



A Centre of Excellence in Learning
at the Heart of the Community



مركز تعلم متميز فى قلب المجتمع

Ras Al Khaimah Academy أكاديمية رأس الخيمة



SCIENCE PYP SCOPE AND SEQUENCE

Overall expectation from PYP&S - 3-5 years: Students will develop their observational skills by using their senses to gather and record information, and they will use their observations to identify simple patterns, make predictions and discuss their ideas. They will explore the way objects and phenomena function, and will recognise basic cause and effect relationships. Students will examine change over varying time periods and know that different variables and conditions may affect change. They will be aware of different perspectives, and they will show care and respect for themselves, other living things and the environment. Students will communicate their ideas or provide explanations using their own scientific experience and vocabulary

PYP Conceptual understandings for the four strands of Science:

- Living things:** The study of the characteristics, systems and behaviours of humans and other animals, and of plants; the interactions and relationships between and among them, and with their environment.
- Earth and space:** The study of planet Earth and its position in the universe, particularly its relationship with the sun; the natural phenomena and systems that shape the planet and the distinctive features that identify it; the infinite and finite resources of the planet.
- Materials and matter:** The study of the properties, behaviours and uses of materials, both natural and human-made; the origins of human-made materials and how they are manipulated to suit a purpose.
- Forces and energy:** The study of energy, its origins, storage and transfer, and the work it can do; the study of forces; the application of scientific understanding through inventions

Pre K	Living Things	Earth and Space	Materials and Matter	Forces and Energy
	<p>Related Concept- Physical Characteristics (Integrated Who we are)</p> <ul style="list-style-type: none"> • I can observe, identify, and describe my physical characteristics • I can recognise the physical similarities and differences, the similarities, and differences in areas of interest Identify the five senses and explain how they are used. • I can identify and generate wonderings/questions to be explored regarding senses. • I can plan and carry out investigations on the five senses (taste, sight, hearing and touch). • I can make predictions about how we use our senses. • I can interpret data collected from senses investigations. • I can investigate how I am growing and changing 			<p>Related Concept- Light (Integrated How the world works)</p> <ul style="list-style-type: none"> • I can identify different light sources including the sun. • I know that darkness is the absence of light. • I can identify shadows.
	<p>Science Skills:</p> <ul style="list-style-type: none"> • I can ask questions about science • I can use my senses to make observations • I can record observations • I can communicate my ideas 			

PYP Science Scope and Sequence

3-5 years

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KG 1	Living Things	Earth and Space	Materials and Matter	Forces and Energy
	<p>Related Concepts-Animals, Features, Habitats (Integrated How the world works)</p> <ul style="list-style-type: none"> • I can observe and describe the characteristics of different animals. • I can observe and explore the suitability of animals for specific functions • I can interpret and evaluate class data gathered regarding pets. • I can observe the needs of animals that enable them to stay healthy. • I can take responsibility for animals found in our environment. • I can identify and generate wonderings/questions to be explored regarding animals habitats. 		<p>Related Concept: properties and uses of materials (Integrated How we organise ourselves)</p> <ul style="list-style-type: none"> • I can recognise and name common materials. • I can use my senses to explore and talk about different materials. 	
	<p>Science Skills:</p> <ul style="list-style-type: none"> • I can ask questions about science • I can use my senses to make observations • I can record observations • I can communicate my ideas • I try to answer questions by collecting evidence through observations. • I can use scientific vocabulary to explain their observations and experiences 			

PYP Science Scope and Sequence

5-7 years

Over all expectation from PYP S&S - 5-7 years: Students will develop their observational skills by using their senses to gather and record information, and they will use their observations to identify patterns, make predictions and refine their ideas. They will explore the way objects and phenomena function, identify parts of a system, and gain an understanding of cause and effect relationships. Students will examine change over varying time periods, and will recognise that more than one variable may affect change. They will be aware of different perspectives and ways of organising the world, and they will show care and respect for themselves, other living things and the environment. Students will communicate their ideas or provide explanations using their own scientific experience.

