

SALVAGING OUR WASTE

Stage 2 (Year 4) Geography Unit

Geography: The Earth's Environment

- Outcomes:**
- GE2-2:** Describes the ways people, places and environments interact
 - GE2-3:** Examines differing perceptions about the management of places and environments
 - GE2-4:** Acquires and communicates geographical information using geographical tools for inquiry

NSW Geography Content Descriptors:

- › Students investigate the ways people, including Aboriginal and Torres Strait Islander Peoples, value environments (ACHGK022, ACHGK023, ACHGK024)
- › Students investigate sustainable practices that protect environments, including those of Aboriginal and Torres Strait Islander Peoples (ACHGK023, ACHGK024, ACHGK025)

Australian Curriculum Humanities and Social Sciences Content Descriptors:

- › Custodial responsibility Aboriginal and Torres Strait Islander Peoples have for Country/Place, and how this influences views about sustainability (ACHASSK089)
- › Use and management of natural resources and waste, and the different views on how to do this sustainably (ACHASSK090)

- General Capabilities:**
- Critical and Creative Thinking
 - Information and Communication Technology Capability
 - Literacy
 - Numeracy
 - Personal and Social Capability

- Cross-Curriculum Priorities:**
- Aboriginal and Torres Strait Islander Histories and Cultures
 - Sustainability

- Key Inquiry Questions:**
- How can people use places and environments more sustainably?
 - How do different views about the environment influence approaches to sustainability?

- Geography Concepts:**
- Place:** the significance of places and what they are like
 - Space:** the significance of location and spatial distribution, and ways people organise and manage the spaces that we live in
 - Environment:** the significance of the environment in human life, and the important interrelationships between humans and the environment
 - Interconnection:** no object of geographical study can be viewed in isolation
 - Scale:** the way that geographical phenomena and problems can be examined at different spatial levels
 - Sustainability:** the capacity of the environment to continue to support our lives and the lives of other living creatures into the future
 - Change:** explaining geographical phenomena by investigating how they have developed over time

NSW Geographical Inquiry Skills:

Acquiring Geographical Information:

- Identify an issue or problem
- Develop geographical questions to investigate the issue or problem
- Collect primary geographical data
- Gather geographical information from secondary sources
- Record information

Processing Geographical Information:

- Evaluate data and information for reliability and bias
- Represent data and information in appropriate forms
- Interpret data and information gathered
- Analyse findings and results
- Draw conclusions

Communicating Geographical Information:

- Communicate the results using a variety of strategies appropriate to the subject matter, purpose and audience
- Reflect on the findings of the investigation; what has been learned; the process and effectiveness of the inquiry
- Propose actions and predict outcomes
- Where appropriate, take action

Unit Sequence:

Get Ready: Weeks 1–5 (Open, Immerse, Explore, Identify, Gather, Create, Share, Evaluate)

Take Action: Weeks 6–10 (Design, Promote, Implement, Monitor, Analyse, Create, Share, Evaluate)

On-Going Assessment:

- | | |
|-------------------|---------------------|
| Inquiry journals | Study Buddies |
| Observations | Work samples |
| Anecdotal records | Class contributions |
| Photographs | |

Final Assessments:

Get Ready: Create a 2-3minute group presentation (method chosen by students) that addresses the following problem issued by the Environment Minister:

“The Environment Minister (enter name here) has made an announcement that current waste management practices are not sufficient, with more waste heading to landfill this year than last year. He/she wants to know ‘why are wasting so much waste?’ and ‘what can we do about it?’ Do you have any suggestions?”

Take Action: Design and implement a waste management program in the school community, monitor the progress, analyse the findings and present (method chosen by student) your conclusions.

