Science Medium Term Plan Year A & B

Diamond Class

Blue – Practical scientific methods, processes and transferable scientific skills

Red – Key vocabulary

Differentiation by input **see the weekly planning and activities - ensure SEND pupils' targets are being used to support pupils in every lesson**
-*Key vocab* for each learning objective is in red font
-*Resources* -**see the weekly planning** Ensure the resources extend the context they are learning through and supports their enjoyment of science.
-*Minimum Assessment for Learning strategies* for all topics = Peer Talk; targeted questioning, attainment of transferable skills
- Long term memory development strategies= Recapping pervious learning at the start of each new topic / Long term memory strategy linked to the objectives on this sheet for each week
-Scientific Cultural Capital = Understanding of order in teaching/learning of science in order to build on skills and knowledge

Diamond Year 3 & 4 Year A	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**
Ruby Class EYFS • Communication and Language • Personal, Social and Emotional Development • Understanding the World		Listening, Attention and Understanding Managing Self The Natural World		Make comments about what they have heard and ask questions to clarify their understanding Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. 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 Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.			
Autumn 1 **Animals including humans** N.C. Identify that animals, including humans, need the right types and amount of nutrition; they cannot make their own food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement	N.C. Links: Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Asking relevant questions and using different types of scientific enquiries to answer them. **AMAZING BODIES (Collins)** **What would you need to survive?** L.O. To identify the important things that need to be considered in order to survive Key vocabulary: stay alive, survive, food, protection, shelter, exercise, movement	N.C. Links: Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Identifying differences, similarities or changes related to simple scientific ideas and processes. **AMAZING BODIES (Collins)** **What do we need to eat to stay healthy?** L.O. To classify food and understand a balanced diet Key vocabulary: food, nutrition, balanced diet, nutrients, carbohydrates, protein, fat, roughage (fibre), water, dairy, fruits, vegetables, meat	N.C. Links: Identify that humans and some animals have skeletons and muscles for support, protection and movement Using straightforward scientific evidence to answer questions or to support their findings. **AMAZING BODIES (Collins)** **Why do we have a skeleton?** L.O. To identify the similarities and differences between skeletons and explore their functions Key vocabulary: skeleton, bones, protect, support, move, muscles, joints, ribs, heart, skull, brain, backbone, spine, spinal column, vertebrate, invertebrate	N.C. Links: Identify that humans and some animals have skeletons and muscles for support, protection and movement Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. **AMAZING BODIES (Collins)** **How do muscles help us move?** L.O. To identify different muscles in our body and what they do Key vocabulary: bones, joints, muscles, tendons, pull	N.C. Links: Identify that humans and some animals have skeletons and muscles for support, protection and movement Asking relevant questions and using different types of scientific enquiries to answer them. **AMAZING BODIES (Collins)** **Do our bodies affect how well we can do things?** L.O. To plan a pattern-seeking investigation related to the human body Key vocabulary: taller, shorter, longer, faster, slower, compare, contrast	N.C. Links: Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. **AMAZING BODIES (Collins)** **What food will you need to take to the Arctic?** L.O. To use different sources of information to plan a menu to meet particular dietary needs Key vocabulary: energy, calories, weight	Assessment and review
Autumn 2 **Light** N.C. Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows changes	N.C. Links: Recognise that light is needed in order to see things and that dark is the absence of light Setting up simple practical enquiries, comparative and fair tests. **CAN YOU SEE ME? (Collins)** **What do we need to see?** L.O. To explore how we need light to see things and why some things are easier to see than others Key vocabulary: light, dark, shadow, mirror, bright, dim, reflect, eye	N.C. Links: Notice that light is reflected from surfaces Gathering, recording, classifying and presenting data in a variety of ways. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. **CAN YOU SEE ME? (Collins)** **Which is the shiniest?** L.O. To investigate how different objects reflect different amounts of light **What do mirrors do?** L.O. To explain how a mirror works and describe how images in mirrors may look 'different' Key vocabulary: light, dark, shadow, mirror, bright, dim, reflect, eye, shiny Key vocabulary: light, dark, mirror, bright, dim, eye	N.C. Links: Recognise that we need light in order to see things and that dark is the absence of light, and notice that light is reflected from surfaces Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions **CAN YOU SEE ME? (Collins)** **How can we make things easier to see at night?** L.O. To design and produce reflective strips for night safety Key vocabulary: light, dark, shadow, mirror, bright, dim, reflect, reflective, reflector, eye, shiny	N.C. Links: Recognise that shadows are formed when the light from a light source is blocked by a solid object Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. **CAN YOU SEE ME? (Collins)** **How can I make a shadow?** L.O. To identify how shadows are formed Key vocabulary: light, dark, shadow, bright, dim, reflect, eye, opaque, transparent, translucent	N.C. Links: Find patterns in the way that the size of shadows changes Using straightforward scientific evidence to answer questions or to support their findings. Identifying differences, similarities or changes related to simple scientific ideas and processes. **CAN YOU SEE ME? (Collins)** **How can you change the size and shape of a shadow?** L.O. To identify what affects the shape of a shadow Key vocabulary: light, dark, shadow, bright, dim, reflect, eye, opaque, transparent	N.C. Links: Recognise that light from the sun can be dangerous and that there are ways to protect the eyes Setting up simple practical enquiries, comparative and fair tests; making accurate measurements using standard units, using a range of equipment, for example thermometers and data loggers. **CAN YOU SEE ME? (Collins)** **Are you safe in the sun?** L.O. To know that the damage that excessive sunlight can cause to humans and to explain how they can protect themselves **What makes the best sunglasses?** L.O. To plan and carry out a fair test to identify materials that are good at protecting eyes from strong sunlight Key vocabulary: light, dark, shadow, bright, dim, reflect, eye, opaque, transparent	Assessment and review