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KG 2	Living Things	Earth andSpace	Materials andMatter	Forces andEnergy
	<p>Related Concepts: Plants (basic needs and structure) , Animals, Lifecycles (Integrated How the world works)</p> <ul style="list-style-type: none"> • I can explore how seeds grow into flowering plants. • I know that plants need light and water to grow. • I can explain the observation that plants need light and water. • I can explain how water is taken in through the roots and transported through the stem. • I can describe how a plants growth is affected by temperature. • I know that plants and animals are living things. • I can explore the ways that different animals and plants inhabit local environments. • I know that humans and other animals produce offspring which grow into adults. 	<p>Related Concept-Geography (Integrated Where we are in place and time)</p> <ul style="list-style-type: none"> • I can use simple maps to understand and explore my everyday environment • I can construct maps of a familiar place (e.g., classroom, bedroom, playground) 	<p>Related Concept: Changes of state (Outside PoI Learning)</p> <ul style="list-style-type: none"> • I know how the shapes of some materials can be changed by squishing • I can explain how the shapes of some materials can be changed by stretching. • I can explore how the shapes of some materials can be changed by bending and twisting. 	
	<p>Related Concept-Health and Wellbeing (Integrated Who we are)</p> <ul style="list-style-type: none"> • I can find out about the need for a healthy diet, including the right types of food and water. • I can inquire into life processes common to humans and animals include nutrition (water and food), movement. • I can find out why some foods can be damaging to our health, e.g. very sweet and fatty foods. 			
	<p>Science Skills:</p> <ul style="list-style-type: none"> • I can ask simple questions and recognise that they can be answered in different ways • I can observe closely, using simple equipment • I can perform simple tests • I can identify and classify • I can use my observations and ideas to suggest answers to questions • I can gather and record data to help answer questions. 			

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PYP Conceptual understandings for the four strands of Science:

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YR 1	Living Things	Earth and Space	Materials and Matter	Forces and Energy
	<p>Related Concept: Plants (common plants in our environment and basic structure)</p> <p style="text-align: center;">(Outside PoI Learning)</p> <ul style="list-style-type: none"> ● I can identify and name a variety of common plants and trees in the environment ● I can identify and describe the basic structure of a variety of common flowering plants, including trees. <p>Related Concept- Animals</p> <p style="text-align: center;">(Outside PoI Learning)</p> <ul style="list-style-type: none"> ● I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals ● I can identify and name a variety of common animals that are carnivores, herbivores and omnivores ● I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) ● I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 	<p>Related Concepts: Weather and Seasons</p> <p style="text-align: center;">(Outside PoI Learning)</p> <ul style="list-style-type: none"> ● I can observe and talk about the observations of the weather and record reports of weather data. ● I can observe changes across seasons ● I can observe and describe weather associated with the seasons and how day length varies. <p>Related Concepts: Resources, Sustainability</p> <p style="text-align: center;">(Integrated Sharing the planet)</p> <ul style="list-style-type: none"> ● I can explore a number of ways for caring for the environment, for example, recycling, reducing waste, reducing, not littering ● I can encourage others to care for the environment. 	<p>Related Concept: Properties and uses of Materials</p> <p style="text-align: center;">(Integrated How the world works)</p> <ul style="list-style-type: none"> ● I can distinguish between an object and the material from which it is made ● I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ● I can describe the simple physical properties of a variety of everyday materials ● I can compare and group together a variety of everyday materials on the basis of their simple physical properties. 	
	<p>Science Skills:</p> <ul style="list-style-type: none"> ● I can ask simple questions and recognise that they can be answered in different ways ● I can observe closely, using simple equipment ● I can perform simple tests ● I can identify and classify ● I can use my observations and ideas to suggest answers to questions ● I can gather and record data to help answer questions. 			

PYP Science Scope and Sequence

5-7 years

Over all expectation from PYP S&S - 7-9 years: Students will develop their observational skills by using their senses and selected observational tools. They will gather and record observed information in a number of ways, and they will reflect on these findings to identify patterns or connections, make predictions, and test and refine their ideas with increasing accuracy. Students will explore the way objects and phenomena function, identify parts of a system, and gain an understanding of increasingly complex cause and effect relationships. They will examine change over time, and will recognize that change may be affected by one or more variables. They will examine how products and tools have been developed through the application of science concepts. They will be aware of different perspectives and ways of organising the world, and they will be able to consider how these views and customs may have been formulated. Students will consider ethical issues in science-related contexts and use their learning in science to plan thoughtful and realistic action in order to improve their welfare and that of other living things and the environment. Students will communicate their ideas or provide explanations using their own scientific experience and that of others.