GID	Geography Inquiry Stage	ISP	Suggested Teaching and Learning Activities	Resources	Teacher Role	Student Role
<p>Open</p> <p>Invitation to inquiry</p> <p>Open minds</p> <p>Stimulate curiosity</p>	<p>Observing and questioning</p> <p>Reflecting and Responding</p>	<p>Initiation</p> <p>Uncertainty</p> <p>Vague</p> <p>Seeking</p>	<p><i>Guiding Idea: Why are we wasting so much waste?</i></p> <p>Waste in the Environment – photographic stimulus: Images of local, familiar environments showing household waste (i.e. overflowing red domestic bin, Bondi beach on New Year’s Day, Parramatta Park after festival, classroom bin, etc). Students have a class discussion about:</p> <ul style="list-style-type: none"> - What do you recognise in the images? - If you’ve been there before, how did it look when you visited? What has changed? - What is waste? - How did the waste get there? - What waste can you see/not see? - Who makes waste? - How does it make you feel? <p>Wonder Wall: Students can write their questions on post-it notes and stick them on the wall throughout the inquiry. In pairs, students discuss ideas/questions and add anything new to the wall.</p> <p>KWL: Use questions from the wonder wall as prompts to work out: What do we know about waste? What do we want to know about waste?</p> <p>Inquiry Blog: Students record very short messages to be transcribed onto the class blog to record their ideas and discoveries as a way of sharing with parents, and the wider community</p>	<p>Local landmark photographs featuring different household waste</p> <p>Wonder Wall area Post-it notes</p> <p>KWL chart on IMB</p> <p>Inquiry Blog</p>	<p>(Question) Supply Question</p> <p>Select images</p> <p>(Method) Prompt questions</p> <p>Document answers</p> <p>Model: wonder, write, add to wall</p> <p>Complete class KWL</p> <p>Transcribe and post soundbites</p>	<p>Respond to prompts</p> <p>Examine my waste</p> <p>Discuss feelings</p> <p>Consider new ideas to discover</p> <p>Share questions</p> <p>Share knowledge</p> <p>Record soundbites</p>
<p>Immerse</p> <p>Build background knowledge</p> <p>Connect to content</p> <p>Discover interesting ideas</p>	<p>Observing and questioning</p> <p>Processing, analysing, interpreting, concluding</p>	<p>Selection</p> <p>Optimism</p> <p>Vague</p> <p>Exploring relevant information</p>	<p><i>Guiding Idea: What do we mean by waste, recycling, sustainability, and the environment?</i></p> <p>Video – War on Waste: Show students the opening 2-minutes of Series 1, Episode 1 of ABC’s War on Waste. Students have a class discussion about:</p> <ul style="list-style-type: none"> - What waste did we see/not see? - What new words or ideas did we learn? - What was different compared to images (from Open)? - Has anything changed? <i>NSW: no plastic bag ban, but retailers not supplying them</i> - How does it make you feel? <p>Introduce Inquiry Tools: Take students through the inquiry learning tools:</p> <ul style="list-style-type: none"> - Inquiry Journal: Issued to students to record on-going questions and ideas that stem from immersion activities. Notes about resources should be key words only - Inquiry Log: Record resources viewed and any questions that arise from them - Emoticons: Series of emoticons to be added to inquiry journal throughout capturing feelings about process, articles, ideas, questions. Do at beginning/end of session, plus resources. - Glossary: Build a list of words and meanings in inquiry journal. Group/individual definitions. <p>Whole Class Storytime: Use wonder wall question(s), topic content and vocabulary to inform selection. Read a fiction story (and non-fiction if time) with the whole class on waste, sustainability or the environment. “Think, pair, share” to discuss main ideas.</p> <p>Independent Reading: Use question(s), content and vocabulary to inform selections. Selection of fiction and non-fiction topic texts (books, newspaper, magazine, video, images, infographics, campaigns, UN Sustainability Goals, etc) available for independent or partner reading. Record resources, questions, key words, and glossary terms. Keep resources in class for free time/early finish exploration.</p> <p>NB: EPA WARR Reports (depicting kgs per week, per capita, for each LGA) can be used in NSW Mathematics to exploration Data (Statistics and Probability).</p>	<p>ABC’s War On Waste video (Series 1, Ep 1)</p> <p>Toolkit: Inquiry journals Inquiry log Emoticon list Glossary example</p> <p>Fiction (and non-fiction) topic book</p> <p>Selection of level appropriate topic texts and images</p>	<p>(Question) Supply question</p> <p>Prompt questions</p> <p>Note questions and answers on board</p> <p>(Method) Explain inquiry tools – purpose, entries, requirements, key words, emotions, examples</p> <p>(Solution) Read selected story</p> <p>(Method) Support readers; discuss text/image</p> <p>Review journals for ‘Explore’ ideas</p>	<p>Share thoughts and feelings about video content</p> <p>Add any ideas or questions to wonder wall</p> <p>Express feelings in journal</p> <p>Ask questions to clarify usage</p> <p>Listen to story and develop questions</p> <p>(Method) Select text/image to review</p> <p>(Solution) Words to glossary; ideas and questions in journal</p>