Science Medium Term Plan Year A & B

Diamond Class

Blue – Practical scientific methods, processes and transferable scientific skills

Red – Key vocabulary

Spring 1 **Rocks** N.C. Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter	N.C. Links: Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. **ROCK DETECTIVES (Collins)** **What different types of rock are there?** L.O. To examine different rocks in order to describe, compare and contrast their properties Key vocabulary: rock, stone, pebble, sandstone, granite, chalk, limestone, marble, pumice, texture, crystal, granule, properties, rough, smooth, hard, soft	N.C. Links: Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. **ROCK DETECTIVES (Collins)** **Which rock is which?** L.O. To sort rocks according to their properties using a key Key vocabulary: sandstone, granite, chalk, limestone, marble, pumice, rough, smooth, hard, soft, rock, stone, pebble, texture, particle, properties	N.C. Links: Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Using straightforward scientific evidence to answer questions or to support their findings. Setting up simple practical enquiries, comparative and fair tests. **ROCK DETECTIVES (Collins)** **Are all rocks as hard as one another?** L.O. To test and compare rocks to identify which is the hardest **Are all rocks waterproof?** L.O. To find out which rocks are waterproof Key vocabulary: rock names such as granite, marble, sandstone, limestone, chalk, hard clay and so on, soft, softer, softest, hard, harder, hardest, surface, texture absorb, absorption, waterproof, permeable, non-permeable, permeability	N.C. Links: Recognise that soils are made from rocks and organic material Using straightforward scientific evidence to answer questions or to support their findings. **ROCK DETECTIVES (Collins)** **How is soil made?** L.O. To explain that soils are made partly from rock that has broken down into smaller particles and describe some of the properties of different types of soils **Why do some soils hold water?** L.O. To investigate and test different kinds of soils to see how quickly water drains through Key vocabulary: weather, weathering, frost, beach, cliff, rock, stone, pebble, particle, rock names, soil types such as soil, clay, sandy, loam, peat, organic material	N.C. Links: Describe in simple terms how fossils are formed when things that have lived are trapped within rock Identifying differences, similarities or changes related to simple scientific ideas and processes. **ROCK DETECTIVES (Collins)** **What is a fossil anyway?** L.O. To explore fossils to find out what they are **How are fossils formed?** L.O. To explain how fossils came to be formed Key vocabulary: fossil, fossilise, remains, types of fossils such as trilobite, starfish, sea urchin, ammonite	N.C. Links: Describe in simple terms how fossils are formed when things that have lived are trapped within rock Using straightforward scientific evidence to answer questions or to support their findings. **ROCK DETECTIVES (Collins)** **Where and how are fossils found?** L.O. To identify where and how fossils are found Key vocabulary: fossil, fossilise, types of fossil such as trilobite, starfish, sea urchin, ammonite, types of rock	Assessment and review
