What is Science?

Why is Science important to you?

Year	Overview of Science Topics				
Nursery	Animals and humans, Living things and their habitats, Plants, Material changes, Electricity, Light, Forces and Sound				
Reception	Animals and humans, Living things and their habitats, Material changes, Light, Seasonal Changes, Forces and Sound				
Year 1	Use of everyday Materials	Animals including Humans	Seasonal Change	Plants	
Year 2	Use of Everyday Materials	Animals including Humans	Living things and their habitats	Plants	
Year 3	Animals including Humans	Light	Forces and magnets	Plants	Rocks
Year 4	Electricity	States of matter	Sound	Living things and their habitats	Animals including Humans
Year 5	Earth and Space	Animals including Humans	Properties and changes of materials	All living things and their habitats	Forces
Year 6	Evolution and inheritance	Electricity	Animals including Humans	Light	Living things and their habitats

Hamworthy Primary Schools- Science Lesson Plan

Science Plan	Year Group:	Topic:	
National Curriculum Objective:	Term:	Vocabulary:	
Lesson Plan: Date:	**Whole Class Practice**	**Independent Task**	**Plenary/ Recap of Learning**
Key Question: What will we know? What will we remember: Working scientifically: Enquiry:	Prior Learning (Review and recap) I do We do You do: Knowledge check: I do:	Apply: Deepening task:	Reflect and review:

How many different ways can we work scientifically?

Hamworthy Primary Schools- Science Progression Document:

Our Intent

As scientists, our children learn to be curious about the world around them. They are taught and encouraged to pose questions and think about how they can investigate it to find an answer. The children will enjoy a range of theoretical and practical learning across all the areas of science they cover. Science is one of the most exciting and practical subjects and, as a result, is a real joy to teach. Children love the chance to learn through being totally hands-on and finding things out for themselves.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year6
Plants	Children should know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.	To understand plants Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants (seeds, roots etc), including trees.	To understand plants To observe and know how seeds and bulbs grow into mature plants To find out and describe how plants need water, light and suitable temperature to grow and stay healthy	To understand plants Identify, know and describe the functions of different parts of flowering plants: roots, stem/truck, leaves and flowers Explore and know 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 and understand 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.			
Animals and Humans		To understand animals and humans	To understand animals and humans	To understand animals, including humans	To understand animals and humans	Animals, including humans	Animals, including humans
		identify and name a variety of common animals including fish, amphibians, reptiles, birds 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 (fish, amphibians, reptiles, birds and mammals, including pets)	To know that animals, including humans, have offspring which grow into adults To know and describe the basic needs of animals, including humans, for survival (water, food and air) Know and describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	To identify and know 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 Identify and know 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. Construct and interpret a variety of food chains, identifying producers, predators and prey.	To describe the changes as humans develop to old age	identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans.
		Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.					
Living Things			To investigate living things		To investigate living things Identify and name a variety of living	All living things and their habitats	Living things and their habitats

			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 microhabitats 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.		things (plants and animals) in the local and wider environment. Give reasons for classifying plants and animals based on specific characteristics. Recognise that environments are constantly changing and that this can sometimes pose dangers to specific habitats.	To know and describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	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 Give reasons for classifying plants and animals based on specific characteristics.
<u>Evolution</u>							<u>Evolution and inheritance</u> recognise that living things have changed over time and that fossils provide information about living things that

							inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Materials including rocks		<u>To investigate everyday materials</u> To know how to 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 To be able to describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials based on their simple physical properties.	<u>To investigate everyday materials</u> Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Identify and compare and know the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard	<u>Rocks</u> 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 soil are made from rocks and organic matter	<u>To investigate materials</u> (States of Matter) 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 the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics. Identify the part played by evaporation and	<u>Properties and changes of materials</u> 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 Know that some materials will dissolve in liquid to Form a solution, and describe how to recover a substance from a solution Use knowledge of	

					condensation in the water cycle and associate the rate of evaporation with temperature.	solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes 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 burning and the action of acid on bicarbonate of soda.	
Light				<u>To investigate light</u> Recognise that they need light in order to see things and that dark is absence of light Notice that light is reflected from surfaces			<u>Light</u> recognise that light appears to travel in straight lines 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