			<p>Homework: How much waste are you wasting? Complete a home bin audit (over 24-hours). Use text, chart, sketch, photo, etc. to record red bin waste. Observations only, no hands-on! Household can help monitor and record. Extension: Record waste seen when out and about in the local neighbourhood.</p>	Homework sheet	(Question/Method) Explain homework requirements	(Solution) Record home waste using own method
<p>Explore</p> <p>Explore interesting ideas</p> <p>Look around</p> <p>Dip in</p>	<p>Observing and questioning</p> <p>Planning, collecting, evaluating</p> <p>Processing, analysing, interpreting, concluding</p>	<p>Exploration</p> <p>Confusion Frustration Doubt</p> <p>Vague</p> <p>Exploring relevant information</p>	<p>Inquiry Journals: Start and end sessions with emoticons. Add to journals throughout: ideas, questions, notes, key words, glossary words and definitions, and emoticons. Students use paper clip on page to mark something worth sharing during reflection.</p> <p><i>Guiding Idea: What waste are we making?</i></p> <p>School-based Fieldwork – Bin Monitor Audits: In small groups, monitor the red bin waste over recess and/or lunchtime. Photograph other students' waste and make observational notes. Choice of location to monitor: lower/upper primary eating areas, canteen, staffroom, etc. Categorise photographs into groups and display results. Discuss findings in small groups. Find three interesting observations and share with class, along with display. Class to discuss:</p> <ul style="list-style-type: none"> - What is similar/different in our findings? - What keeps going in the bin? - How do the different areas compare? - Whose waste did we not include? <p>Homework in Class: How much waste are you wasting? Create a class tally chart of home waste by including all results from homework task. Analyse the results using geographical questions. <i>NB: Teacher to use this final list (plus a few additional hazardous and oversized items) to make the 'moving list' for the Waste Management Programs investigation.</i></p> <p><i>Guiding Idea: What can we do with our waste?</i></p> <p>Local Council Waste Management Programs: Use a map of Local Government Areas (state specific), and locate the school's LGA, and note neighbouring LGAs. In pairs, pick a neighbouring LGA, where students will "move" to. Provide list of items, based on homework tally chart, plus a few other tricky items at teacher's discretion. Use LGA websites to investigate:</p> <p>Activity: "You have just moved to your new LGA. After unpacking, you have some things you want to throw away. Your new LGA is tough on waste, and do not like things in the wrong bins. Sometimes they fine you! Do your research and place the things in the right bins! Make a display of your final choices."</p> <p>Extension: What other programs are available through your new LGA to stop you putting those waste items in the red bin?</p> <p>Find a pair that did the same LGA and compare results.</p> <p><i>Guiding Idea: What can we do with the waste we make?</i></p> <p>CRAP/SMELL Tests: Introduce the CRAP and SMELL tests and explain how they work. Students can use these during <i>Information Stations</i> but is not necessary as further explanation and use will happen in 'Gather' phase. If using, results to be recorded in inquiry journal.</p> <p>Information Stations (ISs): Use inquiry journal ideas and question(s) to inform selections. Create information stations and include relevant text, artefacts, organisations, environmental programs, etc. Independent exploration. Select three facts from each station and document in graphic organiser. Complete at least one CRAP and SMELL test on information.</p> <p><i>Extension:</i> Re-search other reduce, reuse, recycle programs they know and apply CRAP and SMELL test on their discovered re-search.</p>	<p>Inquiry Journals Emoticon List</p> <p>Clipboards iPads/Cameras Pens/Paper High-Vis Vests Research photographs</p> <p>Homework submissions</p> <p>Access to the Internet and LGA websites</p> <p>Moving list based on tally chart, plus oversized and hazardous items</p> <p>CRAP test SMELL test</p> <p>Reading level appropriate materials of reduce, reuse, recycle programs</p>	<p>(Method) Discuss journal entries and review for ideas</p> <p>(Question) Supply question</p> <p>Supervise monitors over recess/lunch</p> <p>(Method) Print photos</p> <p>(Method) Facilitate tally chart</p> <p>Prompt questions</p> <p>(Question) Provide question/problem</p> <p>(Method) Review LGA sites prior</p> <p>Promote and monitor safe Internet practice</p> <p>Prompt students</p> <p>Support task work</p> <p>(Question) Provide question</p> <p>(Method) Model CRAP/ SMELL tests</p> <p>(Method) Graphic organisers</p> <p>Monitor task</p>	<p>Complete inquiry journals as expected</p> <p>(Method) Data gathering</p> <p>(Method) Photograph waste</p> <p>(Solution) Decide on categories and sort waste</p> <p>Contribute to tally chart construction</p> <p>(Solution) Analysis</p> <p>Examine waste data from LGA website</p> <p>Safe, responsible Internet usage</p> <p>(Solution) Decide what waste goes where; make display</p> <p>Glossary</p> <p>Compare results</p> <p>Look at SMELL & CRAP; Try to use</p> <p>(Solution) Chose three facts to share</p> <p>Document ideas and questions</p>

