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.

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

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

**Forces & Motion**
Change to an object’s motion is caused by unbalanced forces acting on the object (ACSSU117)

**Earth’s gravity**
Earth’s gravity pulls objects towards the centre of the Earth (ACSSU118)

**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:

- Observation
- Inference
- Hypothesis
- Variables
- Independent
- Dependent
- Controlled
- Equipment
- Procedure
- Safety
- Trials
- Force
- Electrical
- Nuclear
- Gravitational
- Machine
- Lever
- Pulley
- Gears
- Hydraulic
- Inclined
- Attraction
- Repulsion
- Balance
- Weight
- Friction
- Newton

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>Assessment</th>
<th>Grade</th>
<th>Description</th>
<th>The student demonstrates achievement that:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Validation Test</td>
<td>A</td>
<td>Excellent</td>
<td>has greatly exceeded the expected standard. Achievement is well beyond what is expected at this year level.</td>
</tr>
<tr>
<td>Equipment/Measurement Test</td>
<td>B</td>
<td>Good</td>
<td>exceeds the expected standard.</td>
</tr>
<tr>
<td>Forces Test</td>
<td>C</td>
<td>Satisfactory</td>
<td>at the expected standard.</td>
</tr>
<tr>
<td>Gravity Investigation</td>
<td>D</td>
<td>Limited</td>
<td>is below the expected standard.</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>Very Low</td>
<td>is below the minimum acceptable 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 *(ACISIS139)*
- 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 *(ACISIS140)*
- 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 *(ACISIS141)*
- 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 *(ACISIS144)*
- 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* *(ACISIS145)*
- 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 *(ACISIS146)*
- 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 *(ACISIS234)*
- 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

### Physical sciences

Change to an object’s motion is caused by unbalanced *forces* acting on the object *(ACSSU117)*
- investigating the effects of applying different forces to familiar objects
- investigating common situations where forces are balanced, such as stationary objects, and unbalanced, such as falling objects
- investigating a simple machine such as lever or pulley system

Earth’s gravity pulls objects towards the centre of the Earth *(ACSSU118)*
- exploring how gravity affects objects on the surface of Earth
- considering how gravity keeps planets in orbit around the sun

### Use and influence of science

Science and *technology* contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations *(ACSHE120)*
- relating regulations about wearing seatbelts or safety helmets to knowledge of forces and motion

People use understanding and skills from across the disciplines of science in their occupations *(ACSHE224)*
- considering how sports scientists apply knowledge of forces in order to improve performance
## Term 1 – Year 7 – Scientific Inquiry & Physical Sciences 2015

<table>
<thead>
<tr>
<th>Week</th>
<th>Content</th>
<th>Assessment</th>
</tr>
</thead>
</table>
| 1    | **Introduction to Science**  
- Laboratory safety  
- Bunsen Burner – Use and application | Safety validation Test 10% |
| 2    |  
- Scientific equipment in the laboratory- use and application |  |
| 3    |  
- Scientific working – observation and graphing data | Equipment and Measuring Test 30% |
| 4    |  
- Scientific working – writing and testing hypotheses & writing reports |  |
| 5    | **Physical Sciences**  
- Types & measurement of forces  
- Balanced and unbalanced forces |  |
| 6    |  
- Distant and contact forces |  |
| 7    |  
- Gravity | Gravity Investigation 30% |
| 8    |  
- Simple Machines |  |
| 9    |  
- Revision | Forces 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.