



## ASSESSMENT PLAN FOR 2007

### STAGE 1

School: **Australian Science and Mathematics School** Central Studies: **Technological World**

Other schools using this plan \_\_\_\_\_

SSABSA School Code			Year	Enrolment Code			Program Variant Code (A-W)
3	3	5	2007	Stage	Subject Code	No. of Units (1 or 2)	
				1			

### PROGRAM RATIONALE

The program rationale must:

- describe the setting (e.g. student background and needs, resources, timetabling);
- describe the intended teaching program (e.g. scope, themes, methods) and explain how it is designed to meet the needs of the particular student group;
- explain how the assessment outline (see page 242) is designed to provide an opportunity for the student group to succeed.

The Australian Science and Mathematics School has been set up specifically for students with an interest in Science and Mathematics. The students study SACE stage one in an interdisciplinary curriculum that is delivered within twelve Central Studies over two years. In each year the two semesters of Maths and Abstract Thinking will cover two Maths stage one units. We have designed the other four Central Studies so that the following can be resulted during the year: 6 units of group two subjects, 2 units of group one subjects (or 1 group one subject and 1 Australian Studies), 2 units of English or ESL. As year 10 and 11 students are taught together some year 10 students may chose to work at SACE level for some topics and thus obtain some SACE units during year 10.

Technological World has been designed using selected concepts, content, skills, processes, perspectives and attitudes applied in an interdisciplinary way using English, Chemistry, Physics, and History. Students will study in depth the chemistry of metals, the use of metals in architecture and the technologies related to these fields. The physics and technology concepts related to energy will be studied in relation to machines. Technohistory will use the skills of historians to look at the interaction between technological change and culture. The fertile question for this study is *Is technological development the answer for human survival?*

Some tasks are designed so that students can use an enquiry methodology. There is a variety of presentation forms used within the assessment tasks. It is intended that students will develop deep understandings that can be transferred to a multitude of situations and applications.

Signature of principal/SACE coordinator Graeme Oliver \_\_\_\_\_

Assessment plan contact teacher Judy Sara \_\_\_\_\_

Teachers who are resubmitting assessment plans that were previously not approved must record the accession number in the box below.

### SSABSA USE ONLY

Accession number:	Subject code	<input type="text"/>	<input type="text"/>	<input type="text"/>	Accessioned: Date _____
	School code	<input type="text"/>	<input type="text"/>	<input type="text"/>	Entered: Date _____
Approved/Not approved: Date _____ Signature _____					Assessment Field Officer <input type="text"/>

School \_\_\_\_\_ Teacher \_\_\_\_\_

Subject \_\_\_\_\_

SSABSA School Code			Year	Enrolment Code			Program Variant Code (A–W)	
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### LITERACY CHECKLIST

Literacy in the SACE is defined as the ability to understand, analyse, critically respond to, and create spoken, written, and visual communications, and to use information and communication technologies (ICTs) in different contexts.

Summative assessment tasks described in the assessment outline below must give students the opportunity to develop literacy skills. These skills may be developed separately or integrated, depending on the purpose of each task.

Tick at least three of the boxes below, to indicate the types of communication that students will have the opportunity to use:

Spoken Communication  Written Communication  Visual Communication  Use of ICTs

In your description of one of the summative assessment tasks in the assessment outline, indicate how students will be given the opportunity to work critically.

### ASSESSMENT OUTLINE

Please complete the following information in accordance with the curriculum statement. This assessment outline may need to be changed during the teaching program.

Name of Assessment Component	Description of Summative Assessment Tasks	Weighting (%)	Learning Outcomes Measured	Criteria for Judging Performance
<b>Immersion</b>				
History Course work	Immersion: Copper in South	20%	1,2,3,4 explain how particular societies in selected periods and places have been shaped by both internal and external forces; identify and explain historical concepts; understand how hypotheses and focusing questions are used to identify and explain historical concepts and develop skills of historical enquiry; construct reasoned historical arguments based on an understanding of evidence from primary and secondary sources;	<i>understanding</i> How evident is the student's understanding of how individuals and groups affected the course of history? <i>explanation</i> How well does the student explain how societies are shaped by internal and external forces? How well does the student identify and explain historical concepts? How well does the student compare and contrast historical information? <i>skills</i> How well does the student apply the skills of historical enquiry? <i>conclusions</i> To what extent does the student develop and state reasonable conclusions?
<b>Energy and Machines</b>				