			<p>Expert Visit Preparation: Discuss the prospect of experts coming to visit and what questions they might want to ask. Use Costa's Level of Questions to progress to level 2/ 3 questions. Avoid closed questions.</p> <p>Expert Visit Round Robin: Selection of local community members join the class to talk about their perspectives on waste management and sustainability. Experts will need to be arranged in advanced. Invite: local ATSI elder, community garden organiser, council member, waste management company (e.g. Cleanaway, Visy), bush rangers, etc. Students to visit experts in small groups in a round robin.</p>	Costa's Level of Questions Diagram (Prepared!) Experts	Modal interview techniques/Qs Intro experts (Method) Round Robin interviews	(Question) Devise questions for expert (Solution) Get expert answer to questions Document answers
<p>Identify</p> <p>Pause and ponder</p> <p>Identify inquiry question</p> <p>Decide direction</p>	<p>Observing and questioning</p> <p>Planning, collecting, evaluating</p>	<p>Formulation</p> <p>Clarity</p> <p>Focused</p> <p>Seeking relevant information</p>	<p><i>Guiding Idea: Narrow down and focus on one aspect for inquiry</i></p> <p>Topic Party: Host a topic party for students to share current ideas and questions. Narrow down themes that are occurring. Divide class into 'Study Buddies' based on same, or similar, developing questions. Groups should be approximately six students.</p> <p>Introduce Assessment Problem: <i>"The Environment Minister (enter name here) has made an announcement that current waste management practices are not sufficient, with more waste heading to landfill this year than last year. He/she wants to know 'why are wasting so much waste?' and 'what can we do about it?' Do you have any suggestions?"</i></p> <p>NB: Suggestions for Take Action could be taken from the results of this assignment.</p> <p>Questioning Frameworks: Use a series of frameworks to help students frame their inquiry question(s). Construct one (up to three) inquiry question(s) to re-search and find answers. Frameworks to use:</p> <ul style="list-style-type: none"> - Question Formulation Techniques: Follow process to finalise questions. - Costa's Level of Questions: Move from level 1 to level 2 (or level 3) questions. - KWHLAQ: Individual completion of chart to help guide the Gather process. - Study Buddies: To discuss and support question construction 	<p>Inquiry journals Clipboards</p> <p>Assessment Outline</p> <p>QFT Guide</p> <p>Costa's Level of Questions Diagram</p> <p>KWLHAQ Chart</p>	<p>(Question) Provide question (Open)</p> <p>(Question) Provide question/problem for assessment</p> <p>(Method) Question formulation</p> <p>(Method) KWHLAQ develop action plan</p>	<p>(Question) Devise own questions to answer big question</p> <p>(Solution) Document re-search and create presentation with the results</p> <p>(Solution) Design inquiry question(s)</p> <p>(Method) KWHLAQ Determine searches</p>
<p>Gather</p> <p>Gather important information</p> <p>Go broad</p> <p>Go deep</p>	<p>Observing and questioning</p> <p>Planning, collecting, evaluating</p> <p>Processing, analysing, interpreting, concluding</p>	<p>Collection</p> <p>Sense of direction</p> <p>Confidence</p> <p>Increased interest</p> <p>Document pertinent information</p>	<p><i>Guiding Idea: Find as much information as possible to answer questions</i></p> <p>Resources: As a class, brainstorm all possible locations for resources, trying to get students to think outside the internet and library. Think local community, government bodies and other organisations. Upload saved document to shared class computer space so it can be freely accessed. Teacher to introduce appropriate stage/topic database(s).</p> <p>Interrogation of Information: Review the CRAP and SMELL tests in regards to critical evaluation of re-search. Introduce other methods: Checklists for Evaluation (website and print text). Students select at least one test to apply to each independently found resource to check for validity, etc.</p> <p>Search Strategies: Use inquiry log to write down key word search terms and useful results. Share these with Study Buddies. Introduce simple methods: key words not full questions and Boolean AND/OR</p> <p>Re-search: Students use a variety of methods, including books, internet, interviews and surveys, to search for information to help them make answer their questions. Students reflect on:</p> <ul style="list-style-type: none"> - Who wrote the resource? - Why did they write it? - What information do they want me/not want me to know? - Whose voice is/is not being heard? - Why are those voices being silenced? <p>Study Buddies: Meet at the beginning of each session to formulate a 'plan of attack' in terms of re-search, and again at the end of each session to share what they have discovered. Using the Jigsaw method, at the end of one session, Study Buddies meet with corresponding members from other Study Buddy groups and share key ideas so far.</p>	<p>Coogole access</p> <p>CRAP/SMELL Tests Checklist Evaluation</p> <p>Boolean examples</p> <p>Computers, iPads, books, resources, equipment to support re-search Database access</p>	<p>(Method) Prompt ideas for resources</p> <p>(Method) Model evaluation tests</p> <p>(Method) Guide through process</p> <p>Support re-search phase: regular discussions, monitor emoticons Introduce database</p> <p>Meet with each SB group at start or end for catch-up</p>	<p>(Solution) Identify possible resources</p> <p>(Method) Select eval test(s) to use</p> <p>Practice Boolean searches and record</p> <p>(Method) Select how to search and what to search</p> <p>(Solution) Document searches and note ideas (Method) Plan what to investigate with SB team and share (Solution) results</p>