Spring 2 **Plants** N.C. Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. 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. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	N.C. Links: Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. **HOW DOES YOUR GARDEN GROW? (Collins)** **What do we know about plants?** L.O. To describe what we know about the different parts of plants and to ask questions about plants for further investigation Key vocabulary: plant, roots, stem, trunk, leaf/leaves, flower, function, question	N.C. Links: Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Identifying differences, similarities or changes related to simple scientific ideas and processes. **HOW DOES YOUR GARDEN GROW? (Collins)** **What do we know about leaves?** L.O. To make detailed observations of the similarities and differences in a variety of leaves, and relate these to the function of leaves Key vocabulary: leaf/leaves, features, function, leaflet, stalk, veins, surface, edge, lobes, tip, food, serrations	N.C. Links: Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Gathering, recording, classifying and presenting data. Setting up simple practical enquiries, comparative and fair tests. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. **HOW DOES YOUR GARDEN GROW? (Collins)** **What would happen if a plant lost its leaves, could it survive?** L.O. To plan and set up a fair test investigation to find out the effect of removing the leaves from a growing plant Key vocabulary: investigation, question, fair test, change, measure, leaf/leaves, features, function, leaflet, stalk, veins, surface, edge, lobes, tip, food	N.C. Link: Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Investigate the way in which water is transported within plants Recording findings using simple scientific language. drawings, labelled diagrams, keys, bar charts, and tables. Draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. **HOW DOES YOUR GARDEN GROW? (Collins)** **Where does the water go?** L.O. To explain observations of water being transported in plants and make predictions based on observations **Are all roots the same?** L.O. To describe in detail the similarities and differences in a variety of roots, and to relate these to the function of roots **Why do plants need stems?** L.O. To present information about the functions of the stem Key vocabulary: root, root hair, water, nutrients, anchor, Key vocabulary: root, stem, petals, trunk, predict/prediction, water, nutrients	N.C. Links: Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal Identifying differences, similarities or changes related to simple scientific ideas and processes. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. **HOW DOES YOUR GARDEN GROW? (Collins)** **Where do new plants come from?** L.O. To name the main stages of a flowering plant's life cycle and present them in a sequenced diagram **How are seeds dispersed?** L.O. To demonstrate understanding of methods of seed dispersal by designing a seed Key vocabulary: seed, germination, seedling, growth, mature plant, flowering, pollination, seed Key vocabulary: seed, fruit, dispersal, animal, wind, water and self-dispersal, explosion, sprinkling, fruit	N.C. Links: Describe in simple terms how fossils are formed when things that have lived are trapped within rock Using straightforward scientific evidence to answer questions or to support their findings. **ROCK DETECTIVES (Collins)** **Where and how are fossils found?** L.O. To identify where and how fossils are found Key vocabulary: fossil, fossilise, types of fossil such as trilobite, starfish, sea urchin, ammonite, types of rock NC. Links: Explore the part bees play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. **HOW DOES YOUR GARDEN GROW? (Collins)** **What do bees do?** L.O. To describe and model the process of insect pollination **How can we save bees?** L.O. To determine and explain why bees are important and how we can protect them Key vocabulary: bee, nectar, pollen, pollination, reproduce, sepal, petal, carpel, stamen (anther, filament, stigma, style, ovary for Challenge 3)	Assessment and review

Science Medium Term Plan Year A & B

Diamond Class

Blue – Practical scientific methods, processes and transferable scientific skills

