Fernwood Primary and Nursery School

Subject Implementation Overview

Science

Nursery		
Autumn 1	**Spring 1**	**Summer 1**
	UTW- TNW **Winter** What can you see in Winter?	UTW- TNW **Spring and Animals** What animals can you find in Spring? What does a flower need to grow? What did you learn from Green Day? What animals live on a farm? Where in the world do these animals live? What lives in the sea?
Autumn 2	**Spring 2**	**Summer 2**
UTW- TNW **Autumn and Woodland Animals** What can you see in Autumn? What animals can you see in the woodlands? What are bears like? What does night and day look like?	UTW- TNW **Materials** What shall we use to make a strong house? What did find out from Science Day? **Minibeasts** What is the lifecycle of a butterfly?	UTW- TNW **Summer** What can you see in Summer? How can you keep safe in the sun?

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Foundation 2- Reception		
Autumn 1	**Spring 1**	**Summer 1**
	Winter UTW, TNW Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter What can we see on a winter walk? What can we do on cold days? What animals live in cold places?	**Plants** UTW, TNW Explore the natural world around them, making observations and drawing pictures of animals and plants. What do we know about plants? What do plants look like? (link to Art) What do we know about minibeasts? How can we care for the planet? (link to RE)
Autumn 2	**Spring 2**	**Summer 2**
Autumn UTW, TNW: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter What can we see on an autumn walk? What do we know about woodland animals?	**Spring** UTW, TNW Explore the natural world around them, making observations and drawing pictures of animals and plants. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter What can we see on a spring walk? What did we find out in Science week?	**Farm and Summer** UTW, TNW Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. What can we see on the farm? What can we see on a summer walk? What can we do on hot days? What animals live in hot places?

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Y1		
Autumn 1	**Spring 1**	**Summer 1**
Animals including humans (Biology) To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 1. What are the major parts of the body? (2 lessons) 2. What are the 5 senses? (3 short lessons) **Seasons (B, C, P)** To observe changes across the four seasons. To observe and describe weather associated with the seasons and how day length varies. 3. What is the weather like in Autumn in England? (1 lesson) 4. How does the length of day change in Autumn? (1 short lesson)	**Seasons (B, C, P)** To observe changes across the four seasons. To observe and describe weather associated with the seasons and how day length varies. 1. What is the weather like in Winter in England? (1 lesson) 2. What changes happen from Autumn to Winter in England? (1 lesson).	**Plants (Biology)** To identify and describe the structure of a variety of flowering plants, including trees. To identify and name some common wild and garden plants including deciduous and evergreen trees. 1. What are the main parts of a plant? (1 lesson) 2. How are the common garden plants different? (1 lesson) 3. Can you find and name some wild and garden plants? (1 lesson). 4. How are wild plants similar to garden plants? (1 short lesson) 5. What are the main parts of a tree? (1 lesson) 6. Can you describe different types of trees? (1 lessons).
Autumn 2	**Spring 2**	**Summer 2**
Animals including humans (Biology) To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). To identify and name some common animals including fish, amphibians, reptiles, birds and mammals. To identify and name a variety of common animals that are carnivores, herbivores and omnivores. 1. What are the names of some common animals and can you describe them? (2 lessons).	**Seasons (B, C, P)** To observe changes across the four seasons. To observe and describe weather associated with the seasons and how day length varies. 1. What is the weather like in Spring in England? (1 lesson) 2. What are some signs of Spring in England? (1 lesson).	**Materials (Chemistry)** To distinguish between an object and the material from which it is made. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. To describe the simple and physical properties of a variety of everyday materials. To compare and group together a variety of everyday materials on the basis of their simple physical properties. 1. What are these objects made from? (1 lesson)

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2. What makes these animals different? (1 lesson and 1 short lesson). 3. What food does this animal eat? (1 lesson) 4. Name animals that are carnivores, herbivores and omnivores. (1 lesson).		2. What are the properties of these materials? (1 lesson) 3. How can I sort these materials? (1 lesson) **Seasons (B, C, P)** To observe changes across the four seasons. To observe and describe weather associated with the seasons and how day length varies. 4. What is the weather like in Summer in England? (1 lesson)