<p>Create</p> <p>Reflect on learning</p> <p>Go beyond facts to make meaning</p> <p>Create to communicate</p>	<p>Planning, collecting, evaluating</p> <p>Processing, analysing, interpreting, concluding</p> <p>Communicating</p> <p>Reflecting and Responding</p>	<p>Presentation</p> <p>Satisfaction Dissatisfaction</p> <p>Increased interest</p> <p>Sharing information</p>	<p><i>Guiding Idea: Use gathered information to inform presentation</i></p> <p>Address Criteria: Students select their multimodal presentation methods in accordance with the assessment rubric and criteria. Read through of rubric before commencing create stage.</p> <p>NB: Do a Pre-Share Tech Run: Provide students with an opportunity to access the school equipment and check their intended presentation method is compatible. Where possible, this should be completed in early stages of creating.</p> <p>Create a Presentation: Students work in Study Buddy groups to support their creative process and clarification of knowledge with expert peers. Students will create a multimodal presentation that addresses the criteria set out in 'Identify' (see Identify above).</p> <p><i>Extension:</i> Focus incorporates two or more areas of waste management.</p> <p>Students can reflect upon the following questions when preparing their presentation content:</p> <ul style="list-style-type: none"> - What do we want to say about waste? - How have our ideas/thoughts/views changed? - What ideas has the re-search confirmed for us? - What new ideas has the re-search challenged us with? - How will we make a difference? - How can we show our ideas? 	<p>Assessment rubric</p> <p>Necessary equipment</p> <p>Computer, Video, iPads, Cameras, Poster Materials, Presentation Software</p>	<p>Discuss rubric for assessment</p> <p>Allow access and time for tech run</p> <p>Assist with technical aspects of design/create</p> <p>Reflect aloud on assessment rubric</p>	<p>(Solution) Decide on content, compare to rubric</p> <p>(Method) Select presentation media</p> <p>(Solution) Create images, diagrams, text, presentation</p> <p>(Method) Pre-record (if applicable)</p> <p>Practice/rehearse</p>
<p>Share</p> <p>Learn from each other</p> <p>Share learning</p> <p>Tell my story</p>	<p>Communicating</p> <p>Reflecting and Responding</p>		<p><i>Guiding Idea: Share own findings and learn from the findings of others</i></p> <p>Presentation: Students share their final product with each other.</p> <p>Questions: Students listen to others, and ask questions based on what they have heard.</p>	<p>Presentations</p> <p>Necessary equipment</p>	<p>Facilitate presentations</p> <p>Ask questions</p>	<p>Share ideas</p> <p>Ask questions</p>
<p>Evaluate</p> <p>Evaluate achievement of learning goal</p> <p>Reflect on content</p> <p>Reflect on process</p>	<p>Reflecting and Responding</p>	<p>Assessment</p> <p>Achievement</p> <p>Increased self-awareness</p> <p>Self-assessment</p>	<p><i>Guiding Idea: Evaluate personal performance and development of knowledge</i></p> <p>Self-Assessment and Evaluation: Students now complete a series of self-assessment tasks to help them evaluate their own work and progress:</p> <ul style="list-style-type: none"> - KWL: As a class, revisit the KWL and complete the L column. Students can then choose 1 or 2 original questions from the W column and answer with their new knowledge. - KWHLAQ: Students complete their own individual KWHLAQ chart as a self-evaluation and reflection tool. - Emoticons: Students can use their emoticons to reflect on their experiences throughout the inquiry process and use as a prompt for self-reflection. Students can reflect upon: <ul style="list-style-type: none"> - Which emoticon did you use the most? - What patterns, if any, did you see with the emoticons? - Which emoticon would you like to see more/less of next time? - How did my emoticons change from the start to the end of the topic? - Self-Assessment: Using the assessment rubric criteria of the teacher, students use it to mark themselves, justifying why they have awarded themselves each mark. 	<p>Inquiry Journals</p> <p>KWL chart</p> <p>KWHLAQ sheets</p> <p>Prompt questions for emoticons</p> <p>Assessment Rubric</p>	<p>(Method) Revisit KWL chart, finish</p> <p>(Method) Finish KWHLAQ chart</p> <p>Prompt questions</p> <p>Support individuals</p> <p>Prompt question</p> <p>Answer any questions</p>	<p>(Solution) Answer KWL questions</p> <p>(Solution) Complete KWHLAQ chart</p> <p>Review emoticons</p> <p>Reflect / evaluate on learning process and content knowledge</p> <p>Mark work based on assessment criteria</p>

