Science MTP: Sequence of lessons			Living things and Habitats	Year 5	Focus Scientist: Jane Goodall
Reference to the Programme of Study 2014 Pupils should be taught to: 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.			**Key vocabulary** **Animals –** amphibians, reptiles, birds, mammals, insects, fish **Animal development –** egg, larva, pupa, nymph, adult, metamorphosis **Parts of a flower** – petal, stamen (anther + filament), carpel (stigma + style + ovary + ovule) **Processes** – pollination, fertilisation, germination puberty reproduction growth sexual asexual		
Lesson 1 To be able to explain the life cycle of an insect. To observe changes over time and record evidence of an insect life cycle.	**Lesson 2** To be able to explain the life cycle of a bird. To gather information from secondary sources and present findings using process diagrams.	**Lesson 3** To be able to explain the life cycle of an amphibian. To observe changes over time and record evidence using photographs and notes.	**Lesson 4** To be able to explain the life cycle of a mammal. To gather and record information from secondary sources to compare life cycles.	**Lesson 5** To be able to explain that some plants reproduce. . To make detailed observations and record findings using scientific diagrams and labels.	**Lesson 6** To be able to explain that some plants reproduce. To explain a process using evidence from observation and scientific vocabulary.
Ladybird Life Cycle What are the different stages of the life cycle of a ladybird?	**Bird Life Cycle** How do bird eggs change over time?	**Amphibian Life Cycle** How do smooth newts/common frogs develop over time?	**Mammal Life Cycle** How do different mammals develop, as they get older?	**Sexual plants** What are the functions of the different parts of the flower?	**Asexual Plants** How do asexual plants reproduce?

Science MTP: Sequence of lessons	Properties and Changes and of Materials	Year 5	Focus Scientist: Marie Curie Chemist

Reference to the Programme of Study 2014

Pupils should be taught to:
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
Understand 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.

Key vocabulary

Thermal conductivity – thermal conductor, thermal insulator

Electrical conductivity – electrical conductor, electrical insulator

Dissolving – Solvent, solution, solute, soluble, insoluble, solid, liquid, particles, suspensions

Separating materials – Sieve, filter, evaporate, condense

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6	Lesson 7	Lesson 8
To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat. To be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.	To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat. To be able to report and present findings from enquiries, including conclusions, causal relationships and explanations.	To be able to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of electricity. To plan a scientific enquiry and identify variables to test	To be able to understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. To recognise control variables and evaluate the reliability of an enquiry.	To be able to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. To use observations and evidence to decide how mixtures can be separated.	To be able to demonstrate that dissolving, mixing and changes of state are reversible changes. To demonstrate and explain reversible changes using evidence.	To be able to explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible. To carry out a simple test and use evidence to explain irreversible changes.	To be able to explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible. . To plan a fair test, identify variables and explain patterns in results.

		electrical conductivity.					
Thermal Conductors & Thermal Insulators Which cups let through the most heat?	**Thermal Conductors & Thermal Insulators (2)** What affect will a coat have a person and an ice man?	**Conductivity of Electricity** Which materials allow electricity to pass through them?	**Dissolving** How does the temperature of the water affect the time it takes for the sugar cube to dissolve?	**Separating Materials** Can you identify where magnetism, sieving, evaporation and filtration have been used to separate materials?	**Reversible Changes Filtering** How can we separate this mixture?	**Irreversible Changes** What happens when we mix bicarbonate of soda with vinegar?	**Irreversible Changes (2)** What affects how quickly carbon dioxide is created in the reaction between a vitamin tablet and water?

Science MTP: Sequence of lessons	Earth and Space	Year 5	Focus Scientist: Nicolas Copernicus

Reference to the Programme of Study 2014

Pupils should be taught to:
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

Lesson 8 – Trip to Space Centre in Leicester.

