• Slides • Worksheet 3A/3B/3C • Question Sheet • Rock Samples • Stopwatches • Beakers of water (FSD? activity only) • Pipettes (FSD? activity only)	• Slides • Worksheet 4A/4B • Information Sheet • Books, access to internet, etc. • A3 and A5 paper • Rock Cards (FSD? activity only)	• Slides • Worksheet 5A/5B/5C • Three different soil samples • Graded sieves • Trowels and containers (FSD? activity only)	• Slides • Worksheet 6A/6B/6C • Sentence Cards • Help Sheet (FSD? activity only) • Plasticine, plaster of Paris, petroleum jelly, card, paint (FSD? activity only)	• Slides • Worksheet 7A/7B/7C • Picture Cards • Cameras - optional • Chocolate chip biscuits (FSD? activity only) • Tools e.g. tweezers, cocktail sticks, etc. (FSD? activity only) • End of Unit Quiz Sheet	• Hoops • Rock samples • Stopwatches • Beakers of water • Pipettes • Topic books • A3/A5 paper • Soil samples • Graded sieves • Trowels and containers • Plasticine • Plaster of Paris • Petroleum jelly • Card • Paint • Camera • Chocolate chip cookies • Tweezers • Cocktail sticks

NB: Resources marked in red are not included as a PlanBee resource and must be provided separately.

PlanBee Science Curriculum Pack - Equipment and Resources

		Lesson							
		1	2	3	4	5	6	7	Complete Series resources to collect
Year 3	Light and Shadow	• Slides • Worksheet 1A/1B/1C/1D • Picture Cards (FSD? activity only)	• Slides • Worksheet 2A/2B/2C • Poem Template sheets (FSD? activity only)	• Slides • Worksheet 3A/3B/3C • Variety of opaque, transparent and translucent objects • Torches • Cardboard boxes, card, sticks, greaseproof paper (FSD? activity only) • Help Sheet (FSD? activity only)	• Slides • Worksheet 4A/4B/4C • Variety of small objects • Torches • Challenge Cards (FSD? activity only) • Large sheets of paper (FSD? activity only)	• Slides • Worksheet 5A/5B/5C/5D • Shadow stick, ruler and chalk • Access to computers (FSD? activity only)	• Slides • Worksheet 6A/6B/6C • Mirrors • Challenge Card (FSD? activity only) • End of Unit Quiz		• Variety of opaque, translucent and transparent objects • Torches • Cardboard boxes • Card • Sticks • Greaseproof paper • Variety of small objects • Large sheets of paper • Large sticks, e.g. metre sticks • Metre sticks/rulers • Chalk • Mirrors
	Forces and Magnets	• Slides • Forces Cards 1A/1B • Worksheet 1A • Cloze Slip 1A • Question Cards 1A (FSD? activity only)	• Slides • Worksheet 2A/2B/2C • Force meters • Access to a variety of surfaces, e.g. carpet, concrete, grass, wood, bubble wrap, etc. • Ramp and toy car (FSD? activity only) • Metre rulers/tape measures (FSD? activity only) • Class Results Sheet 2A (FSD? activity only) • Pre/Post-investigation Cards 2A (FSD? activity only)	• Slides • Bar magnets • Worksheet 3A/3B/3C • Word Bank • Exploration Cards (FSD? activity) • Magnets of varying strengths and sizes, paper clips, string, tape (FSD? activity only) • Worksheet 3D (FSD? activity only)	• Slides • Worksheet 4A/4B/4C/4D • Magnets • Variety of materials to test (e.g. paper clips, rubbers, metal and wooden spoons, safety pins, aluminium cans, coins, pencils, scissors, keys etc.)	• Slides • Strength Experiment Sheet 5A • Worksheet 5A/5B/5C • Challenge Cards 5A/5B (FSD? activity only) • Worksheet 5D (FSD? activity only)			• Magnets of varying strengths and sizes, • Variety of materials to test (e.g. paper clips, rubbers, metal and wooden spoons, safety pins, aluminium cans, coins, pencils, scissors, keys etc.) • Force meters • Access to a variety of surfaces, e.g. carpet, concrete, grass, wood, bubble wrap, etc. • Ramp and toy car • Metre rulers/tape measures • String • Tape

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PlanBee Science Curriculum Pack - Equipment and Resources

