

Australian Fossil and Mineral Museum programs adapted for the Australian Curriculum

The Australian Fossil and Mineral Museum, Bathurst, have adapted our education programs for 2015 to reflect the NSW Australian Curriculum outcomes across a range of stages.

We offer a range of core programs that have been adapted to reflect the outcomes of the NSW Australian Curriculum. Our programs include on site guided and non guided tours and a range of interactive video conferencing programs with strong links to literacy outcomes.

NSW Australian Curriculum Outcomes and Content for each program are identified.

Guided and Self Guided Tours Science Outcomes and Content.

The following tables detail the specific science outcomes and the content that is covered at a museum visit for stages 1 to 5.

| Stage 1 Science Outcomes | Content |
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| <p>Working Scientifically ST1-4WS 'investigates questions and predicts by collecting and recording data, sharing and reflecting on their experiences and comparing what they and other know'</p> | <p>Uses fieldwork to collect, obtain and share information. Represent their information in a variety of ways, including written and oral communication.</p> |
| <p>Physical World ST1-8ES 'Describe some of the observable changes that occur in the landscape'</p> | <p>Understand how long term changes occur on the Earth's surface as a result of erosion and weathering.</p> |
| <p>ST1-9ES 'identifies ways that people use science in their everyday lives to care for the environment and Earth's resources'</p> | <p>Identifies common rocks and minerals and what we use them for at home and at school. How mining is carried out to be environmentally sensitive. How recycling aids in preserving non-renewable resources.</p> |
| <p>Living World (Fossils Evidence) ST1-10LW 'describes external features, changes in and growth of living things'</p> | <p>Identify what types of organisms (plant, animal, fish etc) are represented by fossils.</p> |
| <p>ST1-11LW 'describes ways in which different places in the environment provide for the needs of living things'</p> | <p>Identify the types of environments that different fossils may have lived in. What needs did the different organism have (eg what they ate, or where they grew).</p> |
| <p>Products ST1-16P 'describe a range of manufactured products in the local environment and how their different purposes influence their design'</p> | <p>Find examples of how minerals and rocks are used in their everyday life and how recycling can aid in reducing harm to the environment.</p> |

| Stage 2 Science Outcomes | Content |
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| <p>Working Scientifically ST2-4WS 'investigates their questions and predictions by analysing collecting data, suggesting explanations for their findings, and communicating and reflecting on the processes undertaken'</p> | <p>Uses a range of methods to record and present their observations and findings, which may or may include technology (ST2-5WT)</p> |
| <p>ST2-8ES 'Describes some observable changes over time on the Earth's surface that result from natural processes and human activity'</p> | <p>How erosion, weathering, volcanic activity, earthquakes etc can affect and change the Earth's surface.</p> |

Australian Fossil and Mineral Museum Education Programs - Outcomes and Content

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| <p>Living World ST2-10LW 'describes that living things have life cycles, can be distinguished from non-living things and grouped, based on their observable features'</p> <p>Material World ST2-13MW 'identifies the physical properties of natural and processed materials, and how these properties influence their use'</p> <p>ST2-16P 'describes how products are designed and produced, and the ways people use them'</p> | <p>Use fossil information to tell us about the environment the plants and animals lived in, how they grew, were born and what they ate. Identify and classify fossil life into groups based on the fossil evidence. The roles did these organisms have in the environment (prey/predator, food, scavenger)</p> <p>Identify the properties of ores and rocks and what and how we use them for. For example, how rock is used for road base, how concrete is made. How Earth's resources are used in everyday life.</p> <p>How non-renewable resources are recycled. How products from mining are used in their school, home and local environment.</p> |
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| Stage 3 Science Outcomes | |
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| <p>Working Scientifically ST3-4WS 'investigates by posing questions, including testable questions, making predictions and gathering data to draw evidence-based conclusions and develop explanations'</p> <p>Earth and Space ST3-9ES 'explains rapid change at the Earth's surface caused by natural events, using evidence provided by advances in technology and scientific understanding'</p> <p>Living World ST3-10LW 'describes how structural features and other adaptations of living things help them to survive in their environment'</p> <p>ST3-13MW 'describes how the properties of materials determine their specific purposes'</p> | <p>Collect data on minerals and fossils from primary and secondary sources using fieldwork. Work individual and collaboratively to pose questions and test theories. Collect, present and reflect upon findings from the fieldwork.</p> <p>How earthquakes (tsunamis), and volcanic eruptions occur. How we record and predict event such as Tsunamis, volcanic eruptions and earthquakes. The areas on Earth that are prone to geological disasters. How we can prepare for geological disasters.</p> <p>Observe how organisms changed and adapted over periods of time. Observe features that organisms used to protect themselves. Discuss features that organisms needed to adapt to a range of environments.</p> <p>Identify products from mining that they use in their everyday life. Learn how the properties of the product influence its use (copper as a conductor, gold for jewellery etc)</p> |

| Stage 4 Science Outcomes | Content |
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| <p>Working Scientifically Conducting Investigations SC4-6WS 'follows a sequence of instructions to safely</p> | <p>Conducts an investigation by collecting data on a field</p> |

