



INTEGRATED UNIT CONTEXT / QUESTION:

**“How can we use our energy resources in a sustainable way?”**

**Syllabus Level:** Year: 6/7      **Duration:** 10 weeks      **Term:** 1/2  
**Teachers:** Elaine Burke, Naomi Bradley, Robyn Bull.

**UNIT PLAN INTENDED OUTCOMES**

ASSESSMENT / REPORTING STATEMENTS FOR INTEGRATED STUDIES		CORE LEARNING OUTCOME LINKS
<b>The Student:</b>		
<b>Knows/ Understands</b>	<ul style="list-style-type: none"> <li>Describe and explain the differences between alternative materials available for use in energy efficient constructions.</li> <li>Know the differences between renewable and non-renewable energy and understand concepts underpinning global warming.</li> </ul>	SCIENCE: EC4.2; EC4.3 TECHNOLOGY: TP4.1; MAT4.1  SOSE: PS4.1; SRP4.5  SCIENCE: EB4.3
<b>Can Do</b>	<ul style="list-style-type: none"> <li>Make comparisons and justify their choice of material because of its efficiency and sustainability</li> <li>Design and develop a plan for a sustainable house in a pre-selected environment.</li> <li>Implement plan for house by constructing a 3D model of the chosen house. (ASSESSMENT TASK 1)</li> <li>Investigate their contribution to a sustainable environment to complete an ecological footprint.</li> </ul>	TECH: 1NF4.1 MATHS: S4.2, M4.1      SOSE: SRP4.1  TECH: TP4.2; TP4.3, MAT4.1
<b>Communicates</b>	<ul style="list-style-type: none"> <li>Research and report on a renewable energy source (ILS). (ASSESSMENT TASK 2)</li> <li>Utilise ICTS's to present your findings on energy. (ASSESSMENT TASK 3)</li> <li>Write a persuasive essay (exposition) on “Why should we use our energy resources in a sustainable way?” (ASSESSMENT TASK 4)</li> </ul>	ENGLISH: OP4.3 SOSE: PS4.4; TECH: TP4.4    THE ARTS: VA4.3  ENGLISH: CU4.2; OP4.1, ILS outcomes, CU4.3, OP4.3, CR4.3 SOSE: SRP4.1;

**OUTCOMES FOR LIFE-LONG LEARNING**

COMPLEX THINKER	ACTIVE INVESTIGATOR	CREATIVE PERSON	EFFECTIVE COMMUNICATOR	PARTICIPANT IN AN INTERDEPENDENT WORLD	REFLECTIVE AND SELF-DIRECTED LEARNER
Compare/justify choices for design preferences.	Research and experiment: Alternative building materials, and energy sources.	Design a house plan and create 3-D model of house.	ICT's: Inspiration and Powerpoint. Persuasive essay (exposition).	Sustainable environments.	Self evaluation of tasks. Independent completion of tasks. Peer evaluation – house. Ecological Footprint.

**COMMUNITY RELATIONSHIPS**

SCHOOL LINK	COMPUTING FOCUS	MAJOR INTEGRATING ACTIVITIES
<ul style="list-style-type: none"> <li>Rural Futures Centre/Student visit &amp; Water Audit</li> </ul>	<ul style="list-style-type: none"> <li>Creating tables, using Inspiration and Powerpoint.</li> </ul>	<ul style="list-style-type: none"> <li>Design and create a model of a sustainable house.</li> </ul>