Name of Assessment Component	Description of Summative Assessment Tasks	Weighting (%)	Learning Outcomes Measured	Criteria for Judging Performance
Physics Practical Work	Prac report on experiment designed to demonstrate the law of conservation of energy.	20%	1,2,3,4,5,6,8 manipulate apparatus and record observations in physics experiments; design investigations to test physics hypotheses; obtain information about physics from a variety of sources; demonstrate knowledge and understanding of physics concepts; analyse and draw conclusions from physics data; develop solutions to problems in physics; communicate ideas and reasoning, using the terms and conventions of physics.	<p><i>experimental design skills</i>            How clearly does the student identify the purpose of a given experiment?            How clearly does the student identify the independent and dependent variables?            How clearly does the student identify factors that need to be held constant?            How clearly does the student design and describe the procedure to test a hypothesis?</p> <p><i>practical skills</i>            To what extent does the student follow instructions accurately and safely?            How well does the student recognise and respond to hazards?            How well does the student manipulate apparatus?            How well does the student make accurate and honest observations in an experiment?            How effectively does the student cooperate with others?</p> <p><i>presentation</i>            How appropriate is the student's choice of format for the recording and presentation of data?            To what extent does the student use physical terms and units correctly?            How logically does the student present information?</p> <p><i>interpretation and evaluation</i></p> <ul style="list-style-type: none"> <li>• How effectively does the student analyse, interpret, and evaluate an experiment and suggest improvements?</li> <li>• How well does the student identify sources of error?</li> <li>• How well does the student describe the pattern of results and draw a valid conclusion?</li> </ul>
Physics Test	Energy and Machines	20%	4,5,6,7,8 demonstrate knowledge and understanding of physics concepts; analyse and draw conclusions from physics data; develop solutions to problems in physics; use knowledge of physics to make informed personal, social, and environmental decisions; communicate ideas and reasoning, using the terms and conventions of physics.	<p><i>knowledge and understanding</i>            To what extent does the student use physics terms and units correctly?            How accurately does the student use physics terms and units in describing phenomena and applications?            How logical is the sequence of information in the student's work?</p> <p><i>application</i>            How appropriate is the student's selection of physics information to explain technological applications?            How well does the student apply knowledge of physics to problems and unfamiliar situations?            How well does the student use knowledge of physics to make personal and informed social and</p>

Name of Assessment Component	Description of Summative Assessment Tasks	Weighting (%)	Learning Outcomes Measured	Criteria for Judging Performance
				<p>environmental decisions?</p> <p><i>analysis</i></p> <p>How valid are conclusions drawn by the student from physics data?</p> <p>To what extent does the student evaluate the reasonableness of the solution to a problem.</p>
<b>Materials and Architecture</b>				
Chemistry Practical Work	Enhancing the Properties of Metals (A series of activities in which students, heat treat metals, make solder and write an experimental report.)	25%	<p>1, 2, 3, 4, 5, and 8.</p> <p>manipulate apparatus and record observations in chemical experiments;</p> <p>design investigations to test chemical hypotheses;</p> <p>obtain information about chemistry from a variety of sources;</p> <p>demonstrate knowledge and understanding of chemical concepts;</p> <p>analyse and draw conclusions from chemical data;</p> <p>develop solutions to chemical problems;</p> <p>communicate ideas and reasoning, using chemical terms and conventions.</p>	<p><i>experimental design skills</i></p> <p>How clearly does the student identify the purpose of a given experiment?</p> <p>How clearly does the student identify the independent and dependent variables?</p> <p>How clearly does the student identify factors that need to be held constant?</p> <p>How clearly does the student design and describe the procedure to test a hypothesis?</p> <p><i>practical skills</i></p> <p>To what extent does the student follow instructions accurately and safely?</p> <p>How well does the student recognise and respond to hazards?</p> <p>How well does the student manipulate apparatus?</p> <p>How well does the student make accurate and honest observations in an experiment?</p> <p><i>presentation</i></p> <p>How appropriate is the student's choice of format for the recording and presentation of data?</p> <p>To what extent does the student use chemical terms and units correctly?</p> <p>How logically does the student present information?</p> <p><i>interpretation and evaluation</i></p> <p>How effectively does the student analyse, interpret, and evaluate an experiment and suggest improvements?</p> <p>How well does the student identify sources of error?</p> <p>How well does the student describe the pattern of results and draw a valid conclusion?</p>



