ALDINGBOURNE PRIMARY SCHOOL PROGRESSION MAP

SUBJECT: SCIENCE

INTENT

Our Science curriculum intends to inspire pupils with a curiosity and fascination about the world around them. We will develop their scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. The children will build up a body of key foundational knowledge and concepts that will allow them to make predictions and explanations about all areas of science. We will develop their scientific language, enabling children to talk about their methods and explain their findings and conclusions. The curriculum will motivate them to become effective communicators of scientific ideas, facts and data whilst enhancing their practical skills of scientific enquiry.

AUTUMN	EYFS	KEY STAGE ONE		KEY STAGE TWO			
	YEAR R	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
KNOWLEDGE	**The Natural World** Know some similarities and differences between the natural world around them and contrasting environments (jungle), drawing on their experiences and what has been read in class. Use the Elmer story to explore the differences and similarities between	**Seasonal Changes - Autumn** Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. **Animals, Including Humans** Identify and name a variety of common animals including fish, amphibians,	**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	**Light** 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	**Animals, Including Humans** 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. **Electricity** Identify common appliances that run on electricity.	**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.	**Electricity** 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

	the natural world around us and around Elmer. Role play Jungle safari to enable children to imagine the contracting environment of the jungle.	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). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	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. **Animals, Including Humans** Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change **Animals, including humans** 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. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	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.	Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. **Forces** Explain that unsupported objects fall towards the Earth because of the 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.	on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram. **Light** 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. 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.

SPRING	EYFS	KEY STAGE ONE		KEY STAGE TWO			
	YEAR R	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
KNOWLEDGE	**The Natural World** Explore the natural world around them, making observations of daffodils and the environment during spring and drawing pictures of daffodils. Understand some important process and changes in the natural world around them, including the seasons and changing states of matter such as melting ice, mud and sunshine.	**Seasonal Changes – Winter & Spring** Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. **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. Compare and group together a variety of everyday materials on the basis of their simple physical properties.	**Uses 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. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**Rocks** 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. **Forces and Magnets** Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others.	**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 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. **Sound** Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel	**Properties and Changes of Materials** 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 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	**Living Things** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. **Animals Including Humans** 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.

				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.	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.	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	Describe the ways in which nutrients and water are transported within animals, including humans.

SUMMER	EYFS	KEY STAGE ONE		KEY STAGE TWO			
	YEAR R	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
KNOWLEDGE	**The Natural World** Explore the natural world around them, making observations of caterpillars turning into butterflies and drawing pictures of ladybirds, bees and spiders. Explore natural world around them to find flowers that bees drink nectar from – make observations and drawings.	**Seasonal Changes - Summer** Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. **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, including trees.	**Plants** Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	**Plants** 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.	**Animals, Including Humans** Construct and interpret a variety of food chains, identifying producers, predators and prey. **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. Recognise that environments can change and that this can sometimes pose dangers to living things.	**Living Things and Their Habitats** Describe the differences in the life cycle of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals. **Animals, Including Humans** Describe the changes as humans develop to old age.	**Evolution and Inheritance** 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.

PROGRESSION OF SKILLS – WORKING SCIENTIFICALLY

EYFS	KEY STAGE ONE		KEY STAGE TWO			
YEAR R	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Questioning Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. Make comments about what they have heard and ask questions to clarify their understanding.	**Questioning** Asking simple questions and recognising that they can be answered in different ways.	**Questioning** Asking simple questions and recognising that they can be answered in different ways.	**Questioning** Asking relevant questions and using different types of scientific enquiries to answer them.	**Questioning** Asking relevant questions and using different types of scientific enquiries to answer them.		
Scientific Enquiry Explore the natural world around them, making observations and drawing pictures of animals and plants. Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.	**Scientific Enquiry** Observing closely, using simple equipment. Performing simple tests. Using their observations and ideas to suggest answers to questions.	**Scientific Enquiry** Observing closely, using simple equipment. Performing simple tests. Using their observations and ideas to suggest answers to questions.	**Scientific Enquiry** 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.	**Scientific Enquiry** 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.	**Scientific Enquiry** Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.	**Scientific Enquiry** Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

Gathering and Recording Data Offer explanations for why things might happen, making use of recently introduced vocabulary.	**Gathering and Recording Data** Identifying and classifying. Gathering and recording data to help in answering questions.	**Gathering and Recording Data** Identifying and classifying. Gathering and recording data to help in answering questions.	**Gathering and Recording Data** 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.	**Gathering and Recording Data** 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.	**Gathering and Recording Data** Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	**Gathering and Recording Data** Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
			Reporting Findings Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	**Reporting Findings** Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	**Reporting 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.	**Reporting 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.
			Using Results 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 Results** 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 Results** Using test results to make predictions to set up further comparative and fair tests.	**Using Results** Using test results to make predictions to set up further comparative and fair tests.

