Science MTP: Sequence of lessons	Electricity	Year 4	Focus Scientist: Benjamin Franklin

Reference to the Programme of Study 2014

Pupils should be taught to:
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.

Key vocabulary

Electricity **Appliances**: fridge, freezer, TV, computer, iron, kettle, 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

Effects of electricity: Light, sound, movement, heat **Switche**s – open, close

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
To be able to identify common appliances that run on electricity. To observe and classify appliances based on how electricity is used.	To be able to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. To be able to 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. To set up and test a simple series circuit.	To be able to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. To record results in a table and use findings to make predictions	To be able to recognise some common conductors and insulators, and associate metals with being good conductors. To carry out a comparative test to identify conductors and insulators.	To be able to recognise that a switch opens and closes a circuit. To use results to explain how a switch affects a circuit.	To learn about a significant scientist. To gather information from secondary sources and communicate findings.
Uses of Electricty What can electricity do?	**Constructing Series Circuits** What components does a circuit need to work?	**Fixing Circuits** Which circuits will work? Can you repair the ones that do not work?	**Conductors and Insulators** Which materials are conductors/insulators?	**Switches and Bulbs** Why doesn't a lightbulb switch on in an open circuit?	**Benjamin Franklin** Who is Benjamin Franklin and why is he significant?

Science MTP: Sequence of lessons			Animals including Humans	Year 4	Focus Scientist: Al-Jahiz
Reference to the Programme of Study 2014 Pupils should be taught to: 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.			**Key vocabulary** Digestive system –, oesophagus, stomach, acid, small intestine Protein, vitamin, mineral, carbohydrate, fats, energy, growth, repair. Saliva Teeth – Incisors, canines, premolars, molars Function Foodchain – producer, consumer, predator, prey		
Lesson 1 To identify the different types of teeth in humans and their simple functions. To make careful observations and record data about different types of teeth.	**Lesson 2** To be able to describe the simple functions of the basic part of the digestive system in humans. To observe changes and use evidence to explain what happens when food is chewed.	**Lesson 3** To be able to describe the simple functions of the basic part of the digestive system in humans. To observe and describe changes during a simple digestion model.	**Lesson 4** To be able to describe the simple functions of the basic part of the digestive system in humans. To present findings using labelled scientific diagrams.	**Lesson 5** To be able to construct and interpret a variety of food chains, identifying producers, predators and prey. To construct and interpret food chains using evidence.	**Lesson 6** To compare the teeth of different animals and link this with their role in a food chain. To compare animals using evidence and identify patterns.
Teeth Types How many different types of teeth do we have?	**Chewing Food** What happens when we chew food?	**Stomach** What does the stomach do?	**Digestive System** What does each part of the digestive system do?	**Food Chains** What do different animals eat?	**Animal Teeth** How are the teeth of herbivores, carnivores and omnivores similar? How are they different?

Science MTP: Sequence of lessons			Sound	Year 4	Focus Scientist: Ernst Mach	
Reference to the Programme of Study 2014 Pupils should be taught to: Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from a sound 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.			**Key vocabulary** **Ways to create sound** – bang, blow, shake, and pluck **Loudness** – quiet, quieter, quietest, loud, louder and loudest **Pitch** - low, lower, lowest, high, higher, and highest **Vibrations** **Source**			
Lesson 1 To be able to recognise that sounds get fainter as the distance from the sound source increases. To plan and carry out a simple enquiry to investigate sound over distance.	**Lesson 2** To be able to recognise that sounds get fainter as the distance from the sound source increases. To use observations to solve a real-life problem.	**Lesson 3** To be able to identify how sounds are made, associating some of them with something vibrating. To make systematic observations to identify how sounds are made.	**Lesson 4** To be able to recognise that vibrations from a sound travel through a medium to the ear. To be able to find patterns between the volume of a sound and the strength of the vibrations that produced it. To identify patterns between vibrations and sound using evidence.	**Lesson 5** To be able to find patterns between the volume of a sound and the strength of the vibrations that produced it. To make careful measurements and report findings from an enquiry.	**Lesson 6** To be able to find patterns between the volume of a sound and the strength of the vibrations that produced it. To be able to set up simple fair tests. To be able to make systematic and careful measurements with a data logger. To set up a fair test and record results using a comparative bar chart.	**Lesson 7** To be able to find patterns between the pitch of a sound and features of the object that produced it. To plan and carry out a fair test to investigate pitch.
Loudness What happens to the sound of the drum when we get further away from it?	**Fire Alarms** Where in the school would be the best places to put fire alarms?	**Sound** What is a 'sound'?	**Sound Travel** Where does sound go when it has been made?	**Altering Sounds** How can we alter the loudness of a sound?	**Volume of Sound Patterns** How does the height from which a tube is dropped affect the	**Pitch of Sound** Does the length of an elastic band affect the pitch of the sound produced?

