



Geography Teachers
Association NSW & ACT

GEOGRAPHY BULLETIN

Volume 57 No3 2025

**The urban
water cycle**

**50°C Climate
Summit**

**Teaching
writing in
Geography**

**Geography's
Big Week Out**

**Beef –
Biophysical
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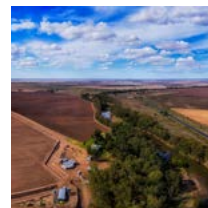
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The Geography Bulletin is a quarterly journal of The Geography Teachers' Association of NSW & ACT Inc. The 'Bulletin' embraces those natural and human phenomena which fashion the character of the Earth's surface. In addition to this it sees Geography as incorporating 'issues' which confront the discipline and its students. The Geography Bulletin is designed to serve teachers and students of Geography. The journal has a specific role in providing material to help meet the requirements of the Geography syllabuses. As an evolving journal the Geography Bulletin attempts to satisfy the requirements of a broad readership and in so doing improve its service to teachers. Those individuals wishing to contribute to the publication are directed to the 'Advice to contributors' at the back of this issue.

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Editorial

Welcome to Edition 3 for 2025.

The first HSC exam under the new senior geography syllabus fast approaches. It has been amazing to see the collaborative efforts of geography teachers around the state over the past few years sharing resources online, sharing our interpretations of syllabus dot points, sharing their ideas and expertise at conferences, and collaboratively programming across different schools.

The Geography Teachers Association has provided ongoing support to teachers in the development and implementation of the new syllabus. At the very initial stages, GTA was integral in providing feedback and advice during syllabus development, members of the Council have been engaged directly by NESA to develop support materials for teachers, GTA invested in the development of Powerful Geography 1 and 2 and the supporting blog, and support has been provided online through the GTA NSW and ACT Stage 6 Facebook group.

Following this first HSC exam, I'm sure we will all reflect on the questions asked and the approaches taken within it. We will continue to revise our resources and identify any gaps or weaknesses, make adjustments to scope and sequences, consider redesigning assessments, and review fieldwork design and integration. Consider this as an opportunity to continue professional growth and develop continued content expertise as we all work through these issues together. The more collaboratively we approach this period, the better for our subject.

Edition 3 of the Bulletin includes a range of excellent resources to support geography teaching as we approach the end of the year. The feature article from Louise Roberts explores the water cycle in an urban setting. There is also a great article from James Bradley about the 50°C Climate Summit, a project from the Powerhouse Museum. Anna Roberts has contributed a couple of articles focused on explicitly teaching writing in Geography. As always, I encourage all members to consider contributing to upcoming Bulletins. The submission guidelines can be found at the end of the edition.

Louise Swanson

Councillor, GTA NSW & ACT *Geography Bulletin* Editor



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BROCK ROWE AWARD 2025

The Brock Rowe Award, an award for excellence in teaching geography in schools, is granted jointly by the Councils of the Geography Teachers Association NSW & ACT and the Geographical Society of New South Wales Inc. annually to a teacher who has demonstrated consistently, over a period, excellence in the teaching of geography in schools.

The nomination is made by a teaching colleague and requires the endorsement of the school principal (or school executive).

Entries close on 31st October 2025.

If you have any questions about the Award or the nomination process please contact admin@gtanswact.org.au

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The Urban Water Cycle

Louise Roberts, Louise Roberts Education Consultancy

The urban water cycle is the part of the natural water cycle. It is where human interactions modify and manage hydrological processes to meet their needs. In this definition, an urban water cycle occurs in any built environment such as a city, suburb, town, village, industrial site or even a farm.

The knowledge of the urban water cycle and our systems of water use is called water literacy. Water utilities and governments around the world are dedicating their communication and education teams to the task of improving global water literacy levels.

In the world of water management, there is a lot of discussion about how little the everyday consumer of water knows about the urban water cycle. The reality is that water, especially in most cities, is often taken for granted, it has always just been there.

The natural water cycle

As Geography educators in NSW there is a fair chance that you are across some of the basics. You probably have a handle on the natural water cycle process as represented by this diagram and definitions from Sydney Water.

Natural water cycle process definitions

- Evaporation is when the sun shines on water and heats it, turning it into gas called water vapour which rises into the air.
- Transpiration is when the sun warms people, plants and animals and they release water vapour into the air.
- Condensation is when the water vapour in the air cools and turns back into a liquid, forming tiny water droplets in the sky.
- Precipitation is when water droplets fall from the sky as rain, snow or hail.
- Run-off is when water flows over the ground and into creeks, rivers and oceans.
- Infiltration is when water falls on the ground and soaks into the soil.
- Percolation is when water seeps deeper into tiny spaces in the soil and rock.



Teacher tip

You can replicate some of the processes of the natural water cycle with some fun experiments with minimal equipment.

Some video examples from Sydney Water are:

- [Make a terrarium](#)
- [Make a cloud](#)
- [Water evaporation](#)

If you need a reminder about the amount of water

on Earth and what that types of water are, check out the NSW Department of Climate Change, the Environment, Energy and Water school resources. Although initially written for Stage One the presentations are image rich and very useable for older students.

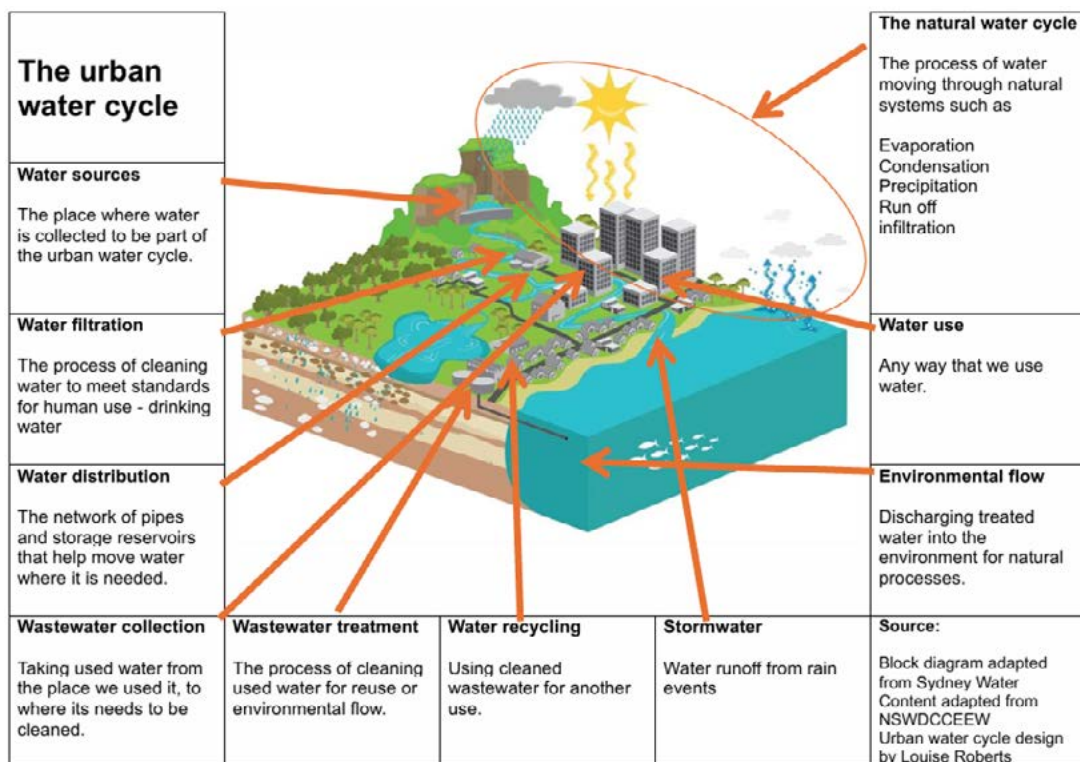
- [Water on Earth](#)
- [What makes water, water?](#)
- [The water cycle](#)

The urban water cycle

Water isn't always where humans need it. Infrastructure is constructed to move water to where it will be used.