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YR 2	Living Things	Earth and Space	Materials and Matter	Forces and Energy
	<p>Related Concept-Plants(seeds and bulbs, how plants need water and light to grow) and Scientific process</p> <p style="text-align: center;">(Integrated How the world works)</p> <ul style="list-style-type: none"> • I can observe and describe how seeds and bulbs grow into mature plants • I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy • I can plan and carry out investigations to find out what is necessary for plants and seeds to grow (change one variable at a time e.g. water, sunlight, temperature). <p>Related Concept: (exercise, Health and Wellbeing, food and hygiene)</p> <p style="text-align: center;">(Outside PoI Learning)</p> <ul style="list-style-type: none"> • I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. • I can explain the need for a healthy diet including the right types of food and water. • I can explain the reasons why some foods such as sweet or very fatty can be damaging to health. • I can explore and research exercise and the adequate, varied diet needed to keep healthy. 	<p>Related Concepts: Resources, Sustainability</p> <p style="text-align: center;">(Integrated Sharing the planet)</p> <ul style="list-style-type: none"> • I can identify the earth's natural resources and locate their distribution on a world map (fresh water, sea water, fertile soils, desert, clean air, polluted air) • I can explore a number of ways caring for the environment, for example reducing waste of natural resources, reducing energy consumption • I can encourage others to care for the environment by using natural resources wisely. • I can explore and reflect on how the resources are used by humans and the implications of overuse. (Pollution e.g. water and soil pollution) drought, soil erosion, infertile soil. • I can plan and carry out investigations/simulation models of the water cycle to understand the cycle of fresh water (evaporation and condensation) <p>Related Concept-Climate and Resources (Integrated Where we are in place and time)</p> <ul style="list-style-type: none"> • I can identify the different types of climate. • I can identify how humans make choices regarding homes they build and materials/resources they use according to the climate. • I can compare and contrast climate and homes around the world. • I can explore extreme climate around the world and how it affects life. 	<p>Related Concept-Properties and uses of Materials (Integrated Where we are in place and time)</p> <ul style="list-style-type: none"> • I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for building homes and other purposes • I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. • I can explain why some materials occur naturally and some are man-made. <p style="text-align: center;">Related Concept- Changes of state (Integrated How we organise ourselves)</p> <ul style="list-style-type: none"> • I can explore and identify the properties of materials. • I can make and test predictions about properties of materials. • I can plan and carry out investigations to find out the properties of materials and products • I can plan and carry out investigations to find out how the properties of materials and products can change e.g. heating, freezing. • I know how materials can change into a solid, liquid and gas. • I can describe observable changes (including changes of state) that occur in products 	<p>Related Concepts: Forces (pushing, pulling, Properties(air) and Scientific process</p> <p style="text-align: center;">(Integrated How the world works)</p> <ul style="list-style-type: none"> • I can recognise that both pushes and pulls are forces. • I can explore, talk about and describe movement of familiar things. • I can recognise that when things speed up, slow down or change direction there is a cause. • I can investigate and identify the properties of air. • I can make and test predictions about the properties of air and what it can do. • I can interpret and evaluate findings from investigations on air. • I can draw conclusions from air investigations. • I can apply understanding about the properties of air (e.g. make a windmill, a model aeroplane, a seed spinner).

PYP Science Scope and Sequence

5-7 years

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| | | <ul style="list-style-type: none">• I can use thermometers to measure and record the temperature. | | |
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Science Skills:

- I can ask simple questions and recognise that they can be answered in different ways
- I can observe closely, using simple equipment
- I can perform simple tests
- I can identify and classify
- I can use my observations and ideas to suggest answers to questions
- I can gather and record data to help in answering questions.
- I can measure length
- I can measure time
- I can measure temperature

