Offwell C of E Science Progression Map

Domain	Big idea	EYFS		KS1		LOWER KS2		UPPER KS2	
		3 & 4 year olds	YR & ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
.Working scientifically	Planning investigations		Engage in non-fiction books. Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary. Learn new vocabulary.	Pupil can, with prompting, ask simple questions that can be tested. Pupil can offer ways of gathering evidence to answer a question.	Pupil can ask simple questions that can be tested. Pupil can suggest different ways of answering a question.	Pupil can, with support, develop relevant, testable questions. Pupil can plan enquiry, such as comparative or fair test. Pupil can set up a comparative test.	Pupil can develop relevant, testable questions Pupil can plan investigations using different types of scientific enquiry. Pupil can set up comparative and fair tests.	Pupil can, with support, answer questions using evidence gathered from different types of scientific enquiry. Pupil can, with prompting, identify and manage variables.	Pupil can answer questions using evidence gathered from different types of scientific enquiry Pupil can identify and manage variables
	Conducting experiments	Use all their senses in hands-on exploration of natural materials. Explore how things work.	Explore the natural world around them, making observations. Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.	Pupil can examine objects to note key features eg growth. Pupil can, with support, conduct simple tests.	Pupil can examine carefully, e.g. using a hand lens. Pupil can conduct simple tests	Pupil can use various equipment, as instructed. Pupil can use standard measurements when taking measurements.	Pupil can use various equipment, as instructed, repeatedly and with care. Pupil can recognise the importance of using standard units and measures accurately	Pupil can, following discussion of alternatives, select appropriate equipment. Pupil can take measurements that are precise as well as accurate. Pupil can know how to process repeat readings.	Pupil can use appropriate equipment, such as meter rule, to take measurements Pupil can consider how by modifying instrument or technique, measurements can be improved Pupil can identify situations in which taking repeat readings will improve the quality of evidence
	Recording evidence	Talk about what they see, using a wide vocabulary.	Draw pictures of animals and plants	Pupil can, with prompting, identify what might usefully be recorded eg drawing structures, adding data to table	Pupil can, with assistance, draw and label diagrams	Pupil can, with prompting, draw and label diagrams. Pupil can, with prompting, use tables to record evidence. Pupil can, with prompting, gather and display	Pupil can use words and diagrams to record findings. Pupil can use various ways to record, group and display evidence.	Pupil can start to use labelled diagrams to show more complex outcomes. Pupil can, with prompting, use various ways to record complex evidence.	Pupil can use labelled diagrams to show complex outcomes Pupil can use various ways, as appropriate, to record complex evidence. Pupil can use line

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						evidence in various ways.		Pupil can use a line graph to record basic data	graphs to display complex data.
	Reporting findings		Articulate their ideas and thoughts in well-formed sentences. Describe events in some detail.	Pupil can identify key findings from an Enquiry eg how plants have changed over time	Pupil can identify and group key outcomes from enquiry, e.g. describing conditions in different habitats and how these affect the numbers and types of organisms.	Pupil can, with prompting, write a conclusion based on evidence. Pupil can indicate findings from an enquiry that could be reported.	Pupil can write a conclusion based on evidence. Pupil can present findings either in writing or orally.	Pupil can, with prompting, write a conclusion using evidence and identifying causal links. Pupil can, with support, display and present key findings from enquiries orally and in writing. Pupil can, with support, indicate why some results may not be entirely trustworthy.	Pupil can write a conclusion using evidence and identifying causal links. Pupil can display and present key findings from enquiries orally and in writing. Pupil can, in conclusions, indicate how trustworthy they are.
	Forming conclusions and predictions	Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"	Make comments about what they have heard and ask questions to clarify their understanding.	Pupil can collect data eg compare /contrast plants Pupil can suggest answers to enquiry questions using data eg how to group plants.	Pupil can collect data relevant to the answering of questions Pupil can answer enquiry questions using data and ideas eg applications for certain materials.	Pupil can, with prompting, recognise patterns that relate to scientific ideas. Pupil can, with support, use evidence to produce a simple conclusion. Pupil can suggest how an investigation could be extended.	Pupil can recognise patterns that relate to scientific ideas. Pupil can use evidence to produce a simple conclusion. Pupil can use evidence to suggest further relevant investigations.	Pupil can show how evidence supports a conclusion. Pupil can suggest further relevant comparative or fair tests.	Pupil can identify how an idea is supported or refuted by evidence. Pupil can use evidence to suggest further comparative or fair tests that would develop the investigation
Biology	Classify living things by observable features						Suggest different ways of sorting the same group of living things. Use classification keys to group and identify members from a range of familiar and less familiar living things.		Use similarities and differences in observable features to decide how living things should be grouped. Explain why certain features are useful in classifying living things

