Y6 – Science	Autumn 1: The Nature Library
1. Learning Intention	To demonstrate understanding of the process of classification
Targets:	I can develop a classification process for sweets I can explain how and why I have done this
Activity	In this lesson, children build on their knowledge from previous years about how living things can be grouped together in different ways according to the characteristics they have in common.
2. Learning Intention	To apply the process of classification to plants
Targets :	I can group plants in different ways I can describe the classification process used by scientists I can use scientific vocabulary to classify plants
Activity	In this lesson, children decide ways in which to group plants. They apply their classification skills and give reasons for their process.
3. Learning Intention	To explore the classification of animals and recognise the main groups of vertebrates
Targets:	I can use appropriate vocabulary to classify animals and groups of vertebrates I can use observable characteristics to group and classify vertebrates I can apply what I know in order to classify an unknown animal
Activity	In this lesson, children consider the classification of animals. By the end of lesson 4, they should have a clear understanding of the differences and similarities between vertebrates and invertebrates
4. Learning Intention	To explore the classification of animals and recognise the main groups of invertebrates
Targets:	I can use appropriate vocabulary to classify animals and groups of invertebrates I can use observable characteristics to group and classify invertebrates I can apply what I know in order to classify an unknown animal
Activity	In this lesson, children consider the classification of animals. By the end of lesson 4, they should have a clear understanding of the differences and similarities between vertebrates and invertebrates
5. Learning Intention	To apply classification concepts to living things in the school grounds
Targets for Success	I can create a classification system for some of the living things in the school ground I can explain why I have classified certain things in certain ways I can explain the difference between classification and identification

Activity	In this lesson, children apply their learning to living things in the school environment. They will plan how to record and present their findings.
6. Learning Intention	To recognise that micro-organisms are groups of living things and explain what they are
Targets for Success	I can explain that plants and animals are not the only groups of living things I can explain what micro-organisms are I can present my findings to others
Activity	In this lesson, children will be learning about three further kingdoms: fungi, bacteria and Protista – often described as micro-organisms. By the end of the lesson, children will have identified what micro-organisms are within the broader context of living things
7. Learning Intention	To investigate the growth of micro-organisms
Targets for Success	I can plan an investigation to grow micro-organisms carefully, considering health and safety I can closely and systematically observe changes in the growth of micro-organisms I can present my findings to others and explain reasons for my conclusions
Activity	In this lesson, children will be learning about three further kingdoms: fungi, bacteria and Protista – often described as micro-organisms. By the end of the lesson, children will have identified what micro-organisms are within the broader context of living things
8. Learning Intention	To recognise that the classification system for living things has changed through history and is still changing
Targets for Success	I can describe to others how people classified living things in the past I can explain the importance of Carl Linnaeus' method of classification I can suggest reasons why the classification systems changed over time
Activity	In this lesson, children will explore the history of classification and the scientists involved, including Aristotle and Carl Linnaeus

Y6 – Science	Autumn 2: Body Pump
1. Learning Intention	To describe how the human circulatory system works
Targets:	I can identify the human digestive, muscular and skeletal systems I can name the parts of the human circulatory system I can explain how the parts of the circulatory system work together to enable the human body to function
Activity	In this lesson, children begin their investigations of the human circulatory system, first revising knowledge of the digestive, muscular and skeletal systems from Year 4. They will name the parts and describe how it transports blood containing oxygen around the body
2. Learning Intention	To investigate and describe the main functions of the heart
Targets :	I can explain the main functions of the heart I can represent the main functions of the heart in a diagram
Activity	In this lesson, children make a model of the heart to illustrate how the different parts fit and work together. They will have an understanding of the heart and its main functions in the circulatory system
3. Learning Intention	To explore how blood transports gases around the body
Targets:	I can explain the function of red blood cells I can communicate my findings about blood clearly
Activity	In this lesson, children pose and answer different types of questions to find out how blood transports oxygen and waste gases around the body. Children will see 1 litre and 5 litre quantities of water to gain a better understanding of how much blood is moved around the body
4. Learning Intention	To identify the contents of blood and describe their function
Targets:	I can name the part of the blood that each ingredient of 'blood soup' represents I can explain the function of the different parts of blood I can present my findings in a fact file
Activity	In this lesson, children make 'blood soup' as an illustrative practical activity to help find out about how the different parts of the blood enable it to carry oxygen, waste gases, nutrients and water around the body. They will complete a fact file.
5. Learning Intention	To explain the function of valves, veins, arteries and capillaries in the human circulatory system
Targets for Success	I can create a concept map to show what I know about valves, veins, arteries and capillaries

	I can explain how valves, veins, arteries and capillaries enable my body to function
Activity	In this lesson, children will apply their previous learning and use secondary sources to present what they know about the circulatory system
6. Learning Intention	To explain how water helps humans' and other animals' bodies to function
Targets for Success	I can describe how water is transported within humans I can compare the transport of water in humans with that of other animals I can explain the importance of water to human health
Activity	In this lesson, children will presenting three things they have learned and two things they still want to find out. Children to learn about the various ways in which water is used by different organs of the body.