PlanBee

Year 4

	Lesson 1	2	3	4	5	6	7	Complete Series resources to collect
Living in Environments	• Slides • Habitat Cards • Riddle Cards • Animal Cards • Worksheet 1A/1B (FSD? activity only)	• Slides • Worksheet 2A/2B/2C/2D • Animal Cards • Pots, trowels, etc. (FSD? activity only) • Microscopes/ magnifying glasses (FSD? activity only)	• Slides • Worksheet 3A • Animal Cards A/B/C • Animal Classification Key • Challenge Cards (FSD? activity only)	• Slides • Worksheet 4A/4B/4C • British Animals Classification Key A/B • Animal Cards (FSD? activity only)	• Slides • Worksheet 5A/5B • Plant Cards • Digital cameras (FSD? activity only) • Books, access to internet, etc. (FSD? activity only)	• Slides • Worksheet 6A/6B/6C • Scenario Cards		• Pots • Trowels • Microscopes/magnifying glasses • Topic books
Easting and Digestion	• Slides • Worksheet 1A/1B/1C • Animal Cards A/B • Books, access to internet, etc. • Challenge Cards (FSD? activity only)	• Slides • Worksheet 2A/2B/2C/2D/2E • Organisms Sheet • Name Tags (FSD? activity only)	• Slides • Worksheet 3A/3B/3C/3D • Mirrors (FSD? activity only)	• Slides • Worksheet 4A • Poster Template • Information Sheet	• Slides • Worksheet 5A/5B/5C • Fact Cards • Additional information sources, e.g. books/ posters • Question Cards (FSD? activity only)	• Slides • Worksheet 6A/6B/6C/6D • Label Cards • Help Sheet (FSD? activity only) • Variety of acids and other liquids • Foods to test, e.g. crackers, bananas, bread, apples, crisps • End of Unit Quiz		• Digital cameras • Topic books • Variety of acids, e.g. vinegar, lemon juice • Other liquids, e.g. water, cola, squash • Foods to test, e.g. crackers, bananas, bread, apples, crisps • Sealable bags
Changing Sound	• Slides • Worksheet 1A/1B/1C • Variety of musical instruments if available • Rice and drum; elastic bands; tuning fork and beaker of water; rulers; stereo speakers (if available) • Question Cards (FSD? activity only)	• Slides • Worksheet 2A/2B/2C • Drum/cymbal/ something else loud! • Waterproof buzzer or ticking clock • Boxes with lid, water and sand with suitable containers (FSD? activity only) • Pre-prepared 'string telephones'	• Slides • Worksheet 3A/3B • Objects to make sounds • Metre sticks, tape measures, etc.	• Slides • Worksheet 4A/4B • Buzzers/rattles/ticking clocks • Materials to test (e.g. foam sheets, fabric, newspaper, bubble wrap, tin foil, kitchen roll, clingfilm, paper towels, cotton wool, etc.)	• Slides • Worksheet 5A/5B/5C • Xylophones/ glockenspiels • Books, access to internet, etc. • Variety of drums (FSD? activity only)	• Slides • Worksheet 6A/6B/6C • Variety of stringed instruments • Elastic bands, boxes, tubes, etc. (FSD? activity only)	• Slides • Worksheet 7A/7B/7C • Empty bottles • Water • Xylophones/ glockenspiels • Recorders (FSD? activity only)	• Variety of musical instruments • Rice • Drum • Elastic bands • Tuning fork • Water • Rulers • Stereo speakers (if available) • Drum/symbol • Waterproof buzzer/ticking clock • Boxes with lids • String telephones • Metre sticks/tape measures • Materials to test (e.g. foam sheets, fabric, newspaper, bubble wrap, tin foil, kitchen roll, clingfilm, paper towels, cotton wool, etc.) • Xylophones/glockenspiels • Stringed instruments • Recorders • Empty bottles

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PlanBee Science Curriculum Pack - Equipment and Resources