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Y2		
Autumn 1	**Spring 1**	**Summer 1**
Animals including humans (Biology) To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 1. How can humans stay healthy? (1 lesson) 2. What groups can we put different types of food into? (1 lesson) 3. Can you show a balanced diet meal? (1 lesson).	**Animals including humans (Biology)** To describe the basic needs of animals, including humans, for survival (water, food and air). **Living things and their habitats (Biology)** To explore and compare the differences between things that are living, dead, and things that have never been alive To 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. 1. What do animals need to survive? (1 lesson) 2. How do I know if something is living, dead, or never been alive? (1 lesson). 3. Where do most living things live? (1 lesson)	**Living things and heir habitats (Biology)** To describe how animals obtain their food from plants. To identify and name a variety of plants and animals in their habitats, including micro-habitats. **Plants (Biology)** To observe and describe how seeds and bulbs grow into mature plants. To experiment and describe how plants need water, light and a suitable temperature to grow and stay healthy. 1. How do seeds and bulbs grow into plants? (1 lesson) 2. How do animals get their food from plants? (1 lesson) 3. What will happen to a plant if it is not watered? (1 lesson) 4. Does light affect the growth of a plant? (1 lesson) 5. Does warmth affect the growth of a plant? (1 lesson)
Autumn 2	**Spring 2**	**Summer 2**
Materials (Chemistry) To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	**Animals including humans (Biology)** To know that animals, including humans, have offspring which grow into adults. **Living things and their habitats (Biology)**	**Animals including humans (Biology)** To describe the importance for humans to exercise and keep healthy. 1. What exercise do I do? (1 short lesson) 2. How can exercise keep us healthy? (1 lesson)

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To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 1. Why is this material suitable for the object? (2 lessons) 2. How can you change the shape of some materials? (1 lesson)	To 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. To 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. To identify and name a variety of plants and animals in their habitats, including micro-habitats. 1. What is a food chain? (1 lesson) 2. What is a life cycle? (1 lesson) 3. Why do animals and plants live in certain habitats? (2 lessons) 4. What is a microhabitat? (1 lesson)	

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Y3		
Autumn 1	**Spring 1**	**Summer 1**
Forces and Magnets (Physics) To compare how objects move on different surfaces. To 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. To describe magnets as having two poles. To know that some forces need contact between two objects, but magnetic forces can act at a distance. To observe how magnets attract and repeal each other and attract some materials and not others. To predict whether two magnets will attract or repeal each other, depending on which ways the poles are facing. 1. How do objects move on different surfaces? (1 lesson) 2. Which materials are attracted to a magnet? (1 lesson). 3. How do magnetic poles behave? (1 lesson)	**Animals including humans (Biology)** To know that all animals including humans need the right nutrition, and that they cannot make their own food; they get nutrition from what they eat. To know that humans and some other animals have skeletons and muscles for support, protection and movement. To ask relevant questions/use different types of science enquiries to answer them. Gathering, recording and presenting data in a variety of ways to help answer questions. 1. What is nutrition? (1 lesson) 2. Why is a skeleton important to animals? (1 lesson) 3. Why are muscles important? (1 lesson) 4. Why can some animals jump further than others? (1 lesson)	**Plants (Biology)** To know about the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. To 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. To investigate the way in which water is transported within plants. 1. What are the parts of a plant and their function? (1 lesson) 2. What do plants need to grow? (1 lesson) 3. How is water transported through a plant? (1 lesson)
Autumn 2	**Spring 2**	**Summer 2**
Light (Physics) To know that light is needed in order to see things and that dark is the absence of light. To know that light is reflected from surfaces. To know that shadows are formed when the light from a light source is blocked by an opaque object.	**Rocks and Soils (Chemistry)** To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. To describe in simple terms how fossils are formed when things that have lived are trapped within rock.	**Plants (Biology)** To know the part that flowers play in the life cycle of flowering plants – pollination, seed formation and dispersal. 1. What is pollination? (1 lesson) 2. What is the life cycle of a flowering plant? (1 lesson) 3. How are seeds dispersed? (1 lesson)