Australian Fossil and Mineral Museum Education Programs - Outcomes and Content

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| <p>undertake a range of investigation types, collaboratively or individually'</p> <p>Processing and Analysing Data and Information SC4-7WS 'Processes and analyses data from a firsthand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions'</p> <p>Communicating SC4-9WS 'Presents science ideas, findings and information to a given audience using appropriate scientific language, text types and representations'</p> <p>Earth and Space SC4-12ES 'describe the dynamic nature of models, theories and laws in developing scientific understanding of Earth and the solar system'</p> <p>SC4-13ES 'explains how advances in scientific understanding of processes that occur within and on the Earth, influence the choices people make about resource use and management'</p> <p>Living World SC4-14LW 'relates the structure and function of living things to their classifications, survival and reproduction'</p> <p>Chemical World SC4-17CW 'explains how the scientific understanding of, and discoveries about, the properties of elements, compounds and mixtures relate to their uses in everyday life'</p> | <p>trip. Asks questions and acquires data from primary and secondary sources, either individually or as part of a group.</p> <p>Produces a summary of their findings in a variety of multimodal forms of communication. Reports on the development of their own theories based on data and the quality of the data.</p> <p>Presents their finding to their peers in a range of multimodal forms, using the relevant scientific terms.</p> <p>ES1 The structure of the Earth. The landforms of Earth and how geological processes, such as weathering and erosion contribute to the geological landforms. The relationships between types of rocks such as igneous, sedimentary and metamorphic rock and observe features of common types of rocks. Forces that act upon the Earth that can alter rocks and landforms. Types of ores and minerals and resources mined and used within the region. How early miners in the region (1800's) explored and used geological knowledge to locate and exploit gold and other resources. How fossils occur and how they can be used to date and sequence types of rocks.</p> <p>ES3 Uses of ores as a non-renewable resources. Debate modern environmental impacts caused by mining. Uses and features of metal ores and fossil fuels.</p> <p>LW1 Though fossils represent living things of the past, identify the features of the organism and classify them according to the fossil evidence. Identify how the organism reproduced.</p> <p>CW2 Understand that ores, minerals and rocks are made of combinations of elements and chemical compounds. Understand how and why some elements can be found in their natural state and others as compounds, according to reactivity.</p> |
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Australian Fossil and Mineral Museum Education Programs - Outcomes and Content

| Stage 5 Science Outcomes | Content |
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| <p>Working Scientifically Conducting Investigations SC5-6WS 'undertakes first-hand investigations to collect valid and reliable data and information, individually and collaboratively'</p> | <p>WS6 Collects data from a range of sources, including fieldwork either as individuals or as groups.</p> |
| <p>Processing and Analysing Data and Information SC5-7WS 'Processes, analyses and evaluates data from first-hand investigations and secondary sources to develop evidence based arguments and conclusions'</p> | <p>WS7.1 Students present their data using a range of multimodal forms.</p> |
| <p>Communicating SC5-9WS 'Presents science ideas and evidence for a particular purpose and to a specific audience, using appropriate language, conventions and representations'</p> | <p>WS9 Using multimodal texts and using appropriate scientific language and terms, present their findings and reflect on how they conform to their theories.</p> |
| <p>Earth and Space SC5-12ES 'Describes the changing ideas about the structure of the Earth, to illustrate how models, theories and laws are refined over time by the scientific community'</p> | <p>ES2 Plate tectonics and the relationship to volcanic and earthquake activity over time. How developing theories and technologies have aided our understanding of how volcanic and earthquake activity occurs.</p> |
| <p>SC5-15LW 'Explains how biological understanding has advanced through scientific discoveries, technological developments and the needs of society'</p> | <p>LW4 Examine how the fossil record provides evidence of how present day organisms have evolved. How the fossil record can be used to determine the changes that have occurred over time.</p> |