Water sources

The place where water is collected for human use. It can be a natural water source like an ocean, river or lake. It can also be a waterway where the natural hydrologic system is interrupted by human engineering such as a dam, weir or reservoir. There are other sources of water in the urban water cycle that supply smaller amounts of water for more specific needs such as rainwater tanks, Stormwater harvesting and recycled water.



Water filtration and water distribution

Most freshwater near any built environment is not clean enough for drinking. Water filtration is the process of cleaning water to meet standards for human use. The basic processes are:

- Screening – Fine mesh screens are used to remove larger debris such as twigs and leaves.
- Chemical adjustment – The pH level of the water is adjusted to support the filtration process.
- Flocculation – A coagulant solution is added to make very small particles bind together, forming larger clumps known as flocs, which can then be removed more easily.
- Filtering – The water passes through filters containing tightly packed layers of sand and crushed coal, which trap and remove the floc.
- Disinfection – Small amounts of chlorine are added to safeguard the supply against harmful pathogens.

To see more details about the processes for water filtration including a flow diagram, check out the [Orchard Hills Water Filtration Plant page](#) at Sydney Water.

The treated water is then sent through a network of pipes and storage to move water to homes and for other uses.

Water use

We use water in many ways throughout the urban water cycle. We usually think about the use of water for health, hydration and hygiene. However, water is also used to:

- learn, make things, and do our jobs (education, employment opportunity and economic success).
- make sure we're safe and healthy physically, emotionally, and socially (accessible water encourages social stability and equity).
- enjoy and connect to our culture (recreation, cultural, spiritual and aesthetic values).

Wastewater collection and treatment.

When we use water in our homes, we add many things to it. Much of what we add we could avoid adding and dispose of it in other ways like wipes, litter, chemicals and fats, oils and grease.

It takes a lot of infrastructure to move used water to be treated. Pipes and pumps move wastewater to treatment facilities to remove everything added to the water.

Wastewater treatment uses a variety of separation techniques to remove what has been added. Some of these separation techniques are:

- Screening – Machinery like a sieve, traps and removes large solids from wastewater, like food scraps, wet wipes, cotton buds and litter.
- Grit removal – Wastewater is spun so heavy particles like sand are removed.
- Sedimentation – Wastewater held in large tanks so it separates into layers. Any solid waste (sludge) will settle to the bottom, and fats, oils and grease (scum) floats to the top.
- Biological treatment – Microorganisms (activated sludge) are added to the wastewater to break down nutrients and small organic solids.
- Filtering – to bind together small particles a coagulant solution is added. The wastewater passes through filters containing tightly packed layers of sand and crushed coal, which trap and remove the bound particles. This wastewater is now called effluent
- Disinfection – Effluent is either treated with chlorine or ultraviolet light (UV) to kill any remaining microorganisms.
- Membrane technology – Effluent can become recycled water after it has been treated through membranes like microfiltration, ultrafiltration or reverse osmosis. This removes trace nutrients, bacteria, and dissolves salts.

Teacher tip

1. Explore how we use water and its importance in our everyday lives.

Discuss how and when we use water in a typical day. Ask the students:

- How important is water to our daily lives?
- Do you think you used a lot of water or a little over the whole day?
- Would you use more, or less, water if the weather was different that day (winter versus summer)? Why?

Make a timeline of all the times you use water in a day. It is more often than you think. Make a timeline of your water use.

Don't forget to include drinking, going to the toilet, washing your hands, cooking, cleaning, watering plants and using the dishwasher.

2. To really understand what goes down the drain in the home you can do a wastewater audit.

Sydney Water has all the instructions and resources to help you and your students investigate wastewater – [How much wastewater does your household make?](#)

Not all treatment plants use all these separation techniques. For examples of wastewater treatment plant processes including flow diagrams of these separation techniques, check out the following pages for three plants at Sydney Water.

- [St Marys Water Resource Recovery Facility](#)
- [Cronulla Water Resource Recovery Facility](#)
- [Rouse Hill Water Resource Recovery Facility](#)

The quality of the resulting water and its potential use depends on the level of treatment the wastewater receives. To learn more about uses for recycled water check out the [Water recycling page at Sydney Water](#).

In NSW, water recycling has very specific uses and is not yet part of drinking water supplies. That may hopefully change based on plans to incorporate purified drinking water for drinking soon. Countries across the world are augmenting their water supplies with recycled water. Check out the [Purified recycled water page at Sydney Water](#).

Teacher tip

You can replicate many of these processes using some basic equipment and these investigations from Sydney Water

- [Fats, oil and grease practical investigation](#) (275 KB)
- [Density practical investigation](#) (275 KB)
- [Crystallisation practical investigation](#) (276 KB) and [Stage 4 Science – crystallisation lesson plan](#) (201 KB)
- [Distillation practical investigation](#) (233 KB)
- [Evaporation practical investigation](#) (351 KB) and [video](#)
- [Wipes out of pipes practical investigation](#) (237 KB), [video](#) and lesson plan

Stormwater

Stormwater is the term used to describe runoff during rain events. Whatever the water picks up as it flows over urban surfaces will end up in local waterways. Managing stormwater well means informing people about the impact of their behaviours such as tossing litter, spitting and urinating in the street, failing to pick up dog poo, allowing detergents and chemical to go down outside drains and using a blower vac to push leaves and dirt down the drain.

Being safe around stormwater

Stormwater drains can be very dangerous places.

It's important that you don't go into drains, even in fine weather. This is why stormwater drains are often fenced and have warning signs telling people to stay out. It's also a good idea to keep pets away from drains.

Stormwater drains can be open channels or underground tunnels. They are dangerous because:

- water in drains can rise quickly and unexpectedly, even when it's not raining in the local area
- when it rains, huge amounts of water can suddenly wash into the drain
- if you're swept away by water in a stormwater drain, you may not be able to get out and could even drown. Even shallow water can be very powerful and could knock you over
- drains can contain pollution like broken glass, dangerous chemicals and disease causing bacteria.

Don't try to lift stormwater grates near footpaths and roads, even if something has accidentally dropped down. These grates can be very heavy.

If you're in a flooded area, stay away from roads, footpaths and areas where you can't clearly see where you're walking.

Stormwater is not treated in the same way as wastewater. In most parts of NSW stormwater runoff and wastewater are managed separately. This isn't the case in many other countries. So be careful about which resources you use to understand how the sewer and urban stormwater drainage work, as they may not represent the systems locally.