Red – Key vocabulary

Summer 1 **Forces and magnets – The power of forces** Compare how things move on different surfaces. Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	N.C. Links: Notice that some forces need contact between two objects, but magnetic forces can act at a distance Identifying differences, similarities or changes related to simple scientific ideas and processes. **THE POWER OF FORCES (Collins)** **How can you make it start to move?** L.O. To explore how a force is required to make something start to move Key vocabulary: push, pull, twist, force	N.C. Links: Notice that some forces need contact between two objects but magnetic forces can act at a distance Setting up simple practical enquiries, comparative and fair tests. **THE POWER OF FORCES (Collins)** **What's making it move?** L.O. To explore how air can make things move Key vocabulary: push, force, air, turns, fast, slow	N.C. Links: Compare how things move on different surfaces Using straightforward scientific evidence to answer questions or to support their findings. **THE POWER OF FORCES (Collins)** **Why do things slow down?** L.O. To investigate how objects slow down Key vocabulary: twist, force, slows down, material, surface	N.C. Links: Compare how things move on different surfaces Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. **THE POWER OF FORCES (Collins)** **How well can an object slide on different materials?** L.O. To explore how objects move on different materials Key vocabulary: push, force, material, surface	N.C. Links: Notice that some forces need contact between two objects, but magnetic forces can act at a distance Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. **THE POWER OF FORCES (Collins)** **What can magnets do?** L.O. To measure the strength of a magnet in different ways Key vocabulary: magnet, attracts, magnetic material, non-magnetic material, metal, non-meta	Assessment and review	Assessment and review
Summer 2 **Forces and magnets – The power of forces** Observe how magnets attract or repel each other and attract some materials and not others. 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 describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing	N.C. Links: 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 Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. **THE POWER OF FORCES (Collins)** **Which materials are magnetic?** L.O. To explore which materials are magnetic Key vocabulary: magnet, attracts, magnetic material, non-magnetic material, metal, non-metal	N.C. Links: Observe how magnets attract or repel each other and attract some materials and not others Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions **THE POWER OF FORCES (Collins)** **How strong are the magnets?** L.O. To carry out an investigation comparing the strength of different magnets Key vocabulary: strength, magnet, attract, magnetic	N.C. Links: Observe how magnets attract or repel each other and attract some materials and not others; describe magnets as having two poles; predict whether two magnets will attract or repel each other, depending on which poles are facing Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. **THE POWER OF FORCES (Collins)** **How do magnets affect each other?** L.O. To identify the two poles on a magnet and investigate how magnets attract or repel each other Key vocabulary: north pole, south pole, attract, repel, magnet	N.C. Links: Notice that some forces need contact between two objects, but magnetic forces can act at a distance Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. **THE POWER OF FORCES (Collins)** **How fast can you complete a lap?** L.O. To compare magnetic forces to work out the best magnet and object combination for the fastest lap time Key vocabulary: magnet, attracts, magnetic material, magnetism, force, acts at a distance, lap	Assessment and review	Assessment and review of years' work	

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

- Collins is the scheme of work followed but other resources can be used to supplement and complement the planning process and learning objectives

Science Enrichment activities – Science Week

Outdoor learning

Science Medium Term Plan Year A & B

Blue – Practical scientific methods, processes and transferable scientific skills

Red – Key vocabulary

Diamond Class

Differentiation by input see the weekly planning and activities - ensure SEND pupils' targets are being used to support pupils in every lesson
-Key vocab for each learning objective is in red font
-Resources -see the weekly planning Ensure the resources extend the context they are learning through and supports their enjoyment of science.
-Minimum Assessment for Learning strategies for all topics = Peer Talk; targeted questioning, attainment of transferable skills
- Long term memory development strategies= Recapping pervious learning at the start of each new topic / Long term memory strategy linked to the objectives on this sheet for each week
-Scientific Cultural Capital = Understanding of order in teaching/learning of science in order to build on skills and knowledge