Key vocabulary

Day and night - Earth, axis, rotate

Solar system – Star = Sun, Planets = Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune (Pluto was classified as Dwarf planet in 2006)

Phases of the Moon - full moon, gibbous moon, half moon, crescent moon, new moon, waxing ,waning

Moon's orbit: 29.5 days, lunar month

Orbit, planets, revolve, sphere

Orbiting rotating gravity orbit Leap Year

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6	Lesson 7
To be able to describe the Sun, Earth and Moon as spherical bodies. To analyse scientific evidence to support an idea.	To be able to name and order the planets in the solar system. To gather information from secondary sources and communicate findings.	To be able to understand the size of the planets in the solar system. To use models to represent scientific ideas and relationships.	To describe and explain the movement of the Earth and other planets in relation to the Sun. To record and present data using tables to identify patterns.	To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. To use scientific diagrams to explain day and night.	To describe and explain the movement of the Moon relative to the Earth. To use models and diagrams to explain the movement of the Moon.	To describe and explain the movement of the Moon relative to the Earth. To observe changes over time and record patterns in the Moon's phases.
Spherical Bodies How can we prove the shape of the Earth, Sun and Moon?	**Solar System – Naming the Planets** What is in our solar system?	**Distance and Size of Planets** What size are each of the planets?	**Movement of planets** What is a year? Is a year the same everywhere?	**Night and Day** How do we have day and night on planet Earth?	**Movement of the Moon** Does the Moon always look the same size?	**Phases of the Moon** ***Observation Over Time*** How does the shape of the Moon appear to change over time?

Science MTP: Sequence of lessons	Forces	Year 5	Focus Scientist: Isaac Newton

Reference to the Programme of Study 2014

Pupils should be taught to:
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.

Key vocabulary

Types of forces: gravity, friction, air resistance, upthrust, weight

Measuring forces: Newton meter, Newtons (N)

Particles Surface area Push, pull Balance

Mass – grams and kilograms

Mechanical devices – gears, levers, pulleys, springs

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6	Lesson 7
To identify forces acting on objects. To identify forces as pushes and pulls. Lesson Working Scientifically objective To identify forces acting on objects through observation.	To be able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Recording data and results of increasing complexity-using tables. To record results in tables and calculate averages.	To be able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. To learn about a significant scientist. WS: To use secondary sources to gather information.	To be able to identify the effects of air resistance that act between moving surfaces. To use test results to make predictions and plan further fair tests.	To be able to identify the effects of friction between moving surfaces. To plan a fair test, identifying independent, dependent and control variables.	To be able to identify the effects of water resistance that act between moving surfaces. To evaluate results and explain the degree of trust in the data.	To explore mechanisms. To sort and classify mechanisms based on their function.
Push & Pulls What forces can you observe in action?	**Gravity** How does the surface area of a piece of paper affect how quickly it falls?	**Isaac Newton** Who was Issac Newton and why was he so significant?	**Air Resistance** What affects how well a parachute falls?	**Friction** How can surface materials slow a car down?	**Water Resistance** How does the mass of a boat affect the depth it travels below the water surface?	**Mechanisms** What different mechanisms?

Science MTP: Sequence of lessons	Animals including Humans (Human Reproduction and Ageing)	Year 5	Focus Scientist: Professor Robert Winston

Reference to the Programme of Study 2014	Key vocabulary
Pupils should be taught to: Describe the changes as humans develop from birth to old age.	Gestation Fetus Fertilisation Species Baby Toddler Adolescent Adult Elderly person Puberty Hormones Pituitary gland Testosterone Estrogen

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
To be able to describe the changes as humans develop from birth to old age. To gather and present data in a table to show human development stages.	To be able to describe the changes as humans develop from birth to old age. To use evidence to support or refute an idea.	To describe the changes as humans develop from fertilisation to birth.. To present data on a timeline to show change over time.	To explain how babies grow and develop during early childhood. To record data using line graphs and present conclusions. .	To describe and explain the main changes that occur during puberty. To use scientific knowledge to explain changes during puberty.	To identify the changes that take place in late adulthood. To gather information from secondary sources to explain changes in late adulthood.
Gestation Period Animals How long are the gestation periods of different animals?	**Gestation Period** Is there a relationship between the mass of adult animal and the length of the gestation period?	**Prenatal Development** How does the size of a baby change?	**Height of Boys and Girls** How does the height of a baby change over time?	**Puberty** What happens to the human body during puberty?	**Elderly People** What happens to adults as they become older?