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	Habitats provide living things with what they need.	Begin to understand the need to respect and care for the natural environment and all living things.	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.		Explain how, for a named animal or plant, it gets what it needs from its habitat and other living things that are there. Identify a range of living things in habitats of various sizes. Construct a simple food chain and identify what is eating what. Explore and identify what plants need to thrive.	Explain what all plants need to flourish and recognise how these requirements vary in amount.	Describe examples of living things that are threatened by changes to environments.		
	Variation & adaptation -evolution								Use fossils as evidence that living things have changed over time Recognise that offspring normally vary from each other and from their parents Describe examples of a living thing that has adapted to live in a particular habitat and evolved as a result.
	Life exists in a variety of plant forms and goes through cycles..	Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant	Make observations and draw pictures of plants.	Identify a range of local plants including trees. Name parts of a range of familiar plants. Compare and contrast a collection of items, sorting into categories: 'living', 'dead' and 'things that have never been alive'.	Describe stages of development of a full grown plant.	Describe what each part of a flowering plant does: root, stem/trunk, leaves, flower Explain, with the aid of a diagram or plant, how water is carried up from the soil. Explain how pollination, seed formation and seed dispersal play a role in the reproduction			

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						of flowering plants.			
	Life exists in a variety of animal forms and goes through cycles.	Begin to make sense of their own life-story and family's history. Understand the key features of the life cycle of an animal.	Make observations and draw pictures of animals.	Name a variety of common animals. Identify and group a range of familiar animals.	Describe the relationship between adult animals and their offspring. Identify human's basic needs (water, food, air).	Describe why animals depend on the correct nutrition (cannot make own food).		Identify similarities and differences in two different life cycles. Describe the changes as humans develop to old age, e.g. trends in changes to size, weight, mobility etc.	
	Function of systems within human body	Make healthy choices about food, drink, activity and toothbrushing.	Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	Identify key features of a range of common animals. Relate each of the human senses to organs.	Describe the importance of a healthy diet and exercise.	Explain which parts of the skeleton provide support and protection, and how they allow for movement.	Identify what each of the principal organs in the digestive system do. Describe the function of each type of tooth in the human skull. Use a food chain to represent producer, predator, prey relationships.	Describe in sequence the stages of reproduction in some plants and animals	Describe what heart, blood vessels and blood Suggest how their bodies are affected by substances and actions Describe with aid of diagrams the route that water takes within animals.
Chemistry	Properties of rocks + soils/ fossils explained					Explain how fossils are formed. Describe how soil is made.			
	Explore physical properties of materials	Explore collections of materials with similar and/or different properties. Talk about the differences between materials and changes they notice.	Understand some important processes and changes in the natural world around them, including changing states of matter.	Correctly identify both object and material. Identify and name a range of materials. Describe a range of properties of a variety of materials. Classify a variety of materials into groups based on physical properties.	Describe changes achieved by applying forces to materials, in different directions eg bend, squash, twist, stretch	Examine and test rocks, grouping them according to the results.	Group materials according to their state of matter.	Test and sort a range of materials based on their physical properties. Describe how some materials, e.g.sugar, will dissolve and can be retrieved. Justify separation techniques proposed, with reference to	

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								materials being separated. Show how the original materials can be retrieved from each of these changes. Identify reactants and products of chemical changes and recognise these as being irreversible.	
	Properties of materials determine usage				Select and justify a material for a particular use.			Use evidence to justify the selection of a material for a purpose.	
	Materials exist in different states - change	Talk about the differences between materials and changes they notice.					Describe how evaporation and condensation happen in the water cycle, and how temperature affects evaporation. Identify changes of state and research values of degrees Celsius at which changes happen.		
Physics	**Contact & non-contact forces affect motion**	Explore and talk about different forces they can feel.				Compare how an object, such as a toy car, will move on different surfaces. Recognise the difference between contact and contact forces. Describe how magnets attract or repel each other, and attract magnetic materials. Group materials on the basis of testing for being magnetic. Describe and		Explain that gravity causes objects to fall towards Earth. Describe how motion may be resisted by air resistance, water resistance or friction. Describe how some devices may turn a smaller force into a larger one.	

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						identify the poles of a magnet. Predict outcomes of a particular arrangement of magnets.			
	Effects of movement & position of Earth		Understand some important processes and changes in the natural world around them, including the seasons.	Describe seasonal changes. Relate weather patterns and day length to seasons.				Draw a diagram or use a model to describe planetary orbits. Draw a diagram or use a model to describe the Moon's orbit around the Earth. Describe the Sun, Earth & Moon as spheres. Use a diagram or model to explain why the Sun seems to travel across the sky, and what causes day and night.	
	Light & sound can be reflected & absorbed and enable us to see and hear.	Explore how you can shine light through some materials, but not others	Investigate shadows.			Relate being able to see to the presence of light. Describe how some objects reflect light. Describe how and why our eyes should be protected from sunlight. Explain how shadows are made. Describe how to change the size of a shadow.	Explain, with reference to vibrations, how an object makes a sound. Describe the role of a medium in the transmission of sound. Describe the effect of moving further from the source of a sound. Explain with reference to a particular object how the pitch and volume of the sound can be changed.		Represent light using straight line ray diagrams. Draw diagrams using straight lines showing light travelling to the eye. Explain how we can see an object by referring to light travelling into the eye Draw a diagram showing an object, shadow and light to relate object shape to shadow shape

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	Control & function of electrical circuits						List examples of appliances that run on electricity. Construct a simple circuit and name its components. Sort materials into conductors and insulators, identifying metals as conductors. Predict whether a particular arrangement of components will result in a bulb lighting. Predict how the operation of a switch will affect bulbs lighting.		Explain how number and voltage of cells affects the lamp or buzzer. Explain the use of switches, how bulbs can be made brighter and buzzers made louder. Represent a circuit that has been constructed using symbols.