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To find patterns in the way that the size of shadows change. To know that light from the sun can be dangerous and that there are ways to protect our eyes. 1. What is darkness? (1 short lesson) 2. What happens when light hits a surface? (1 lesson) 3. How are shadows formed? (1 lesson) 4. How does the position of a light change a shadow? (1 lesson) 5. How can we protect our eyes from the sun? (1lesson)	To know that soils are made from rocks and organic matter. 1. What are fossils? (1 lesson) 2. What are the different types of rock? (1 lesson) 3. Which rock would make the best axe head? (1 lesson) 4. What are soils made of? (1 lesson)	

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Y4		
Autumn 1	**Spring 1**	**Summer 5**
States of matter (Chemistry) To be able to group materials according to whether they are solids, liquids or gases. To observe that some materials change state when heated or cooled. To observe that some materials change state when heated or cooled and measure or research temperatures at which this happens in degrees Celsius. 1. What are solids, liquids and gases? (1 lesson) 2. How do materials change state when they are heated or cooled? (1 lesson) 3. At what temperature does solid chocolate melt? (1 lesson)	**Animals including humans (Biology)** To describe the simple functions of the basic parts of the digestive system in humans. To identify the different types of teeth in humans and their simple functions. 1. What are the parts of the digestive system? (1 lesson) 2. How does the digestive system work? (1 lesson) 3. What are the different types of human teeth and their functions? (1 lesson)	**Living things and their habitats (Biology)** To recognise that living things can be grouped in a variety of ways. To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. To construct and interpret a variety of food chains, identifying producers, predators and prey. To recognise that environments can change and that this can sometimes pose dangers to living things. 1. How can living things be grouped? (1 lesson) 2. How can we use and create classification keys? (2 lessons) 3. What are producers, predators and prey? (1 lesson) 4. How can changing environments endanger living things? (1 lesson)
Autumn 2	**Spring 2**	**Summer 2**
Sound (Physics) To identify how sounds are made, associating some of them with something vibrating. To recognise that vibrations from sounds travel through a medium to the ear. To find patterns between the pitch of a sound and features of the object that produced it. To find patterns between the volume of a sound and the strength of the vibrations that produced it. To recognise that sounds get fainter as the distance from the sound source increases. 1. How are sounds made? (1 lesson) 2. How does sound travel? (1 lesson)	**Electricity (Physics)** To identify common appliances that run on electricity. To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. To know 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 recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.	**States of Matter (Chemistry)** To understand the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 1. What are evaporation and condensation? (1 lesson) 2.What are the stages in the water cycle? (1 lesson) 3. How does temperature affect evaporation? (2 lessons)

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3. Which boom whackers make high sounds and which make low sounds? (1 lesson) 4. How does the strength of the vibrations we make on a drum affect the volume of the sound? (1 lesson) 5.What happens to the volume of a sound as I move further away from the source? (1 lesson)	To recognise some common conductors and insulators, and associate metals with being good conductors. 1. Where is electricity used in real-life situations? (1 lesson) 2. How do you make a simple circuit to light a bulb? (1 lesson) 3. What is a switch and can you design one? (1 lesson) 4. What are conductors and insulators? (1 lesson)	