Name of Assessment Component	Description of Summative Assessment Tasks	Weighting (%)	Learning Outcomes Measured	Criteria for Judging Performance
Chemistry Assignment	Periodic Table	25%	3. obtain information about scientific ideas from a variety of sources; 4. demonstrate knowledge and understanding of scientific concepts; 7. use knowledge of science to make informed personal, social, and environmental decisions; 8. communicate ideas and reasoning, using scientific terms and conventions.	<i>research skills</i> How effective is the student's use and documentation of sources? How clearly does the student analyse sources for relevance, bias, and credibility? <i>understanding</i> To what extent does the student use chemical terms and units correctly? How effectively does the student use chemical terms and units in describing and explaining concepts and processes? How logical is the sequence of information in the student's work? <i>application</i> How well does the student apply knowledge of chemistry to problems and unfamiliar situations? How well does the student use knowledge of chemistry to make personal and informed social and environmental decisions? How effectively does the student identify and discuss alternative points of view on chemical issues?
Chemistry Assignment	Metals and alloys in architecture.	25%	3, 4, 7, and 8. obtain information about chemistry from a variety of sources; demonstrate knowledge and understanding of chemical concepts; develop solutions to chemical problems; use knowledge of chemistry to make informed personal, social, and environmental decisions; communicate ideas and reasoning, using chemical terms and conventions.	<i>research skills</i> How effective is the student's use and documentation of sources? <i>understanding</i> To what extent does the student use chemical terms and units correctly? How effectively does the student use chemical terms and units in describing and explaining concepts and processes? How logical is the sequence of information in the student's work? <i>application</i> How well does the student apply knowledge of chemistry to problems and unfamiliar situations? How well does the student use knowledge of chemistry to make personal and informed social and environmental decisions? How clearly does the student discuss the impact of human practices and decisions on the environment? How effectively does the student identify and discuss alternative points of view on chemical issues?
Chemistry test	Test Materials and Architecture	25%	2,4,5,6,7,8 design investigations to test chemical hypotheses; demonstrate knowledge and understanding of chemical concepts; analyse and draw conclusions from chemical data;	<i>knowledge and understanding</i> To what extent does the student use chemical terms and units correctly? How effectively does the student use chemical terms and units in describing and explaining concepts

Name of Assessment Component	Description of Summative Assessment Tasks	Weighting (%)	Learning Outcomes Measured	Criteria for Judging Performance
			develop solutions to chemical problems; use knowledge of chemistry to make informed personal, social, and environmental decisions; communicate ideas and reasoning, using chemical terms and conventions.	and processes? <i>application</i> How appropriate is the student's selection of chemical information to address problems and unfamiliar situations? How well does the student apply knowledge of chemistry to problems and unfamiliar situations? <i>analysis</i> How valid are conclusions drawn by the student from chemical data? To what extent does the student evaluate the reasonableness of the solution to a problem?
English Text Response and Production	Brooklyn Bridge documentary study	15%	<ol style="list-style-type: none"> <li>1. demonstrate clear and accurate language skills through reading, viewing, writing, listening, and speaking;</li> <li>2. critically analyse a range of texts, which may include written, visual, oral, electronic, and multimedia texts;</li> <li>3. articulate their values, beliefs, concerns, and points of view, and recognise how these are shaped;</li> <li>4. compose texts, in a range of modes and forms, that are relevant to the context and achieve their purpose;</li> <li>5. recognise and explore the social function and power of language.</li> </ol>	<i>knowledge</i> To what extent does the student demonstrate knowledge of the text? <i>understanding and analysis</i> To what extent does the student show understanding of the ideas in the text? How effectively does the student recognise and/or explain how techniques are used by an author to express ideas? How well does the student recognise the values, beliefs, or concerns explored in the text? To what extent does the student recognise the connections between his or her own values, beliefs, or concerns and those explored in the text? <i>communication</i> How accurate and fluent is the student's expression? How appropriate are the form and register for the audience and purpose? The student's performance in <i>text production</i> will be judged by the extent to which he or she demonstrates: <i>understanding</i> To what extent does the student recognise the structural, conventional, and linguistic features of different text types? To what extent does the student recognise the purpose of different text types? <i>communication</i> How well does the student reproduce the structural, conventional, and