Teacher tip

You can do a stormwater audit to locate your local stormwater drains and find out how polluted they are – and why – and how you can make a positive impact on reducing pollution in local waterways.

Use Google Maps to find where stormwater from your school goes. This will usually be the closest waterway like a creek, river or ocean. Identify the direction the water flows.

You can either:

- Build a Google Map, where students can take photos and make digital notes about their investigation results, or
- Print a map and have student make handwritten notes to annotate it and complete a worksheet like this. Before you head outside, make sure everyone knows about being safe around stormwater drains.

Audit worksheet

School _____ Audit date _____ Name _____
 Local waterway _____ Stormwater eventually ends up in _____

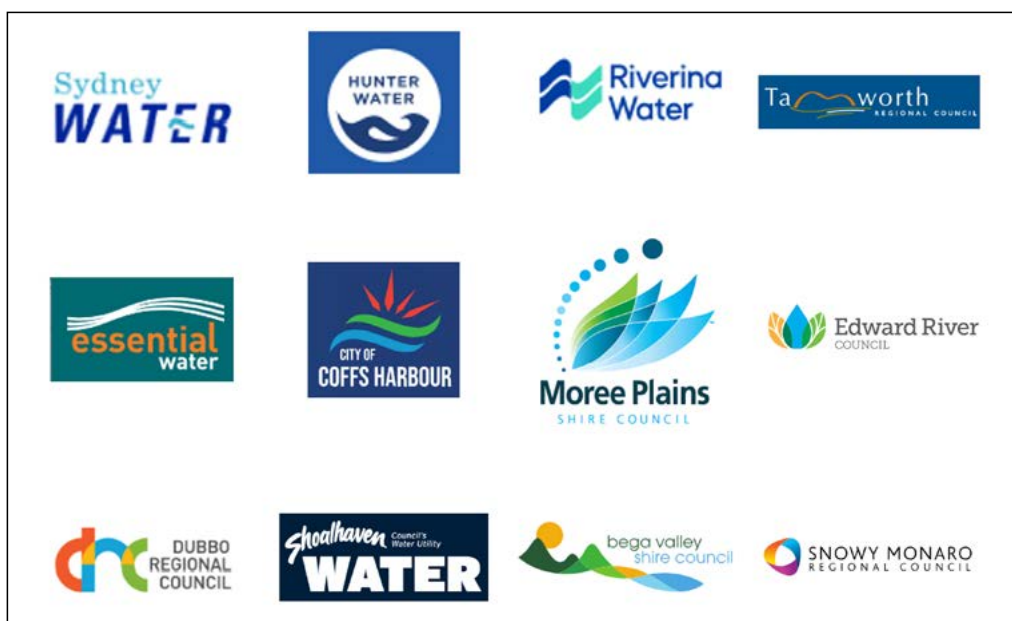
Stormwater audit			
Drain number	Condition of drain	Issues affecting drain	Proposed solutions to problem
Example – Drain 1	Full of dirt	Dirt has washed into drain from nearby garden	<ul style="list-style-type: none"> Build a border around the garden to stop dirt washing into drain
Example – Drain 2	Plastic water bottles in drain	Discarded bottles blown or washed into drain	<ul style="list-style-type: none"> Choose tap water Use refillable drink bottles Use drinking fountains or bubblers Educate school community about using refillable drink bottles

Identify your urban waterway

An urban waterway can function slightly differently depending on the source of water, the existing infrastructure, the way water is used, and to what level it needs to be treated to be returned to the environment or for reuse. You can work out your local urban water cycle by following these steps.

Step 1 – Find out who manages water where you live.

This could be a State Government-owned water utility like Sydney Water or Hunter Water, or council owned water utility managed locally. Each water provider must have a license to operate. This means they must manage water to meet rules for collection, standards of safety, and environmental guidelines. Some of these water utilities across NSW are listed and linked below. [Click on the icons to read more.](#)



Step 2 – Ask questions about your urban water cycle

- Where is our source of drinking water?
- Is it a reliable source of water?
- How much water do we use?
- Where does our wastewater go?
- How is wastewater cleaned?
- Is the effluent recycled and used again?
- Are our wastewater and stormwater separate?
- Where does stormwater go?

Step 3 – Build a visual representation of your urban water cycle

Make a diagram to represent the local urban water cycle. Remember you don't need to be an artist. Use icons and text to explain your drawing. You may like to use an online drawing tool.

1. In the centre of your page place your school
2. Add the urban water cycle details
 - a. Where does your water come from? Label the waterway
 - b. Add in the water filtration process and storage icons in between the source of your water and your school
 - c. Where does your used water go? Add in the wastewater treatment process icon after your school.
 - d. Where does the used water end up? Add in the icons for any of the following uses
 - i. Into a waterway like a river or the ocean
 - ii. recycled water used in industry and agriculture
 - iii. recycled water used for watering gardens and sports facilities
 - e. Is the water used in another way? Design your own icon to add to the diagram

Step 4 – Discussion

1. How does the urban water cycle in your city differ from the natural water cycle?
2. What are the key steps in treating and distributing water in your local urban water cycle?
3. Why do you think it is important to understand your urban water cycle?

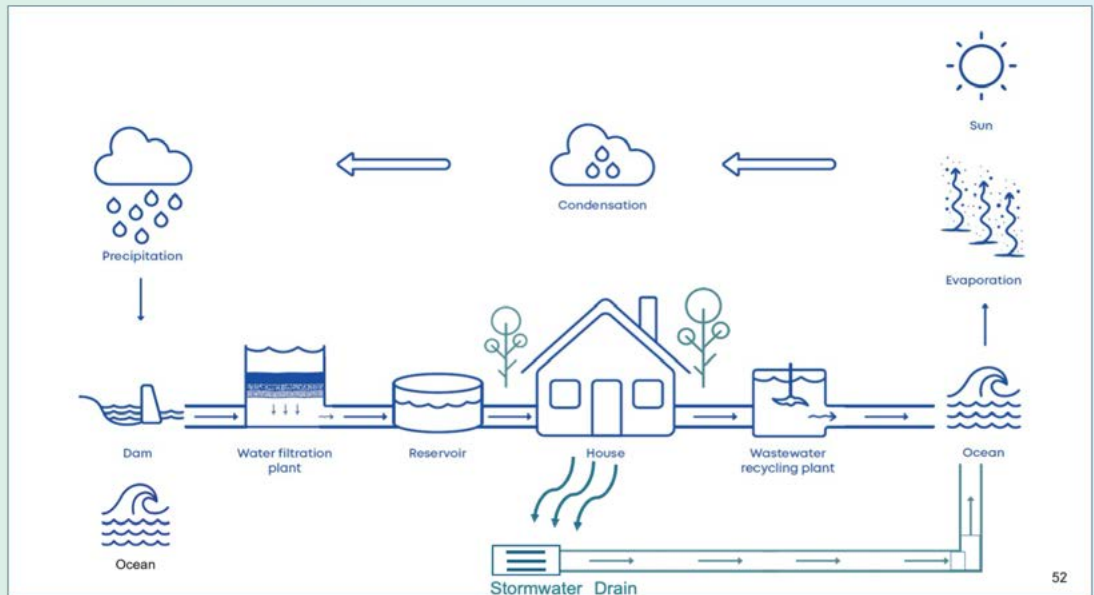
Is the urban water cycle, circular?