			<p>Brainstorm - Reflective Questions: As a class, brainstorm some questions students have found useful in the past to prompt reflection. Prompting questions may include:</p> <ul style="list-style-type: none"> - What went well? - What did not go well? - Why do I think this happened? - What questions did I answer? - What questions do I still have? - What new questions do I have? - What have I been motivated to do about this topic? <p>Final Reflective Report: As a final entry to the inquiry journal, and to sum up the process, students use the information from the assessment checklists and rubric to reflect on their learning journey. Students should also include goal(s) for future learning.</p>	Brainstorm on IWB	(Method) Include questions to aid reflection	(Method) Identify future learning goals (Method) Identify new or out-standing questions
					(Method) Written	(Method) Choose written format for final reflection (Solution) Write final reflection

Take Action Unit Overview

Design	Students design a waste management project to reduce, reuse or recycle household waste at school
Promote	Students select their target audience (teachers, parents, Kindergarten, etc) and develop a promotional tool to get their audience involved and on board with the implementation
Implement	Launch the project
Monitor	Record results of the project daily and chart the results
Analyse	Analyse the results to see if the project was successful and what/how much waste was reduced through the project
Conclude	Make some conclusions about the success, whether it should continue, what might happen if it stops/continues
Create	Create a display to share your results, analysis and conclusions with peers and project audience
Share	Share your display with intended audience
Evaluate	Evaluate the project's success and process