Name of Assessment Component	Description of Summative Assessment Tasks	Weighting (%)	Learning Outcomes Measured	Criteria for Judging Performance
				linguistic features of the chosen text type in his or her own text? How accurate and fluent is the student's expression? How appropriate are the form and register for the audience and purpose?
<b>Technohistory</b>				
History Source analysis	Portfolio This is a folio of source analysis tasks related to directed historical study.	20%	1,2,3,4,6 explain how particular societies in selected periods and places have been shaped by both internal and external forces; identify and explain historical concepts; understand how hypotheses and focusing questions are used to identify and explain historical concepts and develop skills of historical enquiry; construct reasoned historical arguments based on an understanding of evidence from primary and secondary sources; show how the study of history leads to an understanding of contemporary problems and issues and may be applied to the formulation of possible solutions.	<i>understanding</i> How evident is the student's understanding of how individuals and groups affected the course of history? <i>Explanation/application</i> How well does the student explain how societies are shaped by internal and external forces? How well does the student identify and explain historical concepts? How well does the student compare and contrast historical information? <i>skills</i> How well does the student apply the skills of historical enquiry? <i>Conclusions/analysis</i> To what extent does the student develop and state reasonable conclusions?
History Source analysis	Technohistory Oral (An oral presentation of a negotiated aspect of student's source analysis.)	10%	2,3,4,6 identify and explain historical concepts; understand how hypotheses and focusing questions are used to identify and explain historical concepts and develop skills of historical enquiry; construct reasoned historical arguments based on an understanding of evidence from primary and secondary sources; show how the study of history leads to an understanding of contemporary problems and issues and may be applied to the formulation of possible solutions.	<i>understanding</i> How evident is the student's understanding of how individuals and groups affected the course of history? <i>Explanation/application</i> How well does the student explain how societies are shaped by internal and external forces? How well does the student identify and explain historical concepts? How well does the student compare and contrast historical information? <i>skills</i> How well does the student apply the skills of historical enquiry? <i>conclusionsanalysis</i> To what extent does the student develop and state reasonable conclusions?

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History Individual Investigation	Interactive Museum (An investigation of the impact of developments in technology on the local community. The form of presentation to be negotiated to be appropriate for a display in the ASMS school museum of technohistory)	50%	<p>1,2,3,4,5,6</p> <p>explain how particular societies in selected periods and places have been shaped by both internal and external forces;</p> <p>identify and explain historical concepts;</p> <p>understand how hypotheses and focusing questions are used to identify and explain historical concepts and develop skills of historical enquiry;</p> <p>construct reasoned historical arguments based on an understanding of evidence from primary and secondary sources;</p> <p>show empathy through an understanding and appreciation of the role of particular individuals and groups;</p> <p>show how the study of history leads to an understanding of contemporary problems and issues and may be applied to the formulation of possible solutions.</p>	<p><i>understanding</i></p> <p>To what extent does the student show understanding of how to use focusing questions and hypotheses to identify and explain historical concepts?</p> <p>How well does the student show understanding of how to use history to understand contemporary issues?</p> <p><i>historical enquiry skills</i></p> <p>How well does the student use sources as evidence?</p> <p><i>argument</i></p> <p>How well does the student maintain a historical argument throughout the individual investigation?</p> <p><i>conclusions</i></p> <p>To what extent does the student draw conclusions from evidence?</p>
<b>Fertile Question</b>				
English Text response and production.	Is technological development the answer for human survival?	15%	<p>demonstrate clear and accurate language skills through reading, viewing, writing, listening, and speaking;</p> <p>critically analyse a range of texts, which may include written, visual, oral, electronic, and multimedia texts;</p> <p>articulate their values, beliefs, concerns, and points of view, and recognise how these are shaped;</p> <p>compose texts, in a range of modes and forms, that are relevant to the context and achieve their purpose;</p> <p>recognise and explore the social function and power of language.</p>	<p><i>knowledge</i></p> <p>To what extent does the student demonstrate knowledge of the text?</p> <p><i>understanding and analysis</i></p> <p>To what extent does the student show understanding of the ideas in the text?</p> <p>How effectively does the student recognise and/or explain how techniques are used by an author to express ideas?</p> <p>How well does the student recognise the values, beliefs, or concerns explored in the text?</p> <p>To what extent does the student recognise the connections between his or her own values, beliefs, or concerns and those explored in the text?</p> <p><i>communication</i></p> <p>How accurate and fluent is the student's expression?</p> <p>How appropriate are the form and register for the audience and purpose?</p> <p>The student's performance in <i>text production</i> will be judged by the extent to which he or she demonstrates:</p> <p><i>understanding</i></p> <p>To what extent does the student recognise the structural,</p>



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				<p>conventional, and linguistic features of different text types?</p> <p>To what extent does the student recognise the purpose of different text types?</p> <p><i>communication</i></p> <p>How well does the student reproduce the structural, conventional, and linguistic features of the chosen text type in his or her own text?</p> <p>How accurate and fluent is the student's expression?</p> <p>How appropriate are the form and register for the audience and purpose?</p>