Diamond Year 3 & 4 Year B	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Ruby Class EYFS • Communication and Language • Personal, Social and Emotional Development • Understanding the World		Listening, Attention and Understanding Managing Self The Natural World		Make comments about what they have heard and ask questions to clarify their understanding Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. 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 Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.			
Autumn 1 **Living things and their habitats** 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	N.C. Links: Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Making systematic and careful observations. They should choose the challenge based on previous experience of using keys. Challenge children who can use keys easily to make one of their own **WHO AM I? (Collins)** **Who are you?** L.O. To identify pond/seashore animals using a key Key vocabulary: sort, classify, identify, features, sequence, key, distinguish, observations, vocabulary to describe features appropriate for the collection of animals to be identified	N.C. Links: Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Making systematic and careful observations and recording findings using diagrams or keys **WHO AM I? (Collins)** **Who lives here?** L.O. To use yes/no questions to sort animals found in a water habitat Key vocabulary: sort, classify, identify, features, sequence, key, distinguish, similarities, differences, observations	N.C. Links: Recognise that living things can be grouped in a variety of ways Grouping and classifying Identifying differences, similarities or changes related to simple scientific ideas and processes **WHO AM I? (Collins)** **How are vertebrates grouped?** L.O. To classify vertebrates into groups using their key characteristics Key vocabulary: vertebrate, fish, amphibian, reptile, bird, mammal, backbone, hair, scales, feathers, eggs, wings, beak, lungs, gills, cold blooded, warm blooded, suckle, sort, group, classify	N.C. Recognise that living things can be grouped in a variety of ways Identifying differences, similarities or changes related to simple scientific ideas and processes. Grouping and classifying **WHO AM I (Collins)** **How are invertebrates grouped?** L.O. To recognise characteristics of some of the main invertebrate groups Key vocabulary: sort, group, classify, features, observations, key, distinguish, head, thorax, abdomen, wing, segment, antennae, insects, arachnids (spiders), crustaceans, myriapods, molluscs, worms	N.C. Links: Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables **OUR CHANGING WORLD (Collins)** **How can we classify trees by looking at their leaves?** L.O. To make observations of leaves in order to classify them **SEE: Additional teacher materials Our Changing World diary** Visit 1 Key vocabulary: stalk, simple and compound leaves, leaflet, leaf edge (entire, lobed, toothed, wavy), leaf arrangement (alternate, opposite, whorled) **Lesson to be carried out over two weeks to allow time for outdoor learning/investigation as part of transition**	N.C. Links: Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables **OUR CHANGING WORLD (Collins)** **How can we classify trees by looking at their leaves?** L.O. To make observations of leaves in order to classify them **SEE: Additional teacher materials Our Changing World diary** Visit 1 Key vocabulary: stalk, simple and compound leaves, leaflet, leaf edge (entire, lobed, toothed, wavy), leaf arrangement (alternate, opposite, whorled) >>>>>>>>>>>>>>>>>>>>>>>>	Assessment and review
Autumn 2 **Animals including humans** N.C. 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	N.C. Links: Identify that animals, including humans, need the right type and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat Asking relevant questions **WHERE DOES ALL THE FOOD GO? (Collins)** **What do we know about food?** L.O. To share what we know about food and nutrition and to ask questions about what happens to food after it has been eaten	N.C. Links: Describe the simple functions of the basic parts of the digestive system in humans. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions **WHERE DOES ALL THE FOOD GO? (Collins)** **Where does the food go inside your body?** L.O. To investigate where our food goes after it has been eaten Key vocabulary: mouth, oesophagus, stomach, small intestine, large intestine, rectum, anus, digestive system, digestion	N.C. Links: Identify the different types of teeth in humans and their simple functions Making systematic and careful observations Using straightforward scientific evidence to answer questions or to support their findings **WHERE DOES ALL THE FOOD GO? (Collins)** **What sort of teeth do we have?** L.O. To identify the different teeth that humans have **Why do we have different types of teeth?**	N.C. Links: Construct and interpret a variety of food chains, identifying producers, predators and prey. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identifying differences, similarities or changes related to simple scientific ideas and processes. **WHERE DOES ALL THE FOOD GO? (Collins)** **What do animals eat?** L.O. To construct food chains and webs for a particular habitat.	N.C. Links: Describe the simple functions of the basic parts of the digestive system in humans. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. **WHERE DOES ALL THE FOOD GO? (Collins)** **How is food broken down?** L.O To describe how food is broken down in the digestive system. **How can we model the digestive system?** L.O. To use a model to demonstrate the digestive system.	N.C. Links: Identify the different types of teeth in humans and their simple functions. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Setting up simple practical enquiries, comparative and fair tests. **WHERE DOES ALL THE FOOD GO? (Collins)** **How good is toothpaste?** L.O. To investigate the function of toothpaste and compare different types	Assessment and review

Science Medium Term Plan Year A & B

Diamond Class

Blue – Practical scientific methods, processes and transferable scientific skills