KLA	CORE LEARNING OUTCOMES	CURRICULUM INTENT/CONTENT (KNOW, DO, COMMUNICATE)	LEARNING/ASSESSMENT OPPORTUNITIES	TEACHING STRATEGIES PROD. PED. CHECK	NOTES UNIT EVALUATION	
SCIENCE	<p><b>EC4.1</b> – Students design and perform investigations into relationships between forces, motion and energy.</p> <p><b>EC 4.2</b> – Students collect and present information about the transfer and transformation of energy (including potential and kinetic energy)</p> <p><b>EC4.3</b> – Students present alternative ways of obtaining and using energy (including energy from fossil fuels for particular purposes)</p>	<ul style="list-style-type: none"> <li>Describe and explains the differences between alternative materials available for use in energy efficient constructions.</li> </ul>	<ul style="list-style-type: none"> <li>Brainstorm and list materials people use to build houses (use in construction)</li> <li>Explore different materials and their characteristics through experimentation. (eg insulation.)</li> <li>List and describe sources of energy in the home.</li> <li>Describe energy forms.</li> <li>Know the difference between renewable and non-renewable energy and understand concepts underpinning global warming.</li> <li>Research renewable energy forms</li> <li>Greenhouse calculator</li> <li>Ecological footprint</li> <li>Conduct experiments – Land Yachts, House Orientation, Shading and Solar Ovens</li> </ul>	<p>Study genre of science report.</p> <p>Primary Connections – Build it Better.</p> <p>Compile bibliography.</p>		
	<p><b>TP4.1</b> – Students use consultative methods together knowledge, ideas and data when researching alternatives within design challenges.</p> <p><b>M4.1</b> - Students explain how characteristics of materials affect ways they can be manipulated.</p>					TECHNOLOGY
	<p><b>PS4.1</b> – Students make justifiable links between ecological and economic factors and the production and consumption of a familiar resource.</p> <p><b>SRP4.5</b> - Students classify values that underpin campaigns and organisations associated with human or environmental rights.</p>					S.O.S.E
SCIENCE	<p><b>EB4.3</b> - Students summarise information to compare ways in which different communities use resources from the Earth and Beyond</p>	<p>Make comparisons and justify their choice of material because of its efficiency and sustainability.</p>	<ul style="list-style-type: none"> <li>Name types of housing from around the world, identify aspects of suitability with regard to materials used and climatic conditions.</li> <li>View applied choices in materials, in context, by visiting Rural Futures Centre.</li> </ul>	<p>Complete SWOT (Strength, Weakness, Opportunities, Threats) Analysis</p>		
TECH	<p><b>I4.1</b> – Students analyse sources and forms of information and match these to the requirements of design challenges.</p>					

# UNIT PLAN

KLA	CORE LEARNING OUTCOMES	CURRICULUM INTENT/CONTENT (KNOW, DO, COMMUNICATE)	LEARNING/ASSESSMENT OPPORTUNITIES	TEACHING STRATEGIES PROD. PED. CHECK	NOTES UNIT EVALUATION
MATHS	<p><b>M4.2</b> – Students choose and use appropriate units when estimating and measuring and explain ways of working out the lengths of boundaries, areas, volumes and masses.</p> <p><b>S4.2</b> – Students interpret maps and plans referring to scale, direction and grid references, and measure and draw angles in degrees.</p>	<ul style="list-style-type: none"> <li>◆ Design and develop a plan for a sustainable house in a pre selected environment.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Draw a scaled drawing of your favourite room.</li> <li>◆ Draw a house for the future. Draw the plan, list materials to be used in the construction.</li> <li>◆ Measure dimensions of rooms in house.</li> <li>◆ Look at/Study house plans.</li> <li>◆ Explore scale, orientation.</li> <li>◆ Describe affects of climate on houses. Look globally then to differences by state in Australia.</li> <li>◆ Cut and paste sustainable features under appropriate headings – <u>Water Use, Passive Design, Material Use and Energy Use.</u></li> <li>◆ Research and present an information brochure about the elements of sustainable housing.</li> <li>◆ Design and make a plan for a house which includes a number of energy saving features (e.g. height of ceilings, orientation of house, different insulation.</li> <li>• Write a persuasive exposition to your parents on <i>Why should we use our energy resources in a sustainable way?</i></li> <li>• Comprehension and cloze activities from related topics</li> </ul>	<p>Measuring activities.</p> <p>Maths lessons/worksheets</p>	
S.O.S.E.	<p><b>SRP4.1</b> - Students outline how Australian industries link to global economic and ecological system.</p>				
TECHNOLOGY	<p><b>TP4.2</b> – Students generate design ideas through consultation and communicate these in detailed design proposals.</p> <p><b>TP4.3</b> – Students identify and make use of the practical expertise of others when following production procedures to make products for specific users.</p>				
ENGLISH	<p><b>OP4.3</b> - Students organise and link ideas using generic structure, paragraphs, topic sentences, theme and subject verb agreement; elaborate ideas through dependent and independent clauses, extended noun groups, modals and visual resources and use correct spelling and punctuation.</p>				
S.O.S.E.	<p><b>PS4.4</b> - Students use latitude, longitude compass and scale references and thematic maps to make inferences about global patterns.</p>	<p>Implement plan for house by constructing a 3D model of the chosen house design.</p>	<ul style="list-style-type: none"> <li>◆ Construct a house to a chosen design</li> <li>◆ Do a table describing the sustainable features of your design.</li> </ul>		
TECH.	<p><b>TP4.4</b> - Students gather feedback to gauge how well design ideas and processes meet design challenges and house effectively products meet the needs of specific uses.</p>				

<b>THE ARTS</b>	<b>VA4.3</b> - Students analyse elements and additional concepts evident in images and objects from a variety of cultural and historical contexts.
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**Future Ideas – Home Energy Audit, School Energy Audit, own collections of articles from newspapers.**