			How can we represent a sound wave?		loudness of the sound produced?	

Science MTP: Sequence of lessons			States of Matter		Year 4 / Focus Scientist: Daniel Fahrenheit
Reference to the Programme of Study 2014 Pupils should be taught to: 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			**Key vocabulary** **States of matter** - Solid, liquid and gas **Examples of gases** (at room temperature and pressure) – Oxygen, hydrogen, helium, carbon dioxide, methane **Examples of liquids** (at room temperature and pressure) – Water, milk, juice, petrol, oil **Examples of solids** (at room temperature and pressure) –Wood, rocks, metal, plastic, glass, wool, leather, etc **Processes –** Melting, condensation, evaporation, solidifying, freezing Water cycle Water vapour Steam Heating Cooling		
Lesson 1 To be able to compare and group materials together, according to whether they are solids, liquids or gases. To group and classify materials based on their state of matter.	**Lesson 2** To be able to set up a fair test. To be able to use results to draw simple conclusions.	**Lesson 3** To be able to observe that some materials change state when they are heated or cooled. To be able to use a thermometer to take accurate measurements.	**Lesson 4** To be able to observe that some materials change state when they are heated or cooled. To be able to set up a simple test. To plan and carry out a simple test to observe changes of state.	**Lesson 5** To be able to measure or research the temperature at which water changes state. To be able to use a thermometer to take accurate measurements. To record, present and interpret data using tables and graphs.	**Lesson 6** To be able to identify and describe the different stages of the water cycle. To observe changes over time and use evidence to explain the water cycle.
Solids, Liquids and Gases Which state of matter are you materials?	**Liquid Testing** Which liquid moves the fastest?	**Melting** What happens to solids when they are heated?	**Freezing** Do all liquids freeze?	**Water** At what temperatures does water change state?	**Water Cycle** What is the water cycle?

Science MTP: Sequence of lessons	Living things and Habitats	Year 4	Focus Scientist: Carl Linnaeus

Pupils should be taught to:
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.

Key vocabulary

Habitat, micro habitat Pond, meadow, log pile, woodland, river, lake, beach, cliff

Organism – plant, animal environment, endangered, habitat, pollution, species

Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc

Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow.

Garden plants – crocus, daffodil, bluebells, etc

Parts of plants – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs

Invertebrates – snail, slug, woodlouse, spider, beetle, fly, etc

Pond animals – pond skater, water slater, ramshorn snail, pond snail, leech, common frog, smooth newt, etc

Lesson 1	Lesson 2 & Lesson 3	Lesson 4	Lesson 5	Lesson 6	Lesson 7	Lesson 8
To recognise that living things can be grouped in a variety of ways. To sort and classify living things using observable features.	To identify, group and classify vertebrate species. To group and classify vertebrates using scientific criteria.	To recognise that living things can be grouped in a variety of ways. To gather information from secondary sources to identify plants.	To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. To use a classification key to identify living things accurately.	To be able to recognise that living things can be grouped in a variety of ways. To gather, record and present data to answer classification questions.	To be able to recognise that environments can change and that this can sometimes pose dangers to living things. To observe environments and record changes that affect living things.	To use scientific evidence to understand why living things may become endangered. To use evidence to explain why some species become endangered.
Grouping Living Things How can we classify different animals?	**Classifying Vertebrates** How can we groups different vertebrates?	**Identifying Plants** Can you use a flower to identify the plant?	**Understanding Classification Keys** What are classification keys?	**Creating Classification Keys** How can we identify different invertebrates?	**Local Habitat Survey**	**Endangered and Extinct.**