PlanBee

		Lesson							
		1	2	3	4	5	6	7	Complete Series resources to collect
Year 4	States of Matter	• Slides • Object Cards 1A • Sorting Cards 1A/1B/1C • Worksheet 1A/1B • Slime Recipe Cards 1A (FSD? activity only) • Ingredients for slime (FSD? activity only) • Challenge Cards 1A (FSD? activity only) • Worksheet 1C (FSD? activity only)	• Slides • Bottles with lids • Sponges • Containers of water • Experiment Card 2A • Worksheet 2A/2B/2C • Fizzy drink • Electronic scales • Syringes of different sizes (FSD? activity only) • Plastic tubes* (FSD? activity only) • Balloons (FSD? activity only) • Pneumatics Card 2A (FSD? activity only) • Worksheet 2D (FSD? activity only)	• Slides • Worksheet 3A/3B/3C • Recipe Cards 3A (FSD? activity only) • Ingredients (FSD? activity only) • Cooking equipment (FSD? activity only) • Party Cards 3A (FSD? activity only)	• Slides • Access to the internet • Sorting Cards 4A • Worksheet 4A/4B/4C • Experiment Card 4A (FSD? activity only) • Worksheet 4D (FSD? activity only) • Milk, white and dark (80% cocoa) chocolate (FSD? activity only) • Warm water (FSD? activity only) • Timers (FSD? activity only) • Foil trays (FSD? activity only)	• Slides • Hand sanitiser • Teacher Notes 5A • Worksheet 5A/5B • Experiment equipment • Challenge Card 5A (FSD? activity only) • Ideas Sheet 5A (FSD? activity only) • Investigation Planner 5A (FSD? activity only) • Investigation equipment (FSD? activity only) • Design Sheet 5A (FSD? activity only)	• Slides • Teacher Notes 6A • Cling film or other flexible plastic • Ice cubes • Worksheet 6A/6B/6C • Challenge Card 6A (FSD? activity only) • Worksheet 6D (FSD? activity only) • Salt water (FSD? activity only) • Bowls and beakers (FSD? activity only) • Small weights (FSD? activity only)	• Slides • Teacher Notes 7A • Worksheet 7A/7B • Word Bank 7A • Water Cycle Diagram 7A (FSD? activity only) • Challenge Card 7A (FSD? activity only) • Sealable sandwich bags or plastic wallets (FSD? activity only)	• Ingredients for slime • Bottles with lids • Sponges • Water • Fizzy drink • Electronic scales • Syringes of different sizes and plastic tubes to fit syringes • Balloons • Ingredients for crispy cakes, marshmallow squares, ice cream or ice lollies (see Work3) • Cooking equipment • Access to the internet • Milk, white and dark chocolate • Warm water • Timers • Foil trays • Hand sanitiser • Fans • Cling film • Ice cubes • Salt water • Bowls and beakers • Small weights • Sealable sandwich bags/ plastic wallets
	Circuits and Conductors	• Slides • Worksheet 1A/1B/1C • Sorting Sheet 1A • Electricity Hunt Sheet 1A	• Slides • Worksheet 2A/2B/2C • Poster Template sheet (FSD? activity only)	• Slides • Circuits equipment • Picture Cards 3A • Worksheet 3A/3B • Challenge Cards 3A • Circuit Cards (FSD activity only)	• Slides • Circuits equipment • Worksheet 4A/4B/4C • Picture Card 4A • Quiz Questions 4A (FSD? only activity)	• Slides • Challenge Card 5A/5B/ 5C • Flexible, thick wire • Circuits equipment including bulbs and buzzers • Challenge Card 5D/5E (FSD? activity only) • Sturdy cardboard (FSD? activity only) • Worksheet 5A (FSD? activity only) • End of Unit Quiz			• Circuits equipment - batteries in holders, bulbs and holders, wires with crocodile clips, buzzers, motors, etc. • Sturdy cardboard • Flexible, thick wire

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PlanBee Science Curriculum Pack - Equipment and Resources

