Science Framework - Milestone 2

Intent		
• The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. •Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations. • Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings. • High levels of originality, imagination or innovation in the application of skills. • The ability to undertake practical work in a variety of contexts, including fieldwork. • A passion for science and its application in past, present and future technologies.		
Threshold Concepts	**Skills**	
Work scientifically This concept involves learning the methodologies of the discipline of science.		• Ask relevant questions. • Set up simple, practical enquiries and comparative and fair tests. • Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers. • Gather, record, classify and present data in a variety of ways to help in answering questions. • Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Identify differences, similarities or changes related to simple, scientific ideas and processes. • Use straightforward, scientific evidence to answer questions or to support their findings.
Biology		• Identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers.

Understand plants This concept involves becoming familiar with different types of plants, their structure and reproduction.		• 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 role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
Understand animals and humans This concept involves becoming familiar with different types of animals, humans and the life processes they share.		• Identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat. • Construct and interpret a variety of food chains, identifying producers, predators and prey. • Identify that humans and some animals have skeletons and muscles for support, protection and movement. • 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.
Investigate living things This concept involves becoming familiar with a wider range of living things, including insects and understanding life processes.		• Recognise that living things can be grouped in a variety of ways. • Explore and use classification keys. • Recognise that environments can change and that this can sometimes pose dangers to specific habitats.
Understand evolution and		• Identify how plants and animals, including humans, resemble their parents in many features.

inheritance This concept involves understanding that organisms come into existence, adapt, change and evolve and become extinct.		• Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • Identify how animals and plants are suited to and adapt to their environment in different ways.
Chemistry - Investigate materials This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed.		**Rocks and Soils** • Compare and group together different kinds of rocks on the basis of their simple, physical properties. • Relate the simple physical properties of some rocks to their formation (igneous or sedimentary). • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. • Recognise that soils are made from rocks and organic matter**.** **States of Matter** • Compare and group materials together, according to whether they are solids, liquids or gases. • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
Physics **Understand movement, forces and magnets** This concept involves understanding what causes motion.		**Forces** • Compare how things move on different surfaces. • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. **Magnets** • 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 two poles. • Predict whether two magnets will attract or repel each other, depending on which poles are facing.
Understand light and seeing This concept involves understanding how light and reflection affect sight.		• 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 a solid object. • Find patterns in the way that the size of shadows change.
Investigate sound and hearing This concept involves understanding how sound is produced, how it travels and how it is heard.		• Identify how sounds are made, associating some of them with something vibrating. • Recognise that vibrations from sounds travel through a medium to the ear.
Understand electrical circuits This concept involves understanding circuits and their role in electrical applications.		• 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.
Understand the		• *Describe the movement of the Earth relative to the Sun in the solar*

Earth's movement in space This concept involves understanding what causes seasonal changes, day and night.		*system.* • *Describe the movement of the Moon relative to the Earth.*