Most urban water cycles still rely on the natural water cycle to close the loop. The water flow is linear. This means that water is taken from a waterway, treated, used and treated again and returned to another waterway. For it to be a cycle, the natural water cycle must play a role in taking the water back to the source so it can be used again.

Teacher tip

Using the urban water cycle you created in the last activity. Add in the natural water cycle processes to show the full cycle.

Once you have discussed the other ways you can close the loop on water use add those into your diagram.



There are many ways that we can close the loop and make our urban water cycle, circular. After all, wastewater isn't really a waste. This water can be treated and used again for many different things. For example, we could:

1. invest in infrastructure that keeps water in the cycle by treating used water for use again
2. collect stormwater and use it for purposes other than drinking
3. collect rain from our roof with a tank and use that on our gardens
4. use water in our home more than once. We could collect water we wash our produce in to eat and water our garden. We could collect our laundry water and hose the lawn.

Impact of climate change on the water cycle

Climate change can have an impact on the way our urban water cycle works. Weather patterns are changed and interrupted by the impacts of climate change. This means that water doesn't always end up where we need it and when we need it. Extreme weather events can be destructive to water infrastructure and long term climate events such as drought can increase the demand on the urban water cycle to meet our water needs.

Severe storms and excessive rainfall mean we can have damaging flood inundation destroy the place we live in and that water management infrastructure. Extreme heat and drought mean we do not have enough rainfall to collect and use when and where we need it. Excessive heat during drought means we need more water and use more energy to keep us cool.

Coastal storms

Thunderstorms and cyclones are severe weather occurrences that are intensified by increasing evaporation over warmer ocean water.

They can result in:

- storm surges causing higher waves and flooding
- coastal erosion storm surges wash away sand and soil along the coast.



Flood

Floodwater is excessive runoff from higher than usual precipitation in a catchment. It can result in

- increases in the pollutants in waterways
- increased pressure on water filtration plants to clean water for drinking water supply
- Urban housing and industry built on floodplains at risk of inundation.
- Erosion, where amounts of sediment and debris can inundate urban environments.

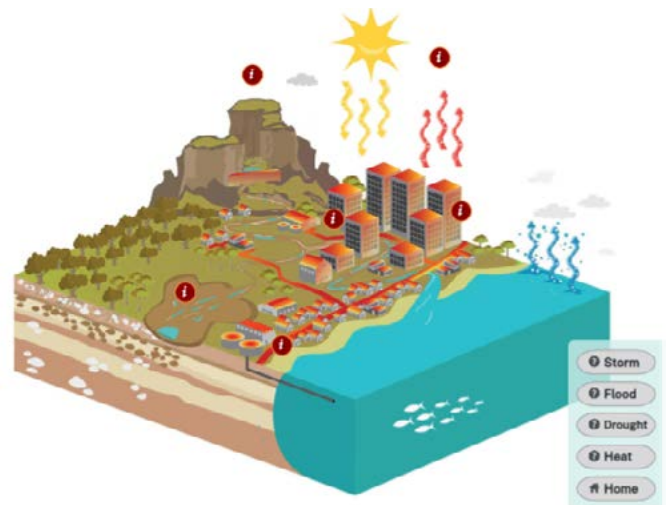


Heat

Increased temperatures on land can increase evaporation and reduce precipitation. This can result in

- death of vegetation and increased run off
- reduced groundwater supplies with less infiltration to recharge aquifers
- socioeconomic drought where water demand outstrips water supply in the urban water cycle
- heatwaves, prolonged periods of excessive hot weather.

Source: NSW Department of Climate Change, the Environment, Energy and Water



Impacts of climate change on your urban water cycle

Changing climate patterns impact the everyday lives of communities. To predict the potential future impacts of climate change and build resilience, data needs to be collected. NARClIm is the NSW and Australian Regional Climate Modelling project that produces detailed climate change projections based on collected data.

NARClIm data is currently used to generate climate projections [like this one provided on AdaptNSW](#).

The data is presented as an infographic identifying the potential impacts of climate change in NSW. This is used to help plan for ways to mitigate, adapt to or build resilience to the impacts of climate change hazards.

To learn more about MARClIm and how you can use the data in the classroom, download the [Investigation – What is NARClIm](#) from my website.



Sparking Change – Young People Show the Way at the 50°C Climate Summit

James Bradley

Heat is one of the central challenges of the 21st century. As global temperatures continue to rise, hot days are getting hotter and heatwaves are becoming more frequent, longer and more intense.

In some parts of Australia, there are already nine times more days over 45°C than there were in the 20th century, and that is only going to continue: over the next 50 years, the frequency and duration of heatwaves in Sydney are set to double.

Living in a hotter world isn't just uncomfortable, it's actively dangerous. In the United States, heat kills more people than all other extreme weather events combined, while in Australia heat accounts for almost 80% of hospitalisations from extreme weather. Extreme heat increases the risk of mortality, especially for the elderly, exacerbates the effects of chronic illness, reduces educational outcomes, and pushes up rates of domestic violence.

Although heat affects everybody, it hits some communities much harder than others. That won't come as news to residents of Western Sydney. Too far from the coast to receive the sea breezes that cool the eastern part of the city, much of Western Sydney is also located in a natural basin that traps the heat. Together with the urban heat island effect caused by dark roofs and materials such as asphalt and concrete, this means average temperatures in Western Sydney are 5°C higher on hot days than they are in central Sydney, with temperatures in some areas frequently rising even higher: when Penrith hit 48.9°C in January 2020, parts of Berkshire Park were 52°C.



Students engaging in collaborative learning as part of the 50°C Climate Summit

Giving communities the tools they need to adapt to such extreme conditions is vital. A powerful example of just how much can be achieved took place on 11 April 2025, when more than 600 Year 9 and 10 students from Western Sydney high schools gathered at Western Sydney University for a Climate Summit.

The event was the culmination of 50°C: Climate, Heat and Resilience (50°C), an innovative new program developed by the Lang Walker Family Academy and Powerhouse, supported by the Office of the NSW Chief Scientist and Engineer. 50°C combines elements of Geography, Science, Visual Art, English, Design and Technology to help students understand the effects of heat and various responses to its challenges.

But 50°C also goes well beyond the classroom. As Sophie Poisel, Head of the Lang Walker Family Academy, puts it, "50°C is focused on 'empowering young people in Western Sydney to take leadership on climate issues that are affecting them'".



The program is built around 10 week-long modules that examine heat from a variety of angles. Alongside these, students carried out extensive fieldwork using data loggers and thermal cameras. With the assistance of academics at Western Sydney University, the information they gathered was combined with heat data supplied by the City of Parramatta, Blacktown City Council and Cumberland

Collaborative learning project for students as part of the 50°C Climate Summit.

City Council to construct heat maps of their schools. This information was then used to develop projects designed to mitigate the effects of heat.