PlanBee

Year 5	Lesson 1	2	3	4	5	6	7	Complete Series resources to collect
Life Cycles	• Slides • Worksheets 1A/1B/1C • Dissecting Flowers (FSD? activity only) • Double-sided sticky tape, tweezers, flowers (FSD? activity only)	• Slides • Worksheets 2A/2B/2C • Growing Cuttings (FSD? activity only) • Plant Picture Cards • Word Bank	• Slides • Worksheets 3A/3B/3C • Animal Fact Cards • Animal Offspring (FSD? activity only)	• Slides • Challenge Card • Books, atlases, internet etc. • Comparing Life Cycles (FSD? activity only)	• Slides • Picture Book 5A/5B/5C • Animal Fact Cards • Write A Class Book! (FSD? activity only)	• Slides • Worksheets 6A/6B/6C • Famous Naturalists (FSD? activity only)		• Double-sided tape • Tweezers • Flowers • Topic books • Atlases
Changes and Reproduction	• Slides • Worksheets 1A/1B/1C • Newborn Baby worksheet (FSD? activity only) • Books, websites etc. about babies (FSD? activity only)	• Slides • Worksheets 2A/2B/2C • Gestation Periods cards (FSD? activity only) • Sticky notes and digital cameras (FSD? activity only)	• Slides • Worksheets 3A/3B/3C • Childhood Fact Sheet (FSD? activity only) • Typical Day Agenda worksheet (FSD? activity only)	• Slides • Worksheets 4A/4B/4C • Puberty: Initial Changes • Comic Strip (FSD? activity only)	• Slides • Worksheets 5A/5B/5C • Keeping Fit • Puberty Problems (FSD? activity only)	• Slides • Worksheets 6A/6B/6C • Photographs of children in your class (optional) • Old-age Stereotypes (FSD? activity only)		• Topic books • Sticky notes • Digital cameras • Photographs of children in your class
Properties and Changes of Materials	• Slides • Beakers, teaspoons, stopwatch, water • Sugar, pepper, cooking oil, flour, wax flakes, food colouring • Worksheet 1A/1B/1C • Challenge Card A/B/C/D (FSD? activity only) • Beakers, thermometers, stopwatch, water (warm), jelly cubes, knives, spoons (FSD? activity only) • Worksheet 1D (FSD? activity only)	• Slides • Worksheets 2A/2B/2C • Investigation Cards (FSD? activity only) • Worksheet 2D (FSD? activity only) • Beakers, water, filter paper, different sizes of sieve, teaspoons, pepper, rice, glitter, marbles, sand, salt, sugar, paperclips (FSD? activity only)	• Slides • Worksheets 3A/3B/3C • Water, lemon juice, sugar, baking soda, plaster of Paris • Worksheet 3D • Diet Coke, Mentos (FSD? activity only) • Film canister, water, effervescent tablets	• Slides • Worksheets 4A/4B/4C • Recipe Sheet (FSD? activity only) • Cooking Safely Poster (FSD? activity only) • Bread ingredients and equipment as listed on Recipe Sheet (FSD? activity only)	• Slides • Worksheets 5A/5B/5C • Candle Video • Candle, glasses, safety matches, stopwatch, heat safety mats • Teacher Notes (FSD? activity only) • Observation Sheet 5A (FSD? activity only) • Water, shallow bowl or dish, glasses x3, candle, tea light, tile, safety matches (FSD? activity only)	• Slides • Worksheets 6A/6B/6C • Materials Cards • Activity Cards (FSD? activity only) • Batteries, bulbs and wires; magnets; torches; weights; water and a variety of materials to be tested according to their properties (FSD? activity only)	• Slides • Worksheet 7A/7B/7C • Challenge Cards (FSD? activity only) • This vs That Cards (FSD? activity only) • Picnic Items Cards (FSD? activity only) • Picnic Priorities Sheet (FSD? activity only)	• Beakers • Teaspoons, knives • Thermometers • Stopwatch • Filter paper • Film canister • Graded sieves • Candle/tea lights • Glasses • Safety matches • Heat safe mats/tiles • Shallow bowl/dish • Circuit equipment • Magnets • Torches • Weights • Water • Sugar, pepper, flour, rice, glitter, marbles, salt, sand, baking soda • Plaster of Paris • Paperclips • Cooking oil • Wax flakes • Food colouring • Jelly cubes • Lemon juice • Diet coke and mentos • Effervescent tablets • Bread ingredients (see Work 4) • Cooking equipment • Variety of materials to be tested according to their properties

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PlanBee Science Curriculum Pack - Equipment and Resources