Y6 – Science	Spring 1: Body Health
1. Learning Intention	To describe the impact of diet, exercise, drugs and lifestyle on human health
Targets:	Explore the link between diet, exercise and a healthy lifestyle Present findings as a concept map or poster
Activity	In this lesson, children revise their learning from year 3 about how humans obtain nutrition from the different types of food they eat. They will describe how both diet and exercise contribute to a healthy lifestyle.
2. Learning Intention	To evaluate healthy eating guidance
Targets :	Use packaging information to sort foods into the different food groups Use health guidelines to plan a healthy menu Explain how guidance on food content is helpful
Activity	In this lesson, children examine food packaging labels to identify the different food groups that different types of food contain. They evaluate guidance given to people looking to plan a healthy diet. Clarification will be given about the word 'diet' in this context – not about losing weight but to the usual food and drink that someone consumes.
3. Learning Intention	To use secondary sources to investigate how scientific ideas were developed in the past
Targets:	Describe how diet can affect health Explain at least one way scientists gathered evidence to test scientific ideas Use secondary resources to support of refute my ideas
Activity	In this lesson, children look at how ideas have been tested scientifically to identify cause and effect and how the results have impacted our diet. They investigate historical cases of diet affecting health, including scurvy and the work of James Lind.
4. Learning Intention	To investigate variables that affect pulse rate
Targets:	Measure pulse rate accurately Repeat measurements appropriately Interpret data and identify patterns in resting pulse rate Calculate own recovery rate after exercise
Activity	In this lesson, children learn that they can measure their pulse rate to find out how hard their heart is working. They measure their resting heart rate and collect data to investigate what happens when they exercise. They make links with their learning about the circulatory system in the autumn term.

5. Learning Intention	To identify the impact exercise has on the way the body functions
Targets for Success	Explain the benefits of exercise on the human body Recognise variables that improve participation levels in sport Persuade others to try a new sport or exercise
Activity	In this lesson, children survey the range of sports played by their classmates, consider the importance of exercise for a healthy lifestyle and develop ways to encourage more people to take up a new sport.
6. Learning Intention	To identify and present the long-term effects on the body of drug use and smoking
Targets for Success	Research long-term effects of drug use/smoking Research short-term effects of drug use/smoking Adapt information from secondary sources to present findings
Activity	In this lesson, children will explore the impact of drugs on the way the human body functions.

Y6 – Science	Spring 2: Everything Changes
1. Learning Intention	To identify ways in which living things of the same kind vary
Targets:	Describe ways in which characteristics of living things may vary Suggest reasons for those variations
Activity	In this lesson, children investigate and discuss how characteristics of living things vary from individual to individual – e.g. height, size or colour.
2. Learning Intention	To describe how an animal is adapted to its environment
Targets :	Explain how an animal's adaptation helps it to survive in the habitat Predict how an animal would have to adapt to suit a different habitat
Activity	In this lesson, children recap on the different habitats around the world. Knowledge is expanded first introduced in Year 4, around the adaptation of the camel to suit its environment. They will learn in more detail how a camel's body is able to withstand very hot temperatures. The children select an animal to research then find out how their animal has adapted to suit their environment. Some children may be able to research more than one animal.
3. Learning Intention	To describe how a plant is adapted to its environment
Targets:	Explain how a plant's adaptation helps it to survive in the habitat. Create/design a new plant that is perfectly adapted to survive in a habitat.
Activity	In this lesson, children look at pictures of some plants and then research that plant's habitat and describe the conditions. Children to continue their research to suggest how the plants have adapted to live in the habitat and how the adaptation helps the plant to survive. Visit the school's outdoor spaces and find a plant that grows in different environments (e.g. the quiet are and the woodland area). They then note any differences - i.e. the height of the plants, colour differences – then suggest/explain how each have adapted to help it survive in its habitat.
4. Learning Intention	To understand that fossils provide information about living things that are now extinct
Targets:	Use evidence from fossils to compare extinct animals with those that are living and identify adaptations Use evidence from fossils to suggest some conclusions about life in the past
Activity	In this lesson, children compare images of extinct animals with those of living animals. There are 4 pairs included: ichthyosaurus/porpoise; pterodactyl/bird; megalodon/mako sharks and cameroceras/octopus. The children will write about how the living animal has adapted so it can survive in the modern world. Are there any other living animals that are also similar to the extinct animals?