The projects presented at the 50°C Summit were a remarkable demonstration of just how much young people can achieve when given the opportunity. Students at Doonside Technology High School proposed measures that included increasing tree canopy cover from 12% to at least 30%, improved shading and the creation of a dedicated cooling area on the school's basketball courts. At Seven Hills High School, students suggested planting trees to shade their basketball courts. Students at James Ruse Agricultural High School took a more technology-driven approach, designing a solar-powered cooling solution for their school's grandstand, while students at Arthur Phillip High School devised an integrated proposal that combines solar power, heat-reflective building materials and living green walls to create a cooler and more energy- and water-efficient school environment. Other projects included proposals for retractable shade sails at The Ponds High School and the rollout of water-misting stations at Macarthur Girls High School and The Ponds.

Students also explored strategies aimed at supporting communities through better information and education. At Doonside, for instance, students focused on strengthening community resilience by developing messaging in Farsi, Tagalog and Sāmoan about how to prepare for and manage heat, while students at Macarthur Girls created social media strategies to increase public awareness of the effects of heat on health.

This breadth of response was partly a result of 50°C incorporating input from a range of partners. These included researchers from Western Sydney University, University of NSW and the University of Sydney, along with industry, advocacy groups and creative collaborators such as CSIRO, Western Sydney Regional Organisation of Councils, Sweltering Cities, Australian Youth Climate Coalition, Sydney Water, Greening Australia, Story Factory, Melbourne Megagames and me. These partnerships allowed the program to deliver innovative elements such as a game in which students can explore the impact of different policy responses by local government, alongside units exploring microclimates and data analysis, the health impacts of heat and environmental design solutions.



Students engaged with experts and authentic audiences as part of the project

These elements were supported by the placement of doctoral students from Western Sydney University, University of NSW and the University of Sydney in schools. The doctoral students worked with the schools across the 10 weeks of the course, mentoring and assisting with the projects. Similarly, the course's emphasis on Indigenous design perspectives was expanded by school visits by First Nations-led design studio Always Collective.

From the outset, the program was also designed to be highly flexible. "Each school chose to implement the program in a way that suited their context," says Poisel. "At three schools, a geography teacher and a science teacher worked together to deliver it. Several schools presented the program as a STEM unit, and one school implemented the program as a transdisciplinary project.



Students engaged with experts and authentic audiences as part of the project

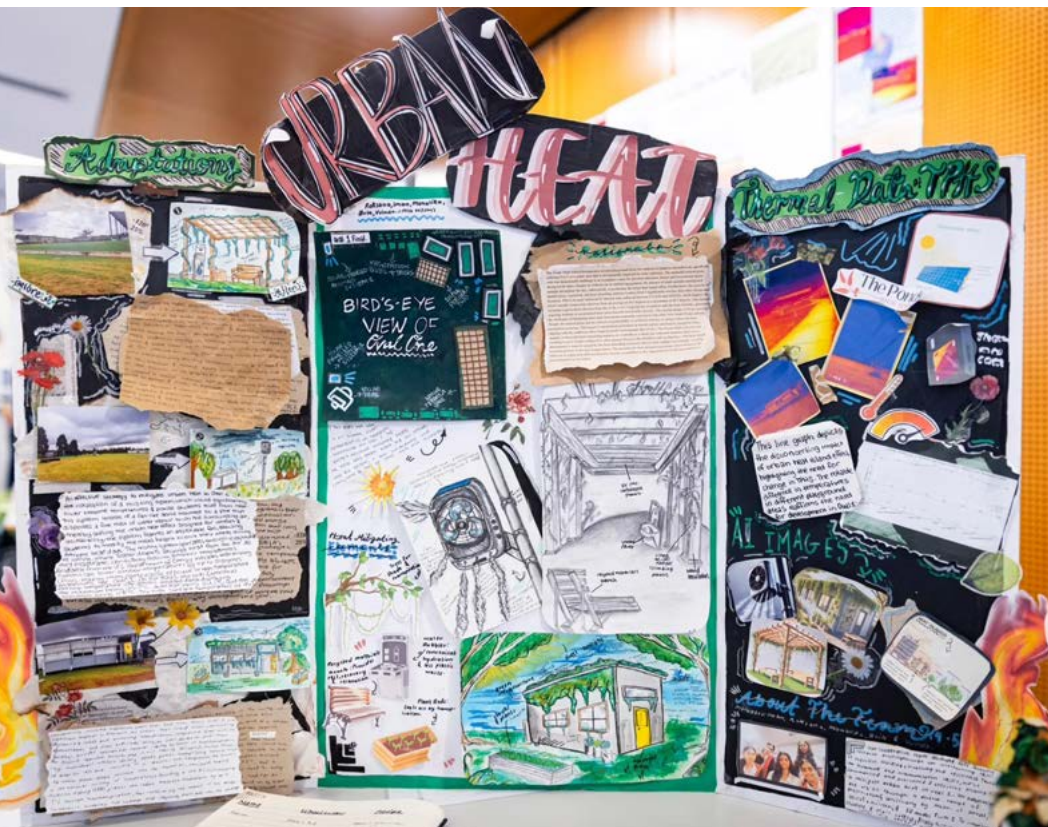
The most exciting part about the summit was seeing the diversity of student projects that came from each school's context, delivery and findings, and that this hadn't been a one-size-fits-all approach to teaching and learning. Teacher autonomy and student agency and leadership were key to this program."

Sebastian Pfautsch is Professor of Urban Planning and Management in the School of Social Sciences at Western Sydney University and one of the experts behind the trial. He says science and engineering have a crucial part to play in building a sustainable future:

"If we want to adapt to climate change, we need people who understand physics, mathematics and chemistry. This program addresses head-on the continuing decline in student interest in STEM by putting technology and data into the hands of the kids and engaging them with science."

Even more importantly, the program empowered students by showing them it's possible for them to drive change. Jack Tuxford, Stage 5 and 6 Geography Course Coordinator at The Ponds, says: "The impact on our students was remarkable. They developed a deep understanding of the causes and effects of urban heat, which inspired them to take meaningful action in pursuit of safer public spaces and communities."

Liam Culhane, who teaches Human Society and its Environment at Doonside, says the experience was transformative for many of his students as well: "The kids who stepped up and presented these projects were not necessarily particularly extroverted, but their passion about what they were talking about meant they became leaders in their classrooms and were brave enough to get up and talk in front of hundreds of people at the summit. For me as a teacher, that's a massive win."



Students created inspiring project work focused on climate change

Martin Graham, Deputy Secretary, Teaching, Learning and Student Wellbeing at the NSW Department of Education, echoes these sentiments: "This initiative goes beyond academic achievement; it inspires our youth to address local problems, fostering a sense of responsibility and connection to their community."

That passion is already translating into real-world action. At Seven Hills, students are working with Greening Australia's Cooling the Schools program to introduce the shading system for their basketball courts. Doonside is implementing a five-year plan based on its students' work.

“The principal listened to the kids and their data was accepted,” says Culhane. Similarly at The Ponds, the work carried out by students is being incorporated into the school’s planning. At Arthur Phillip, students are presenting their cooling plan to the Department of Education with a view to turning it into reality, while the data obtained during the initial phase of the program is being combined to allow schools to compare heat conditions on specific days. These successes are only the beginning: there are already plans to make the program a regular feature in Western Sydney schools and to expand it to other parts of the country.

