LONG TERM PLAN SCIENCE KEY STAGE TWO - TWO YEAR CYCLE FOR– 1/2 MIXED AGE GROUPS (R/1 & 1/2)

NB:

1. Teachers should teach topics in the order that links well with other areas, or as stand-alone units if there is no suitable link. So you may want to move the units around within a year...
2. One topic does not equal one half term - length of time should be adjusted to assessed need.

Begin each unit with assessment using AFL resources - such as **Explore, Engage and Extend (KS2)** or **Concept Cartoons** - to help you work out where to spend more or less time on a concept, your sequence of learning.

3. In brackets I have put the original year group where the descriptor occurs in National Curriculum so that you can search for supporting materials. A great starting point is to look at **www.planassessment.com** **/** **www.stem.org.uk** **/** https://explorify.wellcome.ac.uk/login
4. Review this long-term plan regularly as it will need adjusting over time.

WORKING SCIENTIFICALLY

Working Scientifically is at the heart of science and should be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. It should not be taught as a separate strand. There are five different types of scientific enquiry: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.

As the class is a mixed aged group – teachers should use the following working scientifically guidance to help them differentiate or meet the needs of all learners; to give support where needed or provide challenge. The aim is that all learners become independent scientists with the necessary skills to follow an enquiry for themselves….

Every lesson should have an element of working scientifically and a key idea or concept which the children uncover and explore through one of the types of enquiry. The enquiry type is determined by the question. You will notice that there are five topics per year to work through… this also allows time for children to ask and answer their own questions, for teachers to return to previous learning and to explore things that your class becomes interested in e.g.: plastic pollution, new species of animals being discovered or science in the news.

		KS1		Lower KS2		Upper KS2	
		Y1	Y2	Y3	Y4	Y5	Y6
Working Scientifically	Approaches to enquiry	***Children should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions****, including (1) observing changes over a period of time, (2) noticing patterns, (3) grouping and classifying things, (4) carrying out simple comparative tests and (5) finding things out using secondary sources of information.*		***Children should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them****, including (1) observing changes over time, (2) noticing patterns, (3) grouping and classifying things, (4) carrying out simple fair tests and (5) finding things out using secondary sources of information.*		***Children should select the most appropriate ways to answer science questions using different types of scientific enquiry****, including (1) observing changes over different periods of time, (2) noticing patterns, (3) grouping and classifying things, (4) carrying out fair tests and (5) finding things out using a wide range of secondary sources of information.*	
	Planning	• asking simple questions and recognising that they can be answered in different ways		• asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests		• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	
	Observing	• observing closely, using simple equipment • performing simple tests • identifying and classifying		• making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers		• taking measurements, using a range of scientific equipment with increasing accuracy and precision, taking repeat readings when appropriate	
	Recording	• gathering and recording data to help in answering questions		• 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		• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	
	Concluding	• using their observations and ideas to suggest answers to questions		• reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings		• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	
	Evaluating			• using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions.		• using test results to make predictions to set up further comparative and fair tests. • identifying scientific evidence that has been used to support or refute ideas or arguments	

YEAR A	YEAR B
Seasonal change & plants are woven in across the year to be relevant and at that moment. Built into and explored within Science, forest school, English & art lessons. Working scientifically will also be threaded through lessons through the terms.	Seasonal change & plants are woven in across the year to be relevant and at that moment. Built into and explored within Science, forest school, English & art lessons. Working scientifically will also be threaded through lessons through the terms.
AUTUMN TERM: ANIMALS (Inc. HUMANS)	AUTUMN TERM: ANIMALS - (SPECIFIC HUMAN FOCUS)
• Identify and name a variety of common animals including amphibians, reptiles, and mammals. • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (amphibians, reptiles, and mammals, including pets). • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Yr2) •Observe and describe weather associated with the seasons and how day length varies. • Observe, identify and record seasonal change connected to plants, trees etc.	• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (yr2) • Food groups. Human part of animals Inc. humans. • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Yr2) • Notice that animals, including humans, have offspring which grow into adults, including a basic human life cycle and key characteristics of at each stage (yr2) • Observe and describe weather associated with the seasons and how day length varies. • Observe, identify and record seasonal change connected to plants, trees etc.
<u>Also included within forest school:</u> Identify and classify a variety of common plants and animals, seasonal change, describe the weather, name, describe and change the shape of different materials, life cycles, habitats.	<u>Also included within forest school:</u> Identify and classify a variety of common plants and animals, seasonal change, describe the weather, name, describe and change the shape of different materials, life cycles, habitats.
SPRING TERM: EVERYDAY MATERIALS & USES OF EVERYDAY MATERIALS	SPRING TERM: EVERYDAY MATERIALS & USES OF EVERYDAY MATERIALS
• Distinguish between an object and the material from which it is made. • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. • Describe the simple physical properties of a variety of everyday materials. •Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Yr2) •Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Yr2) Plus (as season relevant):	• Compare and group together a variety of everyday materials on the basis of their simple physical properties. • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (yr2) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (y2) <u>RECAP of these built into lessons:</u> • Distinguish between an object and the material from which it is made. • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.

•Observe and describe weather associated with the seasons and how day length varies. • Observe, identify and record seasonal change connected to plants, trees etc. • Notice that animals, including humans, have offspring which grow into adults. (yr2) (in RE and EYFS too) R/1 Chicks, 1/2 tadpoles	• Describe the simple physical properties of a variety of everyday materials. Plus (as season relevant): •Observe and describe weather associated with the seasons and how day length varies. • Observe, identify and record seasonal change connected to plants, trees etc.
<u>Also included within forest school:</u> Explore the differences between things that are living, dead or have never been alive, observe the growth of seeds and bulbs, discover what a plant needs to grow, seasonal change, describe the weather.	<u>Also included within forest school:</u> Explore the differences between things that are living, dead or have never been alive, observe the growth of seeds and bulbs, discover what a plant needs to grow, seasonal change, describe the weather.
SUMMER TERM: ANIMALS (Inc. HUMANS)	SUMMER TERM: LIVING THINGS AND HABITATS
•Identify and name a variety of common animals, fish and birds. (water-based mammals yr1/2) • Describe and compare the structure of a variety of common animals (fish and birds). • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Human part of animals Inc. humans. • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Yr2) • Notice that animals, including humans, have offspring which grow into adults. (yr2) Plus (as season relevant): •Observe and describe weather associated with the seasons and how day length varies. • Observe, identify and record seasonal change connected to plants, trees etc. Observe and describe how seeds and bulbs grow into mature plants. (yr2) • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (yr2)	• explore and compare the differences between things that are living, dead, and things that have never been alive • 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 • identify and name a variety of plants and animals in their habitats, including micro-habitats • 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. Observe and describe how seeds and bulbs grow into mature plants. (yr2) • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (yr2) Plus (as season relevant): •Observe and describe weather associated with the seasons and how day length varies. • Observe, identify and record seasonal change connected to plants, trees etc.
<u>Also included within forest school:</u> Seasonal change, describe the weather, describe the basic structure of a flowering plant, identify habitats, life cycle, habitats.	<u>Also included within forest school:</u> Seasonal change, describe the weather, describe the basic structure of a flowering plant, identify habitats, life cycle, habitats.