5. Learning Intention	To identify how living things have changed over time
Targets for Success	Describe how natural selection causes living things to evolve over time Explain why the theory of evolution was not accepted at first
Activity	In this lesson, children explore and discuss the life and work of Charles Darwin. They will learn about his discoveries on his trip to the Galapagos Islands. Children match the finch's beak with its diet. Explore the term natural selection, which was the term Charles Darwin chose to describe the process in which living things adapt to their habitat. He put forward the idea that the living things which hadn't been able to adapt were the ones that went extinct. Discuss some examples of animals which are now extinct; for example, scientists believe woolly mammoths became extinct around 4,000 years ago due to climate change and lack of food. This is an example of an animal which was driven to extinction by environmental factors, rather than human activity.
6. Learning Intention	To explore human evolution
Targets for Success	Describe how humans have evolved Compare and contrast neanderthals and homo sapiens
Activity	In this lesson, children will explore the theories of human evolution and consider evidence around the theories. The children will use information gathered from the presentation to create a storyboard to explain the human evolution theory. Discussion will include how scientific ideas change and develop over time as technology improves and people make further discoveries.

Y6 – Science	Summer 1: Danger! Low Voltage
1. Learning Intention	To represent a simple electrical circuit in a diagram and describe how it works
Targets:	I can construct a simple circuit I can represent circuit in a labelled drawing using correct scientific language and symbols
Activity	In this lesson, children revise and build on their work in year 4 on how to construct simple circuits
2. Learning Intention	To use a switch in a simple circuit, show it in a diagram and describe how it works
Targets :	I can control components in a circuit with a switch I can represent my circuit in a circuit diagram using recognised symbols
Activity	In this lesson, children make and control simple circuits using switches
3. Learning Intention	To demonstrate the effects of changing the current flowing through components in a circuit
Targets:	I can describe how changing the number and type of components in a circuit affects how they operate I can give reasons for what happens to lamps, buzzers and motors when cells are added to a circuit I can use correct scientific language
Activity	In this lesson, children add different components to electrical circuits and role play the flow of electron in a circuit to explain the idea of resistance
4. Learning Intention	To demonstrate how circuits can be represented in, and constructed from, diagrams
Targets:	I can represent my circuit using the recognised symbols in a diagram I can explain what happens to lamps, buzzers and motors when cells are added to a circuit
Activity	In this lesson, children consolidate their learning on circuits and recognised electrical symbols from the previous three lessons.
5. Learning Intention	To research how electricity is generated and transmitted to the classroom, and discuss electricity generation in the future
Targets for Success	I can select information from a range of different sources I can select the best method for presenting the information I can use scientific language to persuade others in a debate
Activity	This is the first of a two-part lesson. In these two lessons, children will research how electricity is generated in different ways. They will prepare and carry out debates about the different methods

6. Learning Intention	To present information on how electricity is generated and transmitted to the classroom, and discuss its generation in the future
Targets for Success	I can select information from a range of different sources I can select the best method for presenting the information I can use scientific language in a presentation to persuade others in a debate
Activity	In this lesson, children will be presenting and justifying their points of view to the class

Y6 – Science	Summer 2: Light up your world
1. Learning Intention	To consolidate the key ideas from Year 3 about the behaviour of light, including light sources and shadows
Targets:	I can explain that we need a light source, an object and our eyes to see things I can explain why some objects are easier to see than others
Activity	In this lesson, children carry out illustrative practical activities
2. Learning Intention	To describe how a mirror reflects an image of an object
Targets :	I can explain that a mirror works by reflecting light from the surface to my eye I can predict what different objects look like when reflected
Activity	In this lesson, children carry out illustrative practical activities and describes what happens when objects are reflected in a mirror
3. Learning Intention	To apply understanding of how light travels
Targets:	I can describe what happens to the light in a periscope to explain how it works I can explain how mirrors can be used to see things that are not directly in line with the eye I can draw a diagram to show how light is reflected in a mirror
Activity	In this lesson, children add different components to electrical circuits and role play the flow of electron in a circuit to explain the idea of resistance
4. Learning Intention	To understand how a pinhole camera works
Targets:	I can use the idea that light appears to travel in a straight line I can explain how a pinhole camera works
Activity	In this lesson, children explore the idea that light travels in a straight line
5. Learning Intention	To recognise that, whilst light does travel in straight lines, sometimes it changes direction when travelling from one thing to another
Targets for Success	I can recognise situations where light does not appear to travel in straight lines I can define refraction
Activity	In this lesson, children carry out illustrative practical activities to explore the refraction of light
6. Learning Intention	To understand that white light is made of many colours and these can be separated out

Targets for Success	I can make careful observations of situations where white light is split into many colours I can explain how a rainbow is formed
Activity	In this lesson, children carry out illustrative practical activities to explore how rainbows are made