				Recognise that light from the sun can be dangerous and that there are ways to protect the eyes. Recognise that shadows are formed when light from a light source is blocked by a solid object Find patterns in the way that the size of shadows change			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 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
Electricity					<u>To understand electrical circuits</u> 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		<u>Electricity</u> associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches use recognised symbols when representing a simple circuit in a diagram.

					lamp lights in a simple series circuit. Recognise some common conductors and insulators and associate metals with being good conductors.		
Earth & Space						Earth and space Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky.	
Seasonal Changes		To understand seasonal changes Observe and talk about changes across the four seasons Observe and describe weather associated with the					

		seasons and how day length varies, including understanding that it is unsafe to look directly at the Sun.					
Sound					<u>To investigate sound and hearing</u> 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 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's source increases.		
Forces & Magnets				<u>Forces and magnets</u>		<u>Forces and Magnets</u> **explain that unsupported objects fall towards the Earth because of the**	

				compare how things move on different surfaces notice that some forces need contact between 2 objects, but magnetic forces can act at a distance 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.		force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	

Hamworthy Primary Schools

Working Scientifically: Progression of Knowledge

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ask and Answer Questions	Raise questions about the world around them and begin to recognise that they can be answered in different ways	Ask people questions that include scientific language and recognise that they can be answered in different ways. Begin to use secondary sources to answer questions	Ask questions related to their scientific experiences and use different types of enquiry to answer them.	Ask relevant scientific questions and use different types of scientific enquiry to answer them. Recognise how and when secondary sources might help answer questions that cannot be answered through practical investigation	Use scientific experiences to explore ideas and raise different types of questions	Recognise which secondary sources will be most useful to research their ideas and begin to separate fact from opinion.
Plan and set up enquires	Perform simple tests	Perform simple tests	Set up simple practical enquiries, comparative and fair tests	Set up simple practical enquiries, comparative and fair tests	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Plan different types of scientific enquiries to answer their own or others questions, including recognising and controlling variables where necessary
Observe	Use simple equipment to observe closely	Use simple equipment to observe closely including changes over time	Make systematic and careful observations	Make systematic and careful observations		
Measure			Where appropriate, take accurate	Where appropriate, take accurate	Take measurements using scientific	Take measurements, using scientific

Gather and Record Results	Gather and record data to help in answering questions Identify and classify	Gather and record data to help in answering questions including from secondary sources of information Identify, group and classify data	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, keys, bar charts and tables	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, keys, bar charts and tables	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
Interpret results	Use his/her observations and ideas to suggest answers to questions	Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns Compare simple comparative tests	Use straightforward scientific evidence to answer questions or to support his/her findings Identify differences, similarities or changes related to simple scientific ideas and processes	Use straightforward scientific evidence to answer questions or to support his/her findings Identify differences, similarities or changes related to simple scientific ideas and processes	Identify scientific evidence that has been used to support or refute ideas or arguments	Identify scientific evidence that has been used to support or refute ideas or arguments
Draw Conclusions	Tell others what you did and what you found out	Explain what happened, what you found out and why this is the case	Use evidence to explain what happened and why it happened (simple conclusions)	Use evidence to draw conclusions, explaining what you have found out why you believe it to be true	Draw conclusions, explaining what you have learned from the enquiry referring to evidence and data from your enquiry	Share what you have found out and why you believe this is the case clearly and succinctly

Make Predictions	Children consider in advance, what might happen or what they might find	Children consider in advance, what might happen or what they might find and know this as a prediction	Use results to make predictions and suggest new values	Use results to make predictions and suggest new values	Use test result to make predictions to set up further comparative and fair tests	Use test result to make predictions to set up further comparative and fair tests
Evaluate	Recall what went wrong and why	Recall what went wrong, why and how you could avoid this in future	Reflect on the enquiry, suggest improvements and raise further questions	Reflect on the enquiry, suggest improvements and raise further questions	Reflect on the accuracy and effectiveness of the enquiry and suggest alternatives for future enquiry where appropriate	Reflect on the accuracy and effectiveness of the enquiry and suggest alternatives for future enquiry where appropriate