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YR 3	Living Things	Earth and Space	Materials and Matter	Forces and Energy
	<p>Plants: Related Concept- (life cycle of flowers, how water is transported in plants, offspring) (Outside PoI Learning)</p> <ul style="list-style-type: none"> • I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • I can 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 • I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <p>Related Concepts- adaptation, interdependence, classification keys, needs for survival, human impact on environments (Integrated Sharing the planet)</p> <ul style="list-style-type: none"> • I can recognise that living things can be grouped in a variety of ways • I can explore and use classification keys to help group, identify and name a variety of living things in my local and wider environment • I can recognise that environments can change and that this can sometimes pose dangers to living things. • I can identify different habitats and their distinguishing features including the plants and animals that live there. 	<p>Related Concept- Geography (Integrated- Where we are in place and time)</p> <ul style="list-style-type: none"> • I can investigate basic map elements • I can construct maps of a familiar place (e.g., classroom, bedroom, playground) • I can use simple maps to understand and explore their everyday environment • I can use maps to identify different types of scale to measure distances between two places 	<p>ROCKS- (Outside PoI Learning) Related Concept-Rocks(fossils and soil)</p> <ul style="list-style-type: none"> • I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • I can describe in simple terms how fossils are formed when things that have lived are trapped within rock • I can recognise that soils are made from rocks and organic matter 	<p>FORCES AND MAGNETS Related Concept-Forces(pushing, pulling, gravity, water dispersion and Magnets) (Integrated How we the world works)</p> <ul style="list-style-type: none"> • I can compare how things move on different surfaces • I can notice that some forces need contact between two objects, but magnetic forces can act at a distance • I can observe how magnets attract or repel each other and attract some materials and not others • I can 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 • I can describe magnets as having two poles • I can predict whether two magnets will attract or repel each other, depending on which poles are facing. <p>LIGHT- (Outside PoI Learning) Related Concepts-reflection and shadows</p> <ul style="list-style-type: none"> • I can recognise that I need light in order to see things and that dark is the absence of light • I can notice that light is reflected from surfaces • I can recognise that light from the sun can be dangerous and that there are ways to protect my eyes • I can recognise that shadows are formed when the light from a light source is blocked by a solid object • I can find patterns in the way that the size of shadows change.

<ul style="list-style-type: none"> • I can identify how habitats provide living things with what they need to survive • I can explore and identify the reasons why habitats change. • I can explore how living things adapt to changing habitats. 			
<p>Science Skills:</p> <ul style="list-style-type: none"> • I can ask relevant questions and using different types of scientific enquiries to answer them • I can set up simple practical enquiries, comparative and fair tests • I can make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • I can gather, record, classify and present data in a variety of ways to help in answering questions • I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • I can identify differences, similarities or changes related to simple scientific ideas and processes • I can use straightforward scientific evidence to answer questions or to support my findings. 			

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YR 4	Living Things	Earth and Space	Materials and Matter	Forces and Energy
	<p>(Integrated Who we are) Related Concepts-digestive system, circulatory system, teeth</p> <ul style="list-style-type: none"> ● I can describe the simple functions of the basic parts of the digestive system in humans ● I can identify the different types of teeth in humans and their simple functions <p>Related Concept- nutrition, skeletons and muscles</p> <ul style="list-style-type: none"> ● I can identify that animals, including humans, need the right types and amount from what they eat of nutrition, and that they cannot make their own food; they get nutrition ● I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. ● I can explain the role of drugs as medicines ● I understand that medicines prevent, cure or alleviate symptoms of illness ● I understand that medicines work by killing germs or by replacing missing substances in the body. ● I can identify and write about safe ways to take medicines. 	<p>Related Concepts- Geography, Systems[weather] (Integrated How we organise ourselves)</p> <ul style="list-style-type: none"> ● I can identify the different types of extreme weather. ● I can identify the causes of extreme weather. ● I can explore extreme weather around the world and how it affects life. ● I can identify different types of disasters caused by extreme weather ● I can reflect on a range of sources and explanations about disasters caused by extreme weather <p>Related Concepts- Geography and formation, tectonic plate movement (Integrated How we the world works)</p> <ul style="list-style-type: none"> ● I can identify the physical features of the Earth. ● I can identify and locate on a map the physical features of RAK and their characteristics including flora and fauna (Oceans, mountains and desert) ● I can describe how natural phenomena shape the planet ● I can make connections between the physical features of the earth and how they affect one another. ● I can generate questions regarding how and why physical features change and the impact this has. ● I can identify the evidence that the Earth has changed and will continue to change (landforms, erosion, rivers and their paths) 	<p>Related Concepts- solid, liquids, gases, evaporation and condensation</p> <p>(Outside PoI Learning)</p> <ul style="list-style-type: none"> ● I can compare and group materials together, according to whether they are solids, liquids or gases ● I can 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) ● I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<p>SOUND-(Outside PoI Learning) Related Concepts-vibration, pitch and volume</p> <ul style="list-style-type: none"> ● I can identify how sounds are made, associating some of them with I something vibrating ● can recognise that vibrations from sounds travel through a medium to the ear ● I can find patterns between the pitch of a sound and features of the object that produced it ● I can find patterns between the volume of a sound and the strength of the vibrations that produced it ● I can recognise that sounds get fainter as the distance from the sound source increases. <p>ELECTRICITY-(Outside PoI Learning) Related Concept-Electricity- common appliances, simple circuits, series, switches, conductors and insulators</p> <ul style="list-style-type: none"> ● I can identify common appliances that run on electricity ● I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers ● I can 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 ● I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in

