

GERMAN EUROPEAN SCHOOL MANILA  
INTERNATIONAL PRIMARY SCIENCE SCOPE AND SEQUENCE  
CAMBRIDGE PRIMARY INTERNATIONAL

	PRE-PRIMARY	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5
<b>SCIENTIFIC ENQUIRY</b>	<p><b>Ideas and evidence</b> Try to answer questions by collecting evidence through observation.</p> <p><b>Plan investigative work</b> Ask questions and contribute to discussions about how to seek answers.</p> <p>Make predictions.</p> <p>Decide what to do to try to answer a science question.</p> <p><b>Obtain and present evidence</b> Explore and observe in order to collect evidence (measurements and observations) to answer questions.</p> <p>Suggest ideas and follow instructions.</p> <p>Record stages in work.</p>	<p><b>Ideas and evidence</b> Collect evidence by making observations when trying to answer a science question.</p> <p>Use first hand experience, e.g. observe melting ice.</p> <p>Use simple information sources.</p> <p><b>Plan investigative work</b> Ask questions and suggest ways to answer them.</p> <p>Predict what will happen before deciding what to do.</p> <p>Recognise that a test or comparison may be unfair.</p> <p><b>Obtain and present evidence</b> Make suggestions for collecting evidence.</p> <p>Talk about risks and how to avoid danger.</p>	<p><b>Ideas and evidence</b> Collect evidence in a variety of contexts to answer questions or test ideas.</p> <p><b>Plan investigative work</b> Suggest ideas, make predictions and communicate these.</p> <p>With help, think about collecting evidence and planning fair tests.</p> <p><b>Obtain and present evidence</b> Observe and compare objects, living things and events.</p> <p>Measure using simple equipment and record observations in a variety of ways.</p> <p>Present results in drawings, bar charts and tables.</p> <p><b>Consider evidence and approach</b> Draw conclusions from results and begin to use scientific</p>	<p><b>Ideas and evidence</b> Collect evidence in a variety of contexts.</p> <p>Test an idea or prediction based on scientific knowledge and understanding .</p> <p><b>Plan investigative work</b> Suggest questions that can be tested and make predictions; communicate these.</p> <p>Design a fair test and plan how to collect sufficient evidence.</p> <p>Choose apparatus and decide what to measure.</p> <p><b>Obtain and present evidence</b> Make relevant observations and comparisons in a variety of contexts .</p> <p>Measure temperature, time, force and length.</p>	<p><b>Ideas and evidence</b> Know that scientists have combined evidence with creative thinking to suggest new ideas and explanations for phenomena.</p> <p>5Use observation and measurement to test predictions and make links .</p> <p><b>Plan investigative work</b> Make predictions of what will happen based on scientific knowledge &amp; understanding, and suggest &amp; communicate how to test these.</p> <p>Use knowledge and understanding to plan how to carry out a fair test.</p> <p>Collect sufficient evidence to test an idea.</p> <p>Identify factors that need to be taken into account in different contexts.</p> <p><b>Obtain and present evidence</b></p>	<p><b>Ideas and evidence</b> Consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena.</p> <p>Collect evidence and data to test ideas including predictions.</p> <p><b>Plan investigative work</b> Discuss how to turn ideas into a form that can be tested 6Ep4 Make predictions using scientific knowledge and understanding.</p> <p>Choose what evidence to collect to investigate a question, ensuring that the evidence is sufficient 6Ep6 Identify factors that are relevant to a particular situation.</p> <p>Choose which equipment to use.</p>

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	<p><b>Consider evidence and approach</b> Make comparisons.</p> <p>Compare what happened with predictions.</p> <p>Model and communicate ideas in order to share, explain and develop them.</p>	<p>Make and record observations.</p> <p>Take simple measurements.</p> <p>Use a variety of ways to tell others what happened.</p> <p><b>Consider evidence and approach</b> Make comparisons .</p> <p>Identify simple patterns and associations.</p> <p>Talk about predictions (orally and in text), the outcome and why this happened.</p> <p>Review and explain what happened .</p>	<p>knowledge to suggest explanations.</p> <p>Make generalisations and begin to identify simple patterns in results.</p>	<p>Begin to think about the need for repeated measurements of, for example, length 4Eo4 Present results in drawings, bar charts and tables .