For those who worked on 50°C, the response of the students has been inspiring. “When you work in this space it often feels like you’re going backwards instead of forwards,” says Pfautsch. “But this was the complete opposite. Seeing the way the kids engaged gave me hope. It made me smile a lot. And it also made me incredibly proud, knowing that the entire project team and the teachers empowered these kids to take climate action. We need more projects like this one. They make a difference.”



Students created inspiring project work focused on climate change

Students agree. “One of the most important things I have learnt from this program is that change starts with us,” says Aleesha Ayub from The Ponds. Cumberland High School’s Shiven Goel agrees: “Even if you’re not an adult or an expert on heat, you can still make a change in your community.” Perhaps the most powerful endorsement for the initiative comes from Macarthur Girls students Anagha Thirumalai Srihari and Moshka Josh, who say: “Our plans don’t need more time, they need action ... We may be simple Year 9s and 10s, but today we’ve proved that young voices can spark real change ... The future isn’t something that we wait for, it’s something that we build. So let’s start building together now.”

About the Author

James Bradley is a writer and critic. His books include the novels *Wrack*, *The Deep Field*, *The Resurrectionist*, *Clade* and *Ghost Species*, a book of poetry, *Paper Nautilus*, and *Deep Water: The World in the Ocean*, which won the Douglas Stewart Prize for Non-Fiction at the 2025 NSW Literary Awards and a Gold Medal in the Nautilus Awards. His essays and articles also appear regularly in a wide range of Australian and international publications, and he has been shortlisted twice for the Bragg Prize for Science Writing, nominated for a Walkley, and in 2012 won the Pascall Prize for Arts Criticism. He lives in Sydney.

Article by James Bradley about the Powerhouse 50° project with western Sydney schools to mitigate heat. We have permission from Sophie Poisel from the Powerhouse to share in Bulletin.

<https://powerhouse.com.au/stories/sparking-change-50-c-climate-summit>

Teaching Writing: Collaboratively creating and Applying Marking Criteria to Students' Writing

Anna Roberts – Barker College

Explicit and scaffolded teaching of elements of Geography writing is integral to ensuring student success as they progress in Geography through high school. This article outlines a series of activities to explicitly teach students skills in writing, based on the writing prompt:

“Outline the factors that make Manly a liveable place”.

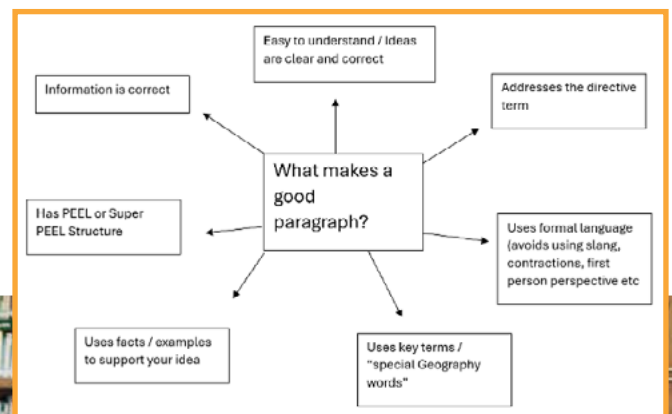
This activity “flips the script” on students by allowing them to be the markers of their writing. This is an activity students often really enjoy, and it can be a “lightbulb moment” as students realise that the marker may be looking for more than just “the right idea”. This activity is best placed a few weeks into a topic, as students should have some knowledge of the unit. Lessons prior to this could include a “question analysis” activity, repeated and practised enough times that many students are confident in this routine. This activity is run across two lessons, but it can be completed in one lesson.

Students are asked to complete a “lightning writing” session which is a routine where students respond to a question as a warm up. Students are encouraged to not worry too much about the quality of their writing, with the main idea being to have some ideas and put them on paper.

A class brainstorm is undertaken, challenging students to identify what makes a good paragraph in Geography. Students should have touched on these ideas in previous lessons, and the teacher can prompt and direct students towards the answers.

The brainstorm will look a little like this diagram.

If students share any unexpected ideas, they can be included if they are good ideas. It is really important at this stage to keep the ideas as close to the student's own language as possible, although the teacher may need to tweak things a little.



After this brainstorm, students are told that the class will create a criterion together, students look at all their ideas and group them with similar ideas – aiming for 3 groups. Next, students are shown how to create a criterion going from 0–2 for each of the agreed categories. Students are asked what it would look like if writing had everything in the group done really well, followed by a midway point, and subsequently writing that has none of this. For each subsequent “group” the teacher allows students to lead more and more of how they want the criteria to look. It ends up looking something like this:

Content	Writing	Language
<p>2 The ideas are correct and very detailed Examples are used to support ideas, especially examples with numbers (e.g., dates, percentages, dollar amounts, fieldwork data)</p> <p>1 Ideas are mostly correct with a small mistake or something small left out Examples are used, but they might be less detailed</p> <p>0 Ideas are incorrect No examples or incorrect examples</p>	<p>2 Uses PEEL or Super PEEL Structure Answers the question</p> <p>1 Uses most of PEEL structure but might be missing something or incomplete Answers parts of the question but might have missed a key term or misunderstood the directive term</p> <p>0 Does not have any structure, maybe only one sentence Ideas are off topic or very vague</p>	<p>2 Uses many key terms Uses formal language</p> <p>1 Uses at least one key term Might have a small amount of informal language (“I, you, can’t, won’t, loads, heaps” etc)</p> <p>0 No key terms Lots of informal language</p>

Once the class has created the marking criteria, students are presented with a pre-prepared paragraph to mark and analyse. This is often in a different place to the previous question, as the class will come back to that later. A question analysis is conducted as a class, and then students mark the paragraph in pairs. The teacher may give the students up to 3 paragraphs each highlighting different strengths and weaknesses.

Students are given the following steps to help them:

1. Check the ideas of the paragraph are correct, and make a note if they are not
2. Highlight any examples in yellow
Stop here, and give your paragraph a mark for “Content”
3. Identify the structure on the side of the page, labelling each sentence
4. Check the question again, does the paragraph answer it? Make a note if not.
Stop here, and give your paragraph a mark for “Writing”
5. Circle any key terms in blue – check your glossary in your workbook
6. Circle any informal language in red
Stop here, and give your paragraph a mark for “Language”

Once students have analysed the exemplar, students are asked to look back on their lightning writing, analyse it using the steps and apply a mark using the criteria. After this, students are challenged to rewrite their paragraph, improving on one area they have identified in their criteria.

Resource 1: Exemplar paragraphs

“Outline the factors that make Neutral Bay a liveable place.”

Neutral Bay is a liveable place because of its recreational opportunities. In Neutral Bay there are a lots of facilities that facilitate both indoor and outdoor leisure activities & recreation. Neutral Bay contains 5 “off-leash dog parks” you can walk to, including Primrose Park and Ibery Reserve. Similarly, there are public swimming areas that are free for you to use. Neutral Bay also includes indoor recreational facilities such as sporting facilities. There is a PCYC, and 5 different types of gym. I like going to restaurants and cafes, there're lots of good ones! According to google reviews there are more than 20 places to enjoy a meal. The high level of variety and number of recreational facilities in Neutral Bay makes it a great place to live.