		Lesson							
		1	2	3	4	5	6	7	Complete Series resources to collect
Year 5	Earth and Space	• Slides • Teacher Notes 1A • Worksheet 1A/1B/1C • Fact Cards 1A • Worksheet 1D/1E (FSD? Activity only) • Template 1A (FSD? activity only) • Split pins (FSD? Activity only)	• Slides • Worksheet 2A/2B/2C • Pencils • Sticky-tac • Time Zone Cards 2A (FSD? activity only) • Access to the internet (FSD? activity only) • Question Cards 2A (FSD? activity only) • City Cards 2A (FSD? activity only)	• Slides • Worksheet 3A/3B • Season Labels 3A/3B • Statistics Cards 3A/3B (FSD? Activity only) • Graph Paper 3A (FSD? Activity only) • Worksheet 3C (FSD? Activity only) • Question Cards 3A/3B (FSD? Activity only)	• Slides • Teacher Notes • Worksheet 4A/4B • Split pins • Template 4A • Moon Cards 4A • Moon Cards 4B (FSD? activity only)	• Slides • Solar System Fact Cards 5A/5B • Worksheet 5A/5B/5C • Access to the internet (FSD? activity only) • Worksheet 5D (FSD? activity only)	• Slides • Mnemonic Strip 6A • Templates 6A/6B/6C • End of of Unit Quiz • Flag Template 6A (FSD? activity only) • Polystyrene balls (FSD? activity only) • Skewer sticks (FSD? activity only)		• Split pins • Sticky-tac • Polystyrene balls • Skewer sticks
	Forces in Action	• Slides • Worksheets 1A/1B/1C • Large trays, flour, cocoa/chocolate powder, marbles, ball bearings, golf balls etc. • Challenge Cards (FSD? activity only) • Books, internet, etc. (FSD? activity only)	• Slides • Worksheets 2A/2B/2C/2D • Forcemeters • Variety of surfaces to test • Rubbers (FSD? activity only) • Challenge Sheet (FSD? activity only)	• Slides • Worksheets 3A/3B/3C/3D • Plastic Bag Parachute sheet • Plastic bags, string/ wool, paper clips, rubber bands • Spinner Template (FSD? activity only)	• Slides • Worksheets 4A/4B/4C/4D • Measuring cylinders or equivalent • Water • Plasticine • Stopwatches • Results Sheet (FSD? activity only)	• Slides • Worksheets 5A/5B/5C • Lollipop sticks, rubber bands (FSD? activity only) • Lolly Stick Catapult sheet (FSD? activity only) • Marshmallows or play dough (FSD? activity only) • Milk/water bottles with handles • String, cord or thin rope • Broomsticks or thick dowel rods	• Slides • Worksheets 6A/6B/6C • Cut-out Gears • Types of Transmission sheet (FSD? activity only)		• Large trays • Flour • Cocoa/chocolate powder • Marbles • Ball bearings • Golf balls • Topic books • Forcemeters • Variety of surfaces to test • Rubbers • Plastic bags • String • Wool • Paper clips • Rubber bands • Measuring cylinders • Water • Plasticine • Stopwatches • Lollipop sticks • Marshmallows/play dough • Milk/water bottles with handles • broomsticks/thick dowel rods

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PlanBee Science Curriculum Pack - Equipment and Resources

PlanBee

Year 6	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6	Lesson 7	Complete Series resources to collect
Classifying Organisms	• Slides • Worksheet 1A/1B • Classification Key • Animal Cards A/B • Challenge Cards A/B (FSD? activity only)	• Slides • Worksheet 2A/2B • Insect Cards • Bird Cards • Mammal Cards • Flowering Plant Cards A/B (FSD? activity only)	• Slides • Worksheet 3A/3B/3C/3D • Plant Cards - optional • Digital cameras - optional • Plant books, access to internet, etc.	• Slides • Worksheet 4A/4B/4C • Animal Classification System - Examples of Reptiles • Animal Classification System - Examples of Mammals • Animal Families sheets (FSD? activity only) • Question Sheet (FSD? activity only) • Challenge Card (FSD? activity only)	• Slides • Worksheet 5A/5B/5C/5D • Yeast Experiment Sheet (FSD? activity only) • Plastic cups • Water • Measuring jugs • Weighing scales • Yeast • Sealable sandwich bags • Salt, sugar, coffee, flour, rice, oil	• Slides • Worksheet 6A/6B • Classification Cards • Clipboards • Magnifying glasses • Digital cameras • Books, internet, posters, etc.		• Digital cameras • Topic books • Plastic cups • Water • Measuring jugs • Weighing scales • Yeast • Sealable sandwich bags • Salt, sugar, coffee, flour, rice, oil • Clipboards • Magnifying glasses
Healthy Bodies	• Slides • Worksheet 1A/1B/1C/1D • Information Sheet • Question Cards (FSD? activity only)	• Slides • Worksheet 2A/2B/2C/2D/2E • Information Sheet • Food Label Cards (FSD? activity only)	• Slides • Worksheet 3A/3B • Label Cards • Heart Dissection Sheet (FSD? activity only) • Equipment for dissection as listed on sheet (FSD? activity only)	• Slides • Worksheet 4A/4B/4C/4D • Clocks and/or stopwatches	• Slides • Worksheet 5A/5B/5C • Human Muscles Diagram	• Slides • Worksheet 6A/6B/6C • Information sources • Challenge Cards (FSD? activity only)	• Slides • Worksheet 7A/7B • Profile Cards • Challenge Card (FSD? activity only) • Video cameras (FSD? activity only) • End of Unit Quiz	• Sheep heart(s) • Protective clothing, including gloves, aprons and masks • Disinfectant spray • Sharp scissors • Trays • Clocks/stopwatches • Video cameras • Topic books
Changing Circuits	• Slides • Worksheet 1A • Question Cards 1A/1B • Balloons • Static Electricity Investigation Cards 1A (FSD? activity only) • Observation Sheet 1A (FSD? activity only) • Salt and pepper • Plate/tray • Wool material/synthetic fur • Sticky-tac • Plastic bag	• Slides • Worksheet 2A/2B/2C • Wires, batteries, bulbs/motors, switches (FSD? activity only) • Circuit Cards 2A (FSD? activity only) • Sticky notes	• Slides • Worksheet 3A/3B/3C • Circuit Cards 3A (FSD? activity only) • Wires, batteries, bulbs, buzzers, switches, motors (FSD? activity only) • Camera - optional (FSD? activity only)	• Slides • Worksheet 4A/4B/4C/4D • Question Cards 4A (FSD? activity only) • Batteries, bulbs/motors, wires, switches (FSD? activity only)	• Slides • Worksheet 5A/5B/5C • Batteries and bulbs • Different thicknesses of fuse wire • Worksheet 5D (FSD? activity only) • Results Sheet 5A (FSD? activity only)	• Slides • Challenge Card 6A/6B • Worksheet 6A • Device Cards 6A • Circuit equipment • Pegs, aluminium foil, craft wire, paper tubes, cardboard • Challenge Card 6C (FSD? activity only) • End of Unit Quiz		• Salt and pepper • Plate/tray • Wool material/synthetic fur • Sticky-tac • Plastic bag • Balloons • Circuits equipment - batteries in holders, bulbs and holders, wires with crocodile clips, buzzers, motors, etc. • Different thicknesses of fuse wire • Pegs • Aluminium foil • Craft wire • Cardboard tubes, and thick card • Camera • Sticky notes