Red – Key vocabulary

	Key vocabulary: carbohydrate, fat, sugar, protein, roughage, dairy, fruit, vegetables, vitamins, minerals, balanced diet, healthy		L.O. To identify the different types teeth that humans have and understand their functions **How can we look after our teeth?** L.O. To recognise how to look after our teeth and explain its importance Key vocabulary: teeth, canine, incisor, premolar, molar, jaw, cutting, tearing, grinding, dental hygiene, decay, dentist, brushing, toothpaste, floss, mouthwash	**What do animals' teeth tell us?** L.O. To construct food chains for some animals living in the African grasslands Key vocabulary: food, plants, animals, food chain, food web, producer, consumer, predator, prey, energy, herbivore, omnivore, carnivore	Key vocabulary: mechanical process, chemical process, absorb, nutrients, water, saliva, chemicals, enzyme, mouth, oesophagus, stomach, small intestine, large intestine, rectum, anus, digestion, digestive system,	**Can we make good toothpaste?** L.O. To compare different toothpastes Key vocabulary: teeth, toothpaste	
Spring 1 **States of matter** N.C. 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	N.C. Links: Compare and group materials together according to whether they are solids, liquids or gases. Identifying differences, similarities or changes related to simple scientific ideas and processes. **IN A STATE (Collins)** **What are my properties?** L.O. To classify materials as solids or liquids by observing their properties Key vocabulary: solid, liquid, hard, soft, pour, flow, pile, pool, surface, horizontal, runny, viscous, transparent, opaque, sticky, grain, powder, force	N.C. Links: 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. Setting up simple practical enquiries, comparative and fair tests. Identifying differences, similarities or changes related to simple scientific ideas and processes. **IN A STATE (Collins)** **What happens to the ice hands?** L.O. To plan a fair test investigation to test ideas about melting ice **What makes a difference to how fast ice melts?** L.O. To collect, present and interpret data about melting ice **What are melting and freezing?** L.O. To define melting and freezing Key vocabulary: ice, water, melt, observe, measure, fair test, variable, shape, size, temperature, interpret, data, time, shape, size, fair, variable, axis, scale, interval, solid, liquid, freeze, freezing, solidify, solidifying, heating, cooling, states of matter, change of state, melting point, freezing point, process	N.C. Links: Compare and group materials together according to whether they are solids, liquids or gases. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. **IN A STATE (Collins)** **Are spaces really empty?** L.O. To explain observations of air using scientific knowledge about materials Key vocabulary: gas, air, carbon dioxide, helium, oxygen, bubbles, empty	N.C. Links: Compare and group materials together according to whether they are solids, liquids or gases. Identifying differences, similarities or changes related to simple scientific ideas and processes. **IN A STATE (Collins)** **What state am I in?** L.O. To classify materials as solids, liquids or gases Key vocabulary: states of matter, solid, liquid, gas, particle, weight, compress, squash, ice, water, air, shape, volume	N.C. Links: Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. N.C. Link: 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. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. **IN A STATE (Collins)** **What is evaporation?** **L.O.** To describe and explain findings from an evaporation investigation **What is boiling?** L.O. To identify different materials from their boiling point Key vocabulary: temperature, cool, warm, hot, wind, wetness (amount of water), evaporate, evaporation, water vapour, air, change of state, describe, explain, evaluate, reliable, boil, boiling, boiling point, steam, liquid, gas,	N.C. Links: 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. N.C. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Identifying differences, similarities or changes related to simple scientific ideas and processes. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables **IN A STATE (Collins)** **Where did the water come from?** L.O. To identify where condensation is happening **Where does rain come from?** L.O. To use a labelled diagram to answer the question: Where does rain comes from? Key vocabulary: Boil, water, droplets, steam, temperature, heat, cool, evaporation, water vapour, condense, condensation, change of state, process, evidence, annotate	N.C. Links: Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Looking for patterns. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions **OUR CHANGING WORLD (Collins)** **How can we classify and identify deciduous trees in winter?** L.O. To look for similarities and differences between deciduous trees **SEE: Additional teacher materials** **Our Changing World diary** Visit 2 Key vocabulary: bud, twig, tree shape, leaf skeleton, vein pattern
Spring 2 **Sound** N.C. Identify how sounds are made, associating some of them with something vibrating Recognise that vibrations from sounds 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	N. C. Links: Identify how sounds are made, associating some of them with something vibrating Identifying differences, similarities or changes related to simple scientific ideas and processes **GOOD VIBRATIONS (Collins)** **What do we know about sounds?** L.O. To describe what we know about sounds Key vocabulary: loud, quiet, high, low, repeating, continuous	N.C. Links: Identify how sounds are made, associating some of them with something vibrating Carry out simple comparative and fair tests. Recording findings using drawings and labelled diagrams **GOOD VIBRATIONS (Collins)** **How are sounds made?** L.O. To explore different ways of making sounds **How can we make the best string telephone?** L.O. To investigate how to make the best string telephone Key vocabulary: strike, blow, shake, pluck, vibration, vibrate, travels,	N.C. Links: Recognise that vibrations from sounds travel through a medium to the ear Carrying out simple comparative and fair tests **GOOD VIBRATIONS (Collins)** **How do sounds travel?** L.O. To investigate how sounds travel Key vocabulary: vibration, vibrate, solid, air, particles	N.C. Links: Find patterns between the volume of a sound and the strength of the vibrations that produced it Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions diagrams. Noticing patterns **How can we make a sound louder and quieter?** L.O. To explore how we can make instruments louder and quieter **How can we change the pitch of a plucked note?** L.O. To explore the different notes that plucked bands make and discover how to alter the pitch of a sound Key vocabulary: vibration, vibrate, volume, strength of vibrations, pitch, high, low, taut, tautness, stretch, tighten	**N.C. Links**: Recognise that sounds get fainter as the distance from the sound source increases To carry out simple comparative and fair tests **GOOD VIBRATIONS (Collins)** **How do sounds change as we move away from the source?** L.O. To measure how the loudness of a sound changes as the distance from the source increases Key vocabulary: sound, sound source, fainter, distance	N.C. Links: Find patterns between the pitch of a sound and features of the object that produced it Reporting on findings from enquiries, including oral and written explanations **GOOD VIBRATIONS (Collins)** **How can we use air to make music?** L.O. To explore how we can change the pitch of instruments that are played using air Key vocabulary: vibration, vibrate, pitch, high, low	N.**C. L**inks: Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. **OUR CHANGING WORLD (Collins)** **How can we classify plants by looking at their flowers?** L.O. To make observations of flowers that appear at different times of the year and to classify and identify them **SEE: Additional teacher materials** **Our Changing World diary**