“Outline the factors that make Manly a liveable place.”

Manly is a very liveable place due to its natural and human environment. Manly's natural environment includes a beach, a lagoon and many parks. Manly's human environment includes shops, restaurants, the wharf, and many beautiful homes. Because of these things Manly is a a very liveable place.

“Outline the factors that make Hornsby a liveable place. ”

Hornsby is a liveable place because it has a range of infrastructure that addresses the needs of residents. Hornsby has access to transportation services. For example, there is a train line including three different routes and many buses. Hornsby also has a large shopping centre. This includes over 250 shops. There are a range of amenities that help people enjoy outdoor areas. There is shaded public seating near the famous clock fountain.

Handwritten annotations on the Neutral Bay paragraph:

- Green text: "Sketch in general terms / Indicate the main features" with a line pointing to the topic sentence.
- Red circles: "Outline the factors that make Neutral Bay a liveable place." (circled), "recreational", "facilities", "leisure activities & recreation", "facilities", "gym", "lots of good ones", "recreational facilities".
- Blue circles: "recreational", "facilities", "leisure activities & recreation", "facilities", "recreational facilities".
- Yellow highlights: "Neutral Bay contains 5 'off-leash dog parks' you can walk to, including Primrose Park and Ibery Reserve.", "public swimming areas that are free for you to use.", "There is a PCYC, and 5 different types of gym.", "I like going to restaurants and cafes, there're lots of good ones!", "According to google reviews there are more than 20 places to enjoy a meal.", "The high level of variety and number of recreational facilities in Neutral Bay makes it a great place to live.".
- Handwritten labels: "Point" (next to the topic sentence), "Example 1" (next to the first example), "Example 2" (next to the second example), "Example 3" (next to the third example), "Example 4" (next to the fourth example), "link" (at the end of the paragraph).
- Other notes: "Explain 1" (next to "leisure activities & recreation"), "Explain 2" (next to "public swimming areas..."), "Explain 3" (next to "recreational facilities..."), "Explain 4" (next to "lots of good ones...").

Resource 2: Exemplar marking criteria

Content

- 2 The ideas are correct and very detailed
Examples are used to support ideas, especially examples with numbers
(e.g. dates, percentages, dollar amounts, fieldwork data)
- 1 Ideas are mostly correct with a small mistake or something small left out
Examples are used, but they might be less detailed
- 0 Ideas are incorrect
No examples or incorrect examples

Writing

- 2 Uses PEEL or Super PEEL Structure
Answers the question
- 1 Uses most of PEEL structure but might be missing something or incomplete
Answers parts of the question but might have missed a key term or misunderstood the directive term
- 0 Does not have any structure, may be only one sentence
Ideas are off topic or very vague

Language

- 2 Uses lots of key terms
Uses formal language
- 1 Uses at least one key term
Might have a small amount of informal language ("I, you, can't, won't, loads, heaps" etc)
- 0 No key terms
Lots of informal language

One strength

One area to improve

Total Mark

Teaching Writing: Liveability Postcards: A Fun Pre-test of Writing in Disguise

Anna Roberts – Barker College

This activity is designed to work early in the year, and particularly works well as a first lesson of the year. This activity allows the teacher to understand students' baseline writing skills, while being very accessible, and also helps as a "get to know you" activity. It also has the bonus effect of becoming great classroom décor.

Begin with schema activation with a brainstorm on the board and class discussion. Students are asked, "What makes a place great to live in?" The teacher may connect the ideas to key concepts or terminology from the syllabus. The teacher can prompt students towards ideas such as:

- Environments (beaches, green spaces like parks, bushland etc., use terminology such as "aesthetic value")
- Social (proximity to family or friends)
- Community groups (sports facilities and teams, cultural background groups particularly those relevant to your school context such as religious buildings or language groups)
- Perspectives (starting to encourage students to think we are all different, and so the places we like to live in might be different to match out different needs).

Students may prefer to write on a different scale, and the teacher can introduce the concept of scale, and list examples in the question (house, suburb, city, country etc,) and link these to geographic scales such as local, regional, national.

If the class is Year 7, and they have not yet learnt high school writing techniques, it can be useful to have a discussion about primary school writing techniques they may be familiar with. Ask the class, "What do we know about writing a paragraph?" Some primary school writing techniques include:

- Writing persuasively and knowing your audience
- Using descriptive language
- Supporting an idea with an example
- Knowing the difference between a fact and an opinion
- Having a "main idea" (in primary school students are taught to only include one main idea in each paragraph, and to provide detail or sub points to develop the main idea).

Students are told that they are going to pick their favourite place in the world, and write about why it is a great place to live.

Students can choose between the "Old Fashioned" postcard, or the "Instagram Post" resources on the following pages.

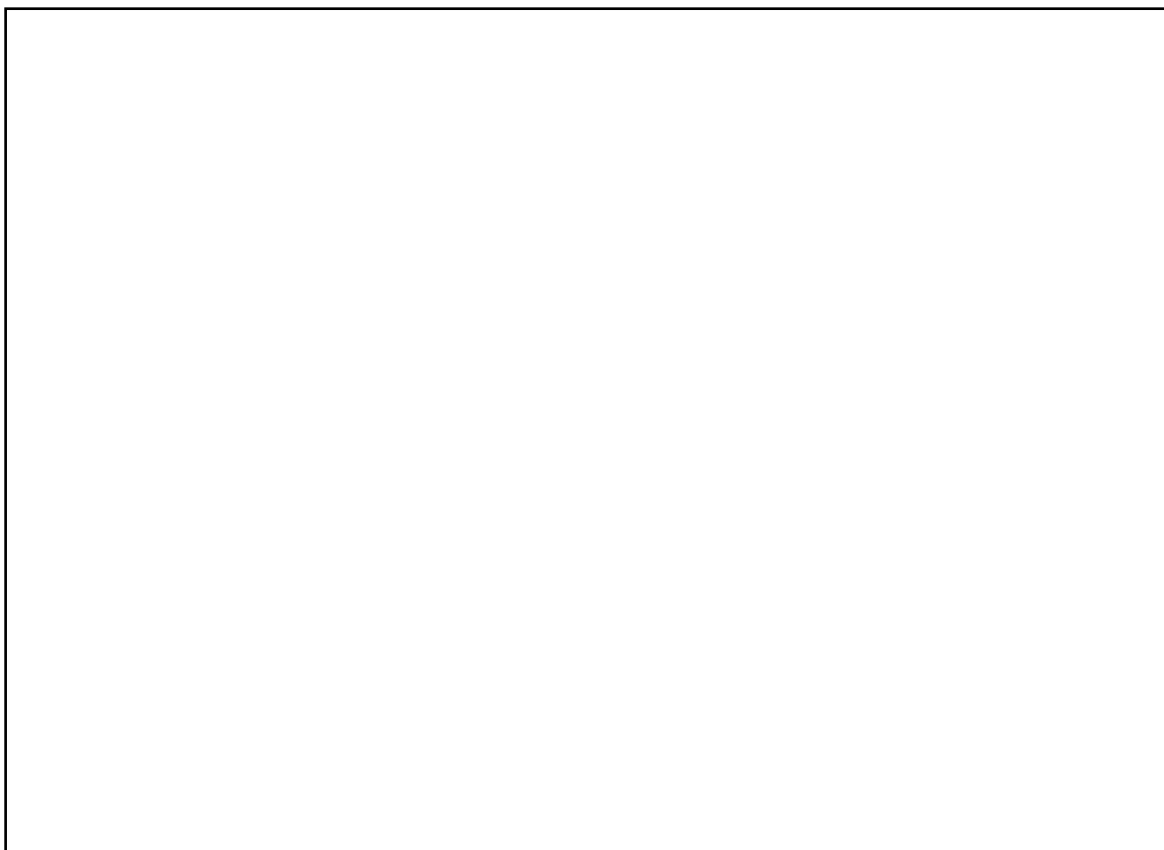


Geography Postcard

1. Draw a place you think is great to live in below.



2. Write your message here. Explain why this place is a great place to live.



3. Write the location of this place on the lines on the right hand side.



This could be the name of the place and its suburb.
If you're up for a challenge, you could include absolute and relative location.