				<p>a simple series circuit</p> <ul style="list-style-type: none">• I can recognise some common conductors and insulators, and associate metals with being good conductors.
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	<p>Science Skills:</p> <ul style="list-style-type: none">• I can ask relevant questions and using different types of scientific enquiries to answer them• I can set up simple practical enquiries, comparative and fair tests• I can make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers• I can gather, record, classify and present data in a variety of ways to help in answering questions• I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables• I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions• I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions• I can identify differences, similarities or changes related to simple scientific ideas and processes• I can use straightforward scientific evidence to answer questions or to support my findings.
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Over all expectation from PYP S&S - 9-12 years: Students will develop their observational skills by using their senses and selected observational tools. They will gather and record observed information in a number of ways, and they will reflect on these findings to identify patterns or connections, make predictions, and test and refine their ideas with increasing accuracy. Students will explore the way objects and phenomena function, identify parts of a system, and gain an understanding of increasingly complex cause and effect relationships. They will examine change over time, and they will recognize that change may be affected by one or more variables. Students will reflect on the impact that the application of science, including advances in technology, has had on themselves, society and the environment. They will be aware of different perspectives and ways of organizing the world, and they will be able to consider how these views and customs may have been formulated. Students will examine ethical and social issues in science-related contexts and express their responses appropriately. They will use their learning in science to plan thoughtful and realistic action in order to improve their welfare and that of other living things and the environment. Students will communicate their ideas or provide explanations using their own scientific experience and that of others.

PYP Conceptual understandings for the four strands of Science:

- **Living things:** The study of the characteristics, systems and behaviours of humans and other animals, and of plants; the interactions and relationships between and among them, and with their environment.
- **Earth and space:** The study of planet Earth and its position in the universe, particularly its relationship with the sun; the natural phenomena and systems that shape the planet and the distinctive features that identify it; the infinite and finite resources of the planet.
- **Materials and matter:** The study of the properties, behaviours and uses of materials, both natural and human-made; the origins of human-made materials and how they are manipulated to suit a purpose.
- **Forces and energy:** The study of energy, its origins, storage and transfer, and the work it can do; the study of forces; the application of scientific understanding through inventions

YR 5	Living Things	Earth andSpace	Materials andMatter	Forces andEnergy
	<p>Related Concept-food chains (Integrated- Where we are in place and time)</p> <ul style="list-style-type: none"> • I know that food chains can be used to represent feeding relationships in a habitat, and present these in text and diagram. • I can explore and construct food chains in a particular habitat. • I know and understand the term producer • I know that food chains begin with a plant (the producer), which uses energy from the sun. • I know and understand the terms producer and consumer predator and prey. • I can construct and interpret a variety of food chains, identifying producers, predators and prey. <p>Related Concept- change, lifecycles, life processes (Outside Pol Learning)</p> <ul style="list-style-type: none"> • I can explain the life processes that are common to humans and animals including nutrition, movement, growth and reproduction • I can describe the changes as humans develop to old age. 	<p>(Outside Pol Learning) Related Concepts- Sun, Space</p> <ul style="list-style-type: none"> • I can model how the spin of the Earth leads to day and night • I can explore how the sun appears to move during the day. • I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system • I can describe the movement of the Moon relative to the Earth • I can describe the Sun, Earth and Moon as approximately spherical bodies • I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 	<p>Related Concepts- Properties and changes of materials (hardness, solubility, transparency, conductivity, response to magnets)</p> <p>(Outside Pol Learning)</p> <ul style="list-style-type: none"> • I can 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 • I know that some materials will dissolve in liquid to form a solution, and I can describe how to recover a substance from a solution • I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • I can demonstrate that dissolving, mixing and changes of state are reversible changes • I can 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. 	<p>Related Concepts (gravity, air resistance, water resistance and friction, force and motion) (Outside Pol Learning)</p> <ul style="list-style-type: none"> • I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces • I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <p>(Integrated Sharing the planet) Related Concepts- conduction and convection energy, sustainability, systems (carbon cycle)</p> <ul style="list-style-type: none"> • I can investigate how some materials are better than conductors of electricity than others. • I can investigate how some metals are good conductors of electricity and most other materials are not. • I can identify and describe what energy is and the different forms of energy. • I can explain the differences between renewable and non-renewable forms of energy. • I can demonstrate and explain how different forms of energy are used/transformed • I can investigate how energy can be transformed