			Scientific Evidence Using straightforward scientific evidence to answer questions or to support their findings.	**Scientific Evidence** Using straightforward scientific evidence to answer questions or to support their findings.	**Scientific Evidence** Identifying scientific evidence that has been used to support or refute ideas or arguments.	**Scientific Evidence** Identifying scientific evidence that has been used to support or refute ideas or arguments.

IMPACT (END POINTS)

EYFS	KEY STAGE ONE		KEY STAGE TWO			
YEAR R	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
A Reception class scientist will be able to identify similarities and differences in relation to places, objects, materials and living things. They are able to discuss the features of their own 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.	A Year 1 scientist will be able to name, label and sort animals, plants and body parts into groups. They have a basic knowledge of the structure of a plant and can name some. Children know their senses and what body parts are associated with certain senses. They know the difference between an object and materials and can describe and compare different materials based on their properties. They will be able to perform simple tests, gather data and discuss what they find out.	A Year 2 scientist will be able to identify habits and the key features that make them suitable for certain living things. They are beginning to use the idea of a basic food. They know what both plants and animals need to survive and have explored how to keep a plant healthy. The children understand that seeds and offspring grow into mature plants/animals, including humans. They have experimented with a variety of material and can justify why certain materials are suitable for particular uses.	A Year 3 scientist will be able to explain why shadows change and how dark is the absence of light. They know the function of skeletons and muscles in animals including humans. Children will be able to confidently compare and group together different kinds of rocks & fossils based on their appearance and physical features. They have an understanding of some forces and can explain and investigate magnets and magnetic force. Their knowledge of plants has grown and they can explain the function of parts of a	A Year 4 scientist can describe the digestive system and the function of teeth. They have an understanding of electricity and can create simple circuits. Using their skills, they can investigate whether a material is a conductor and can explain effects upon a circuit. They understand states of matter and can sort materials accordingly. They use this knowledge to experiment with heating and cooling materials and can transfer this knowledge to the water	A Year 5 scientist use their knowledge of the solar system to explain regularly experienced natural processes such as day and night and gravity. They understand movement between the earth, sun and moon. Children recognise some mechanisms and can identify forces and the causes they have. They can independently group materials and can separate mixtures using a variety of methods. They understand reversible and irreversible change and can give reasons, based on evidence, for particular uses of	A Year 6 scientist can explain how we see light. They have built on their knowledge of electricity and can give reasons for variations on how components function, including the number of voltage of cells. Children can confidently describe how living things are classified and give reasons for classifications. They have deepened their understanding of the human body to include the circulatory system and how water and nutrients travel. Children understand adaptation and how this may evolve into

		They are curious and ask questions about what they notice. They are developing their scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things and carrying out simple tests.	plant and have a knowledge of pollination, seed formation and seed dispersal. They can undertake observations over a period of time, make predictions, present data and analyse findings.	cycle. They understand how we hear sound and can articulate patterns with pitch, volume and distance. Children can construct food chains and can group living things in a variety of ways. They can use classification keys and can articulate environmental dangers to living things. Children can use scientific vocabulary to plan, carryout and report on their own investigations.	materials. They can describe changes in humans that develop with age as well as describe different life cycles and the process of reproduction in some plants and animals. Children can plan their scientific enquiry to answer questions. They will use their test results to make predictions for the future and can report their findings in a variety of ways.	evolution and how we know about evolution over different periods of time. Children can plan different types of scientific enquiry to answer questions, including controlling variables. They will use their test results to make predictions to set up further comparative and fair tests and can report their findings in a variety of ways and use their findings to refute ideas. .