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PlanBee Science Curriculum Pack - Equipment and Resources

		Lesson							
		1	2	3	4	5	6	7	Complete Series resources to collect
Year 6	Evolution and Inheritance	• Slides • Worksheets 1A/1B/1C • Family Traits • Inherited Characteristics (FSD? activity only)	• Slides • Worksheets 2A/2B/2C • Environment Posters • Advantageous Adaptations sheet (FSD? activity only)	• Slides • Task Charts 3A/3B/3C • Task Instructions • Task Resources A-F	• Slides • Worksheets 4A/4B/4C • Evolution Questions (FSD? activity only)	• Slides • Worksheets 5A/5B/5C • The Fossil Record • Audio recorders (optional) • Evolution and Inheritance Game (FSD? activity only) • Die/Spinner, timer (FSD? activity only)	• Slides • Worksheets 6A/6B/6C • Evolution Discussion Cards		• Audio recorder • Dice/spinner • Timers
	Seeing Light	• Slides • Worksheet 1A/1B/1C • Word Bank 1A • Shadow Puppet Sheet 1A (FSD? activity only) • Light sources e.g. torches and plain paper (FSD? activity only)	• Slides • Challenge Cards 2A/2B/2C • Worksheet 2A/2B/2C/2D • Light sources e.g. torches, lamps etc. • Investigation Cards 2A (FSD? activity only)	• Slides • Worksheet 3A/3B/3C • Eye Diagram 3A • Word Bank 3A • Answer Cards 3A (FSD? activity only) • Question Strips 3A (FSD? activity only)	• Slides • Worksheet 4A/4B/4C • Mirrors (optional) • Diagram Cards 3A (FSD? activity only)	• Slides • Light Maze • Light Angles Poster 5A • Mirrors, protractors, torches • Teacher Notes • Instructions Sheet 5A & Template 5A (FSD? activity only) • Worksheet 5A (FSD? activity only)	• Slides • Sorting Cards 6A/6B • Worksheet 6A/6B • What if? Cards 6A (FSD? activity only) • Any text e.g. a newspaper, clear plastic, water (FSD? activity only)	• Slides • Worksheet 7A/7B/7C • Prisms, light sources and coloured pencils/pens • Newton Colour Wheel Video (FSD? activity only) • Instruction Sheet 7A (FSD? activity only) • String and thick cardboard/polystyrene circles (FSD? activity only)	• Light sources, e.g. torches, lamps • Mirrors • Protractors • Any text • Clear plastic • Water • Prisms • String • Thick cardboard

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