</p> <p><b>Consider evidence and approach</b> Identify simple trends and patterns in results and suggest explanations for some of these.</p> <p>Explain what the evidence shows and whether it supports predictions. Communicate this clearly to others.</p> <p>Link evidence to scientific knowledge and understanding in some contexts.</p>	<p>Make relevant observations.</p> <p>Measure volume, temperature, time, length and force.</p> <p>Discuss the need for repeated observations and measurements.</p> <p>Present results in bar charts and line graphs.</p> <p><b>Consider evidence and approach</b> Decide whether results support predictions.</p> <p>Begin to evaluate repeated results.</p> <p>Recognise and make predictions from patterns in data and suggest explanations using scientific knowledge and understanding.</p> <p>Interpret data and think about whether it is sufficient to draw conclusions</p>	<p><b>Obtain and present evidence</b> Make a variety of relevant observations and measurements using simple apparatus correctly.</p> <p>Decide when observations and measurements need to be checked by repeating to give more reliable data.</p> <p>Use tables, bar charts and line graphs to present results.</p> <p><b>Consider evidence and approach</b> Make comparisons.</p> <p>Evaluate repeated results .</p> <p>Identify patterns in results and results that do not appear to fit the pattern.</p> <p>Use results to draw conclusions and to make further predictions.</p> <p>Suggest and evaluate explanations for predictions using scientific knowledge and understanding and</p>
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						<p>communicate these clearly to others.</p> <p>Say if and how evidence supports any prediction made.</p>
<b>BIOLOGY</b>	<p><b>Plants</b> Know that plants are living things.</p> <p>Know that there are living things and things that have never been alive.</p> <p>Explore ways that different animals and plants inhabit local environments.</p> <p>Name the major parts of a plant, looking at real plants and models.</p> <p>Know that plants need light and water to grow.</p> <p>Explore how seeds grow into flowering plants.</p> <p><b>Humans and animals</b></p>	<p><b>Living things in their environment</b> Identify similarities and differences between local environments and know about some of the ways in which these affect the animals and plants that are found there.</p> <p>Understand ways to care for the environment. Secondary sources can be used.</p> <p>Observe and talk about their observation of the weather, recording reports of weather data</p>	<p><b>Plants</b> Know that plants have roots, leaves, stems and flowers.</p> <p>Explain observations that plants need water and light to grow.</p> <p>Know that water is taken in through the roots and transported through the stem .</p> <p>Know that plants need healthy roots, leaves and stems to grow well.</p> <p>Know that plant growth is affected by temperature.</p> <p><b>Humans and animals</b> Know life processes common to humans and animals include nutrition (water and food), movement, growth and reproduction.</p>	<p><b>Humans and animals</b> Know that humans (and some animals) have bony skeletons inside their bodies.</p> <p>Know how skeletons grow as humans grow, support and protect the body.</p> <p>Know that animals with skeletons have muscles attached to the bones.</p> <p>Know how a muscle has to contract (shorten) to make a bone move and muscles act in pairs.</p> <p>Explain the role of drugs as medicines.</p> <p><b>Living things in their environment</b> Investigate how different animals are found in different habitats and are suited to the environment in which they are found.</p>	<p><b>Plants</b> Know that plants need energy from light for growth.</p> <p>Know that plants reproduce.</p> <p>Observe how seeds can be dispersed in a variety of ways.</p> <p>Investigate how seeds need water and warmth for germination, but not light.</p> <p>Know that insects pollinate some flowers.</p> <p>Observe that plants produce flowers which have male and female organs; seeds are formed when pollen from the male organ fertilises the ovum (female).</p> <p>Recognise that flowering plants have a life cycle including pollination, fertilisation, seed production,</p>	<p><b>Humans and animals</b> Use scientific names for some major organs of body systems.</p> <p>Identify the position of major organs in the body.</p> <p>Describe the main functions of the major organs of the body.</p> <p>Explain how the functions of the major organs are essential.</p> <p><b>Living things in their environment</b> Explore how humans have positive and negative effects on the environment, e.g. loss of species, protection of habitats.</p> <p>Explore a number of ways of caring for the environment, e.g. recycling, reducing waste, reducing energy consumption,</p>