				and converted into electrical energy to light up our houses, power our utensils etc.
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Science Skills:

- I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- I can use test results to make predictions to set up further comparative and fair tests
- I can report and present 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
- I can identify scientific evidence that has been used to support or refute ideas or arguments.

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YR 6	Living Things	Earth andSpace	Materials andMatter	Forces andEnergy
	<p>Related Concepts- classification, characteristics and Biology, Organisms (Outside PoI Learning)</p> <ul style="list-style-type: none"> • I can 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 • I can give reasons for classifying plants and animals based on specific characteristics <p>Related Concepts-maturity and wellbeing (Integrated Who we are)</p> <ul style="list-style-type: none"> • I can identify and explain the stages in the lifecycle of the human. • I can identify and explain the physical changes that adolescents experience. • I can generate questions to be explored regarding physical, emotional and social changes adolescents experience. • I can explore the importance of personal hygiene and nutritional choices. • I can investigate healthy food choices. • I can make informed choices about my wellbeing by considering scientific models and information. 	<p>Related Concept- Geography (Integrated- Where we are in place and time)</p> <ul style="list-style-type: none"> • I can investigate the parts of a map • I can investigate map elements • I can identify and record migration zones on the map • I can use maps to identify different types of scale to measure distances between two places <p>(Outside PoI Learning)</p> <p>Related Concepts- Space</p> <ul style="list-style-type: none"> • I can identify regular and irregular events in time and space that occur in the solar system • I can examine the impact of events that occur in the solar system on the Earth • I can investigate and explain how stars are used for navigation • I can demonstrate an understanding of other methods of navigation (for example, compasses, satellites) 	<p>Related Concepts- Properties and changes of materials (Outside PoI Learning)</p> <ul style="list-style-type: none"> • I can explore how some solids dissolve in water to form solutions and, although the solid cannot be seen, the substance is still present. • I can distinguish between reversible and irreversible changes. 	<p>Related Concept- Light (how light behaves) (Outside PoI Learning)</p> <ul style="list-style-type: none"> • I can recognise that light appears to travel in straight lines • I can 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 • I can 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 same shape as the objects that cast them <p>(Outside PoI Learning)</p> <p>Related Concepts- Electricity(voltage, simple circuit diagrams)</p> <ul style="list-style-type: none"> • I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • I can 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 • I can use recognised symbols when representing a simple circuit in a diagram. • I can predict and test the effects of making changes to circuits including length and thickness of wire and the number and types of components. • I can represent series circuits with drawings and conventional symbols. • I know that metals are used for cables and wires and why plastics are used to cover wires and as covers for plugs and switches.

	<p>Related Concepts- Evolution and inheritance (Outside Pol Learning)</p> <ul style="list-style-type: none"> • I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 			<p>Related concepts: Technology, Forces and Ingenuity (Integrated How the world works)</p> <ul style="list-style-type: none"> • I can identify inventions and technology from the past and present and the reasons why they were invented. • I can describe the impact of technology and inventions on the organisation of society and the environment (positive and negative affects) • I can explore how inventions and technology work. • I can plan and carry out investigations on forces and simple machines (e.g. pulleys, levers, wheel and axle) • I can distinguish between mass measured in kilograms and weight measured in Newtons, noting that kilograms are used in everyday life • I understand the notion of energy in movement. • I can make predictions on how inventions work. • I can interpret and develop an understanding of how inventions work from simple investigations and considering scientific models. • I can make predictions about future inventions and technology based on future needs.
<p>Science Skills:</p> <ul style="list-style-type: none"> • I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • I can use test results to make predictions to set up further comparative and fair tests • I can report and present 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 • I can identify scientific evidence that has been used to support or refute ideas or arguments. 				