Belridge Secondary College

2015

Year 8 Scientific Inquiry & Earth and Space Sciences

Students use experimentation to isolate relationships between components in systems and explain these relationships through increasingly complex representations. They make predictions and propose explanations, drawing on evidence to support their views.

Students begin to classify different forms of energy, and describe the role of energy in causing change in systems, including the role of heat and kinetic energy in the rock cycle.

This term’s work will be broken up into two areas of focus

Science Inquiry

- Questioning & predicting
- Planning & Conducting
- Processing & analysing data & information
- Evaluating
- Communicating

Earth & Space Sciences

Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales (ACSSU153)

Vocabulary & Grammar

Below is a list of science words and phrases that students should know: the meaning of; and be able to spell; by the end of term:

<table>
<thead>
<tr>
<th>investigation</th>
<th>dependent</th>
<th>processing</th>
<th>discrepancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>planning</td>
<td>control</td>
<td>table</td>
<td>error</td>
</tr>
<tr>
<td>observation</td>
<td>controlled</td>
<td>average</td>
<td>methodology</td>
</tr>
<tr>
<td>inference</td>
<td>equipment</td>
<td>discrete</td>
<td>improvement</td>
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<tr>
<td>prediction</td>
<td>procedure</td>
<td>continuous</td>
<td>igneous</td>
</tr>
<tr>
<td>hypothesis</td>
<td>safety</td>
<td>pattern</td>
<td>sedimentary</td>
</tr>
<tr>
<td>variables</td>
<td>repeated</td>
<td>relationship</td>
<td>metamorphic</td>
</tr>
<tr>
<td>independent</td>
<td>trials</td>
<td>evaluation</td>
<td>suggestion</td>
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</tbody>
</table>

There is an expectation that students will make every effort to correctly use capitals, full stops, commas, semi colons, apostrophes, question marks and exclamation marks.

Assessment

A number of assessments will be used throughout the term to identify the students understanding in the course and be used to determine a grade. Student achievement will be reported using the following descriptors. Examples of the standards that earn an A-E grade in Years 1-10 are available at: www.curriculumsupport.det.wa.edu.au.

<table>
<thead>
<tr>
<th>Common Assessment Tasks</th>
<th>Grade</th>
<th>Description</th>
<th>The student demonstrates:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment &amp; Measuring Test</td>
<td>A</td>
<td>Excellent</td>
<td>excellent achievement of what is expected for this year level.</td>
</tr>
<tr>
<td>Pendulum Inquiry Inv.</td>
<td>B</td>
<td>High</td>
<td>high achievement of what is expected for this year level.</td>
</tr>
<tr>
<td>Safety Validation Test</td>
<td>C</td>
<td>Satisfactory</td>
<td>satisfactory achievement of what is expected for this year level.</td>
</tr>
<tr>
<td>Rock Test</td>
<td>D</td>
<td>Limited</td>
<td>limited achievement of what is expected for this year level.</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Very Low</td>
<td>very low achievement of what is expected for this year level.</td>
</tr>
</tbody>
</table>
**Questioning and predicting**

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSI139)
- considering whether investigation using available resources is possible when identifying questions or problems to investigate
- recognising that the solution of some questions and problems requires consideration of social, cultural, economic or moral aspects rather than or as well as scientific investigation
- using information and knowledge from their own investigations and secondary sources to predict the expected results from an investigation

**Planning and conducting**

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed (ACSI140)
- working collaboratively to decide how to best approach an investigation
- identifying any ethical considerations that may apply to the investigation
- taking into consideration all aspects of fair testing, available equipment and safe investigation when planning investigations
In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task (ACSI141)
- using specialised equipment to increase the accuracy of measurement within an investigation
- identifying and explaining the differences between controlled, dependent and independent variables

**Processing and analysing data and information**

Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate (ACSI144)
- describing measures of central tendency and identifying outliers for quantitative data
- explaining the strengths and limitations of representations such as physical models, diagrams and simulations in terms of the attributes of systems included or not included
Summarise data, from students’ own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions (ACSI145)
- constructing tables, graphs, keys and models to represent relationships and trends in collected data
- drawing conclusions based on a range of evidence including primary and secondary sources

**Evaluating**

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method (ACSI146)
- suggesting improvements to investigation methods that would improve the accuracy of the data recorded
- discussing investigation methods with others to share ideas about the quality of the inquiry process
Use scientific knowledge and findings from investigations to evaluate claims (ACSI234)
- identifying the scientific evidence available to evaluate claims
- deciding whether or not to accept claims based on scientific evidence
- identifying where science has been used to make claims relating to products and practices

**Communicating**

Communicate ideas, findings and solutions to problems using scientific language and representations using digital technologies as appropriate (ACSI148)
- using digital technologies to construct a range of text types to present science ideas
- Selecting and using appropriate language and representations to communicate science ideas within a specified text type and for a specified audience

**Earth and Space Sciences**

Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales (ACSSU153)
- representing the stages in the formation of igneous, metamorphic and sedimentary rocks, including indications of timescales involved
- identifying a range of common rock types using a key based on observable physical and chemical properties
- recognising that rocks are a collection of different minerals
- considering the role of forces and energy in the formation of different types of rocks and minerals
- recognising that some rocks and minerals, such as ores, provide valuable resources

2015
### Term 1 – Year 8 – Scientific Inquiry & Earth and Space Science

#### 2015

<table>
<thead>
<tr>
<th>Week</th>
<th>Content</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| 1    | **Introduction to Science**  
|      | • Laboratory safety |    |
| 2    | • Scientific equipment in the laboratory - use and application | **Safety validation test 10%** |
| 3    | • Bunsen Burner – Use and application |    |
| 4    | • Scientific working – observation and graphing data | **Equipment and Measuring Test 30%** |
| 5    | • Scientific working – writing and testing hypotheses |    |
| 6 - 7| • Scientific working – writing reports  
|      | • Pendulum investigation | **Pendulum Inquiry 30%** |
| 8    | **Earth and Space Science**  
|      | • The rock cycle  
|      | • Weathering and erosion |    |
| 9    | • Rock classification | **Rock Test 30%** |

The order of the content and the time in which they are covered are only a guide. Circumstances may result in changes during the year. The Science Department reserves the right to alter the order the objectives are taught and time over which they are taught.