	<p>Recognise the similarities and differences between each other.</p> <p>Recognise and name the main external parts of the body. Know about the need for a healthy diet, including the right types of food and water</p> <p>Explore how senses enable humans and animals to be aware of the world around them.</p> <p>Know that humans and animals produce offspring which grow into adults</p>		<p>Describe differences between living and non-living things using knowledge of life processes.</p> <p>Explore and research exercise and the adequate, varied diet needed to keep healthy.</p> <p>Know that some foods can be damaging to health, e.g. very sweet and fatty foods.</p> <p>Explore human senses and the ways we use them to learn about our world.</p> <p>Sort living things into groups, using simple features and describe rationale for groupings.</p>	<p>Use simple identification keys.</p> <p>Recognise ways that human activity affects the environment, e.g. river pollution, recycling waste.</p>	<p>seed dispersal and germination.</p>	<p>not littering, encouraging others to care for the environment.</p> <p>Know how food chains can be used to represent feeding relationships in a habitat and present these in text and diagrams.</p> <p>Know that food chains begin with a plant (the producer), which uses energy from the sun.</p> <p>Understand the terms <i>producer</i>, <i>consumer</i>, <i>predator</i> and <i>prey</i>.</p> <p>Explore and construct food chains in a particular habitat.</p>
<b>CHEMISTRY</b>	<p><b>Material properties</b> Use senses to explore and talk about different materials.</p> <p>Identify the characteristics of different materials.</p>	<p><b>Material properties</b> Recognise some types of rocks and the uses of different rocks.</p> <p>Know that some materials occur naturally and others are man-made.</p>	<p><b>Material properties</b> Know that every material has specific properties, e.g. hard, soft, shiny.</p> <p>Sort materials according to their properties.</p>	<p><b>States of matter</b> Know that matter can be solid, liquid or gas.</p> <p>Investigate how materials change when they are heated and cooled.</p>	<p><b>States of matter</b> Know that evaporation occurs when a liquid turns into a gas.</p> <p>Know that condensation occurs when a gas turns into a liquid and that it is the reverse of evaporation.</p>	<p><b>Material changes</b> Distinguish between reversible and irreversible changes.</p> <p>Explore how solids can be mixed and how it is often</p>

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	<p>Recognise and name common materials . Sort objects into groups based on the properties of their materials</p>	<p><b>Material changes</b></p> <p>Know how the shapes of some materials can be changed by squashing, bending, twisting and/or stretching .</p> <p>Explore and describe the way some everyday materials change when they are heated or cooled.</p> <p>Recognise that some materials can dissolve in water .</p>	<p>Explore how some materials are magnetic but many are not.</p> <p>Discuss why materials are chosen for specific purposes on the basis of their properties.</p>	<p>Know that melting is when a solid turns into a liquid and is the reverse of freezing.</p> <p>Observe how water turns into steam when it is heated but on cooling the steam turns back into water.</p>	<p>Know that air contains water vapour and when this meets a cold surface it may condense.</p> <p>Know that the boiling point of water is 100 °C and the melting point of ice is 0 °C.</p> <p>Know that when a liquid evaporates from a solution the solid is left behind.</p>	<p>possible to separate them again.</p> <p>Observe, describe, record and begin to explain changes that occur when some solids are added to water.</p> <p>Explore how, when solids do not dissolve or react with water, they can be separated by filtering, which is similar to sieving.</p> <p>Explore how some solids dissolve in water to form solutions and, although the solid cannot be seen, the substance is still present.</p>