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Y5		
Autumn 1	**Spring 1**	**Summer 1**
Materials (Chemistry) 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. To give reasons based on evidence from comparative tests for the uses of everyday materials including metals, wood and plastic. To know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. 1. How can I group different materials according to their properties? (1 lesson) 2. Which materials would be most suitable to solve Hiccup's problems and why? (1 lesson) 3. Which substances will dissolve in liquid to form a solution? (1 lesson) 4. How can I separate substances that have been mixed and recover solutes from a solution? (1 lesson)	**Earth and Space (Physics)** To describe the movement of the Earth and other planets, relative to the Sun in the solar system. To describe the movement of the moon relative to the Earth. To describe the sun, Earth and moon as approximately spherical bodies. To use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. 1. What is the order of the planets and how do they move? (1 lesson) 2. How does the moon move? (1 lesson) 3. How do we get day and night? (1 lesson)	**Living Things and Their Habitats (Biology)** To describe the life process of reproduction in some plants and animals. To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. 1.How do plants reproduce? (1 lesson) 2. What is the life cycle of a mammal? (1 lesson) 3. How are life cycles of amphibians and insects different? (1 lesson) 4. What is the life cycle of a bird? (1 lesson)
Autumn 2	**Spring 2**	**Summer 2**
Materials (Chemistry) To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. To demonstrate that dissolving, mixing and changes of state are reversible changes. To 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	**Forces (Physics)** To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. To identify the effects of air resistance, water resistance and friction, that act between moving surfaces.	**Animals including humans (Biology)** To describe the changes as humans develop to old age. To record and present data using a scatter graph. 1. What are the stages of human development? (1 lesson) 2. What are the changes during adolescence? (1 lesson) 3. How do humans change during old age? (1 lesson)

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burning and the action of acid on bicarbonate of soda. 1. What methods can I use to separate mixtures? (1 lesson) 2. What are reversible and irreversible changes? (1 lesson) 3. How can we make reversible and irreversible changes by combining these materials? (1 lesson)	To recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. 1. Why do objects fall to the Earth? (1 lesson) 2. What is air resistance? (1 lesson) 3. What is water resistance? (1 lesson) 4. How do different surfaces affect the level of friction against a moving toy car? (1 lesson) 5. How do levers work? (1 lesson)	4. Are there any patterns between the type of animal and its gestation period? (1 lesson)

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Y6		
Autumn 1	**Spring 1**	**Summer 1**
Light (Physics) To recognise and explore that light appears to travel in straight lines. 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 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 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. To plan a scientific enquiry to answer a question, including recognising and controlling variables where necessary and taking measurements. 1. How does light travel through a periscope to help us see above a table? (1 lesson) 2. How can we see objects? (1 lesson) 3. Why is a shadow the same shape as the object that is casting it? (1 lesson) 4. Which is the best material to make a sun umbrella? (1 lesson)	**Evolution and inheritance (Biology)** 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 recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. To identify scientific evidence that has been used to support or refute ideas or arguments. 1. How do we know that living things have changed over time? (1 lesson) 2. Why are offspring similar, but not identical to, their parents? (1 lesson) 3. Why are animals well-adapted to their environment? (1 lesson) 4. What evidence did Charles Darwin have for the theory of evolution? (1 lesson)	**Animals including humans (Biology)** To identify and name the main parts of the human circulatory system and understand their functions. To identify and name the main parts of the heart. To understand the role of blood and its components. To investigate what happens to the heart when we exercise and why. 1. What are the names and functions of the main parts of the circulatory system? (1 lesson) 2. What are the different parts of the human heart? (1 lesson) 3. What are the functions of our blood and blood vessels? (1 lesson) 4. What happens to our heart rate when we exercise? (2 lessons)
Autumn 2	**Spring 2**	**Summer 2**
Electricity (Physics) To use recognised symbols when representing a simple circuit in a diagram. To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. To compare and give reasons for variations in how components function including the brightness of	**Living things and their habitats (Biology)** To 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. To record data using classification keys. To give reasons for classifying plants and animals based on specific characteristics.	**Animals including humans (Biology)** To recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. To describe the ways nutrients and water are transported within animals, including humans. 1. What effect do drugs have on our bodies? (1 lesson) 2. How can our diet and lifestyle choices impact our bodies? (1 lesson)

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bulbs, the loudness of buzzers and the on/off position of switches. 1. How can I use symbols to represent a simple circuit in a diagram? (1 lesson) 2. How can we alter the brightness of a bulb in a series circuit? (1 lesson) 3. What impact does changing the components in my circuit have on the brightness of the bulb? (2 lessons)	1. How are animals classified? (1 lesson) 2. How do you create a classification key? (1 lesson) 3. How can plants be classified? (1 lesson) 4. Why was Carl Linnaeus a significant scientist? (1 lesson)	3. How are nutrients and water transported around the body? (1 lesson)