Science MTP: Sequence of lessons	Animals including Humans (Circulatory System) (Autumn 1)	Year 6	Focus Scientist: William Harvey

Reference to the Programme of Study 2014

NB – Parts of this unit will need to be taught in accordance with your school's drug education policy.

Pupils should be taught to:
Identify and name the main parts of the human circulatory system, and explain 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.

Key vocabulary

Circulatory system – heart, blood, veins, arteries, pulse, clotting

Diet – balanced, vitamins, minerals, proteins, carbohydrates, sugars, fats

Drugs – caffeine, nicotine, alcohol, cannabis, cocaine, heroine

Lifestyle – healthy

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6	Lesson 7
To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. To use scientific models and diagrams to explain how the circulatory system works.	To learn about a significant scientist **(William Harvey).** To gather information from secondary sources and communicate scientific ideas clearly.	To be able to identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood. To plan a pattern-seeking enquiry, identifying variables and deciding how data will be collected.	To be able to explain the functions of blood. To use evidence from models and research to explain the functions of blood.	To be able to describe the ways in which nutrients and water are transported within animals, including humans. To analyse scientific information to explain how nutrients and water are transported.	To be able to recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. To use evidence to explain how lifestyle choices affect the circulatory system.	To be able to recognise the impact of drugs and alcohol on the way bodies function. To sort information and use evidence to explain the effects of drugs and alcohol on the body.
Heart What is the function of the heart?	**William Harvey** Why is William Harvey a significant scientist?	**Exercise Investigation** Is there a relationship between the type of exercise that you do and the number of heart beats per minute?	**Blood** What are the functions of blood?	**Water** Why do we need to drink water?	**Diet and Exercise** Do all people need the same amount of calories?	**Drugs and Alcohol** How do drugs and alcohol affect us?

Science MTP: Sequence of lessons	Evolution and Inheritance (Autumn 2)	Year 6	Focus Scientist: Charles Darwin

Reference to the Programme of Study 2014

Pupils should be taught to:
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.

Key vocabulary

Evolution, evolve Natural selection

Survival Reproduction

Offspring, parents, siblings Environment

Variation Fossils; ammonites, belemnites, micrasters, etc

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
To be able to recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. To analyse evidence from fossils to identify changes over time.	To be able to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To observe variation and use evidence to explain similarities and differences in offspring.	To be able to identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution. . To plan an enquiry to test how adaptations affect survival.	To be able to identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution. To use observations and evidence to explain how camouflage supports survival.	To be able to identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution. To interpret data and explain how adaptation can lead to evolution over time.	To be able to identify how plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. To be able to recognise which secondary sources will be most useful to research ideas (non-statutory). To select and use appropriate secondary sources to research plant adaptations
Fossils How do fossils show changes?	**Inheritance** Are all siblings of living things identical?	**Animal Adaptations** Which shape feet are best for swimming?	**Camouflaging** How do different animals use camouflage to survive?	**Animal Survival** How are animals suited to where they live?	**Plant Survival** How have different plants around the world evolved to survive?

Science MTP: Sequence of lessons	Living Things and Habitats (Spring-Summer)	Year 6	Focus Scientist: Beatrix Potter (Mycologist, study of fungi)

Reference to the Programme of Study 2014	Key vocabulary
Pupils should be taught to: 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.	Classification Vertebrate, invertebrate Kingdoms: animal, plant, 'micro-organism' Classes: amphibian, reptile, bird, mammal, Scales, feathers Flowering plant, non-flowering plant

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
To give reasons for classifying plants and animals based on specific characteristics. To sort and classify organisms based on observable characteristics.	To classify plants based on specific characteristics. To classify plants using diagrams and labels accurately.	To classify plants based on specific characteristics. To construct and use classification keys to identify plants.	To be able to give reasons for classifying plants and animals based on specific characteristics. To identify scientific evidence used to support or refute classification decisions..	To investigate whether yeast is a living organism. To plan and carry out an enquiry, recognising and controlling variables where necessary.	To explain how microorganisms are grouped and classified. To sort and classify microorganisms using observable features and evidence..
Classifying Organisms How can we classify living things?	**Classifying Trees** How can we classify trees?	**Classifying Plants** How can we classify different flowering plants?	**Bees and Butterflies** How can attract more bees and butterflies into the school grounds?	**Living Organisms** Is yeast a living organism?	**Grouping Microorganisms** How can microorganisms be classified?

Science MTP: Sequence of lessons	Electricity (Spring)	Year 6	Focus Scientist: Nikola Tesla

Reference to the Programme of Study 2014	Key vocabulary
Pupils should be taught to: 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.	Electricity, Volts Series circuit Components: battery, bulb (lamp), bulb (lamp) holder, buzzer, crocodile clip, leads, wires, switch Describing words: brighter, duller, slow, fast, quiet, loud Conductor, insulator Resistance Effects of electricity: Light, sound, movement, heat

Lesson 1	Lesson 2	Lesson 3	Lesson 4 & Lesson 5	Lesson 6
To understand the importance of the major discoveries in electricity. To evaluate scientific evidence linked to major discoveries in electricity.	To recognise and draw scientific circuit symbols. To record information using recognised scientific diagrams and symbols.	To observe and explain the effects of differing voltages in a circuit. To plan a fair test, identifying independent, dependent and control variables.	***This lesson will take a full 2 hours*** To compare and give reasons for variations in how components function. To plan and carry out an investigation to compare how components function. To present findings using appropriate graphs and explain relationships between variables.	To compare and give reasons for variations in how components function. .To make systematic observations and explain conclusions using evidence.
Major Discoveries How Has Electricity affected our lives?	**Circuits and Symbols** What do each of the circuit symbols look like?	**Volts** How will the number of batteries (amounts of Volts) affect the brightness of the bulb?	**Bulbs Buzzers Switches** Does wire length affect how components in a circuit work?	**Conductive Dough** Can we use something other than a metal to be a conductor in a circuit?

Science MTP: Sequence of lessons	Light	Year 6	Focus Scientist: Thomas Young Isaac Newton

Reference to the Programme of Study 2014	Key vocabulary
Pupils should be taught to: 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.	Simple comparisons: dark, dull, bright, very bright Comparative vocabulary: brighter, duller, and darker Superlative vocabulary: brightest, dullest, and darkest Opaque, translucent, transparent Shadow – block, absence of light Reflect – bounce, mirror, reflection See – light source Sun – sunset, sunrise, position

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
To understand that light appears to travel in straight lines. To understand how mirrors reflect light, and how they can help us see objects. .To use scientific diagrams and models to support or refute ideas about light.	To be able to 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. To use evidence to explain how light travels and enables us to see.	To explain why shadows have the same shape as the object that casts them. To use models and observations to explain how shadows are formed.	To 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. To plan a fair test, recognising and controlling variables.	To be able to 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. To report findings and explain the degree of trust in the results.	To investigate how a prism changes a ray of light to show the spectrum. To learn about a significant scientist. To use evidence from investigations and secondary sources to explain scientific discoveries.
How we See How does light travel?	**Reflecting Light** How is light reflected?	**Shadows** How can we show shadows have the same shape as the object that casts them?	**Materials – Reflecting Light** Which materials is best at reflecting light?	**Windows - Light** Which window lets through the most amount of light?	**Isaac Newton – Light** What colour is light?