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<b>PHYSICS</b>	<p><b>Forces</b> Explore, talk about and describe the movement of familiar things.</p> <p>Recognise that both pushes and pulls are forces.</p> <p>Recognise that when things speed up, slow down or change direction there is a cause.</p> <p><b>Sound</b> Identify many sources of sound. Know that we hear when sound enters our ear.</p> <p>Recognise that as sound travels from a source it becomes fainter.</p>	<p><b>Light and dark</b> Identify different light sources including the sun.</p> <p>Know that darkness is the absence of light.</p> <p>Be able to identify shadows</p> <p><b>Electricity</b> Recognise the components of simple circuits involving cells (batteries).</p> <p>Know how a switch can be used to break a circuit.</p> <p><b>The Earth and beyond</b> Explore how the sun <i>appears</i> to move during the day and how shadows change.</p> <p>Model how the spin of the Earth leads to day and night, e.g. with different sized balls and a torch.</p>	<p><b>Forces and motion</b> Know that pushes and pulls are examples of forces and that they can be measured with forcemeters.</p> <p>Explore how forces can make objects start or stop moving.</p> <p>Explore how forces can change the shape of objects.</p> <p>Explore how forces, including friction, can make objects move faster or slower or change direction.</p>	<p><b>Sound</b> Explore how sounds are made when objects, materials or air vibrate and learn to measure the volume of sound in decibels with a sound level meter.</p> <p>Investigate how sound travels through different materials to the ear.</p> <p>Investigate how some materials are effective in preventing sound from travelling through them.</p> <p>Investigate the way <i>pitch</i> describes how high or low a sound is and that high and low sounds can be loud or soft. Secondary sources can be used.</p> <p>Explore how pitch can be changed in musical instruments in a range of ways.</p> <p><b>Electricity and magnetism</b></p>	<p><b>Light</b> Observe that shadows are formed when light travelling from a source is blocked.</p> <p>Investigate how the size of a shadow is affected by the position of the object.</p> <p>Observe that shadows change in length and position throughout the day.</p> <p>Know that light intensity can be measured.</p> <p>Explore how opaque materials do not let light through and transparent materials let a lot of light through.</p> <p>Know that we see light sources because light from the source enters our eyes.</p> <p>Know that beams/rays of light can be reflected by surfaces including mirrors, and when reflected light enters our eyes we see the object.</p>	<p><b>Forces and motion</b> Distinguish between mass measured in kilograms (kg) and weight measured in newtons, noting that kilograms are used in everyday life.</p> <p>Recognise and use units of force, mass and weight and identify the direction in which forces act.</p> <p>Understand the notion of energy in movement 6Pf4 Recognise friction (including air resistance) as a force which can affect the speed at which objects move and which sometimes stops things moving.</p> <p><b>Electricity and magnetism</b> Investigate how some materials are better conductors of electricity than others.</p> <p>Investigate how some metals are good conductors of electricity while most other materials are not.</p>



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				<p>Construct complete circuits using switch, cell (battery), wire and lamps. Explore how an electrical device will not work if there is a break in the circuit.</p> <p>Know that electrical current flows and that models can describe this flow, e.g. particles travelling around a circuit.</p> <p>Explore the forces between magnets and know that magnets can attract or repel each other.</p> <p>Know that magnets attract some metals but not others .</p>	<p>Explore why a beam of light changes direction when it is reflected from a surface . <b>The Earth and beyond</b> Explore, through modeling, that the sun does not move; its <i>apparent</i> movement is caused by the Earth spinning on its axis.</p> <p>Know that the Earth spins on its axis once in every 24 hours.</p> <p>Know that the Earth takes a year to orbit the sun, spinning as it goes.</p> <p>Research the lives and discoveries of scientists who explored the solar system and stars.</p>	<p>Know why metals are used for cables and wires and why plastics are used to cover wires and as covers for plugs and switches.</p> <p>Predict and test the effects of making changes to circuits, including length or thickness of wire and the number and type of components.</p> <p>Represent series circuits with drawings and conventional symbols.</p>
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