Science Medium Term Plan Year A & B

Diamond Class

Blue – Practical scientific methods, processes and transferable scientific skills

Red – Key vocabulary

							Key vocabulary: flower, blossom, petal, classification key
Summer 1 **Electricity** N.C. 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	N.C. Links: Identify common appliances that run on electricity Identifying differences, similarities or changes related to simple scientific ideas and processes **SWITCHED ON (Collins)** **What makes it work?** L.O. To sort electrical products according to their power source Key vocabulary: electricity, electrical, mains, plugged in, battery, power, sets, rechargeable, solar, wind up, sound, light, heat, movement	National curriculum links: Construct a simple series electrical circuit, explain how it works; identifying and naming its basic parts, including cells, wire, bulbs, switches and buzzers. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables **SWITCHED ON (Collins)** **Can you light the bulb?** L.O. To make and record electric circuits **How does a circuit work?** L.O. Identify whether or not a lamp will light in a simple series circuit, based on whether a lamp is part of a complete loop with a battery Key vocabulary: cell, wire, bulb, bulb holder, circuit, buzzer, motor, complete, break, metal, component, short circuit, terminal, connect, disconnect, component, terminal, positive, negative, electron, model	N.C. Links: Identify whether or not a lamp will light in a simple series circuit, based on whether a 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 Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables **SWITCHED ON (Collins)** **Why doesn't it work?** L.O. To identify and correct problems with circuits **What does a switch do?** L.O. To describe what a switch does and how it works Key vocabulary: cell, wire, bulb, bulb holder, circuit, buzzer, motor, complete, break, metal, component, short circuit, terminal connect, disconnect, flow, electricity, circuit, complete, press switch, toggle switch	N.C. Links: Recognise some common conductors and insulators and associate metals with being good conductors Setting up simple practical enquiries and recording, classifying and presenting data in a variety of ways to help answer questions **SWITCHED ON (Collins)** **What can we use instead of wires?** L.O. To sort materials by testing for a property that makes them suited to replace a wire in a circuit **What types of material conduct electricity?** L.O. To strengthen a conclusion about materials that are good conductors of electricity by obtaining more evidence Key vocabulary: cell, bulb, wires, complete circuit, short circuit, fl ow, property, electrical conductor, electrical insulator, names of materials to be tested, table, Venn diagram, Carroll diagram	N.C. Links: Recognise some common conductors and insulators and associate metals with being good conductors Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions **SWITCHED ON (Collins)** **How are electrical conductors and insulators used?** L.O. To investigate the link between a material's properties (conductor or insulator) and its use Key vocabulary: circuit, contacts, complete, break, make, electrical conductor, electrical insulator, tilt switch, pendulum switch	N.C. Links: All National Curriculum statutory requirements Using straightforward scientific evidence to answer questions or to support their findings **SWITCHED ON (Collins)** **What do we now know about electricity?** L.O. To produce a piece of information writing about electricity Key vocabulary: Display all key vocabulary words used so far in the unit	Assessment and review
Summer 2 **Living things and their habitats** N.C. Recognise that environments can change and that this can sometimes pose dangers to living things (Make links with Art and design)	N.C. Links: Recognise that environments can change and that these changes can sometimes pose dangers to living things Identifying differences, similarities or changes related to simple scientific ideas and processes **HUMAN IMPACT (Collins)** **What impact do humans have locally?** L.O. To give examples of positive and negative ways in which humans change the environment Key vocabulary: environment, impact, positive, negative, litter, pollution, biodiversity, ecosystem, habitat, derelict, graffiti, traffic, destroy, create	N.C. Links: Recognise that environments can change and that these changes can sometimes pose dangers to living things. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions **HUMAN IMPACT (Collins)** **How can we find out about litter?** L.O. To plan a litter survey **Why does clearing litter matter?** To research and present information about the impact of litter on animals Key vocabulary: impact, positive, negative, litter, pollution, waste, category, names of materials and items of litter, location, environment, impact, litter, categories, tally chart, pictogram, bar chart, axes, scale	N.C. Links: Recognise that environments can change and that these changes can sometimes pose dangers to living things Gathering, recording, classifying and presenting data in a variety of ways to help answer questions **HUMAN IMPACT (Collins)** **What types of litter are dropped locally?** To carry out a litter survey, collecting and presenting data Key vocabulary: environment, impact, litter, categories, tally chart, pictogram, bar chart, axes, scale	N.C. Links: Recognise that environments can change and that these changes can sometimes pose dangers to living things. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions; using straightforward scientific evidence to answer questions to support findings **HUMAN IMPACT (Collins)** **What happens when a food chain is broken?** L.O. To demonstrate understanding of the potential human impact on food chains in a UK habitat Key vocabulary: food chain, producer, consumer, human impact, habitat,	N.C. Links: Recognise that environments can change and that these changes can sometimes pose dangers to living things Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions; using straightforward scientific evidence to answer questions to support their findings **HUMAN IMPACT (Collins)** **What is the impact of habitat destruction in other parts of the world?** L.O. Demonstrate an understanding of human impact on food chains and habitats in another part of the world Key vocabulary: habitat, global issue, destruction, deforestation, rainforest, pollution, climate change, food chain, producer, consumer, human impact	N.C. Links: Recognise that environments can change and that these changes can sometimes pose dangers to living things. Finding things out using secondary sources of information Recognising statements that do and do not support an argument. **HUMAN IMPACT (Collins)** **What do zoos do?** L.O. To understand arguments for and against keeping animals in zoos **Should we have zoos?** L.O. To present and compare ideas and evidence about whether we should keep animals in zoos Key vocabulary: zoo, habitat, endangered, breed, wild, natural, climate, predator, opinion, point of view, argument, conservation, viewpoint, debate	Assessment and review

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

Science Medium Term Plan Year A & B

Diamond Class

Blue – Practical scientific methods, processes and transferable scientific skills

Red – Key vocabulary

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Collins is the scheme of work followed but other resources can be used to supplement and complement the planning process and learning objectives

Lessons highlighted in green are lessons which include observation of trees/living things over time

Science Enrichment Activities –

- Science Week
- Outdoor learning