4. Draw your own version of a postage stamp in this small box up here. Be creative!

Instagram Post

1. Draw a place in your local area below.

A large empty rectangular box with a black border, intended for drawing a place in the local area.

2. Write a caption explaining why this place is great to live in.

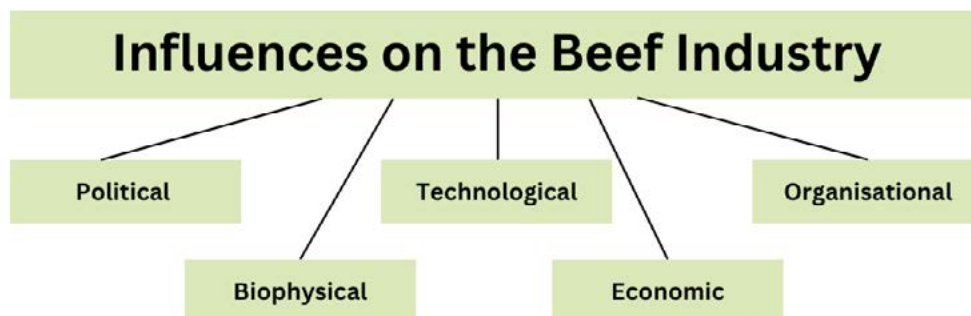
Biophysical Influences on the Global Beef Industry

Brian Trench and Louise Swanson
– written for the Camden Park
Environmental Education Centre

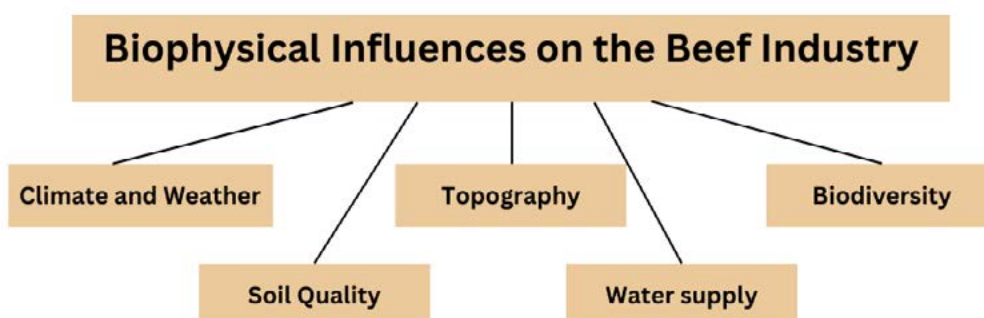
SENIOR GEOGRAPHY
GLOBAL SUSTAINABILITY
BEEF INDUSTRY
CAMDEN PARK ENVIRONMENTAL EDUCATION CENTRE



Influences on the global beef industry include biophysical, political, technological, economic and organisational.



Biophysical Influences on the global beef industry include climate and weather patterns, soil quality, topography, water supply and biodiversity. These influences impact on the productivity, financial viability, and sustainability of operations.



Climate and weather patterns

Like most agricultural industries, the vagaries of the weather present the greatest challenge to beef farmers. The climate of particular locations impacts on the growth of pasture – the most cost-efficient source of cattle feed for most countries.

Locations with temperate climates provide the right combination of rainfall and temperatures to encourage growth of grass and forage, and are conducive to large-scale beef production. Temperate climates occur in the mid latitudes between approximately latitude 35° and 66.5° north and south of the equator. Examples of locations with temperate climates that are conducive to beef production include parts of Australia, the United States Midwest, and Argentina. Beef production also occurs in tropical and subtropical climate zones, but pasturelands are less consistent due to seasonal variations in weather. Examples include Brazil and parts of South East Asia. In areas with distinct seasons, feedlots are used to supplement feed in winter months.

In particular, local rainfall patterns largely dictate pasture production as well as crop-based feed production systems. Adequate rainfall is required for growing pasture and forage. In areas with consistent rainfall patterns, there is often more lush pastureland for grazing, while areas with irregular rainfall patterns or droughts may experience difficulties in maintaining large cattle herds. In these locations, investments in irrigation and supplementary feed may be required where it is possible.



Extreme heat or cold can impact health and productivity of cattle. Cattle exposed to extreme heat can experience heat stress which can reduce weight gain. In these climates, shade and cooling systems are particularly important. Cattle breeds that are more heat-tolerant may be preferred. Cattle exposed to extreme cold temperatures may have increased feed requirements.

Natural disasters such as floods, droughts and storms can impact feed availability, and cattle health and mortalities. Drought conditions can lead to feed shortages and higher feed costs. In times of prolonged dry/drought, beef cattle farmers respond by either purchasing feed and/or selling all or part of their herd. Where the dry conditions are widespread, this often results in higher prices for feed and lower prices for cattle so that, unless farmers destock very early, they find themselves in a “cost-price squeeze” where financial returns for cattle sales are greatly reduced but the cost of keeping them increases rapidly. This in turn can lead to reduced farm financial viability, especially if there is a need to borrow against the value of the farm to pay for feed. This situation can also cause greater environmental pressure on the farm as holding more stock than the capacity of pastures can sustain can lead to over-grazing leaving soils bare and unprotected from wind erosion and damage by hard-hoofed cattle. Choosing the right time to reduce stock numbers is extremely difficult because weather forecasts cannot accurately predict the length of a drought. Climate change is affecting global weather patterns and may result in a shift of suitable locations for beef production. Widespread drought will eventually cause significant reduction in beef production in affected areas. This reduced supply can lead to an increase in beef prices elsewhere in the world.



Soil quality

The quality of forage and pasture is affected by soil fertility. Fertile soils containing appropriate levels of nitrogen, phosphorus, potassium and other micronutrients are required for the growth of high-quality forage. These are critical for cattle nutrition. Nutrient-rich soil supports better grass and forage growth. Fertile soils also support higher biomass production, increasing feed amounts. They produce better quality forage, with higher rates of proteins and minerals, encouraging weight gain in cattle. Quality soils can more easily recover from grazing, reducing risk of overgrazing and soil degradation.

Soil acidity and alkalinity impacts on the nutrient uptake of forage. The ideal pH for soils is slightly acidic to neutral at around pH 6.0–pH 7.0. If the soil is too acidic or alkaline, it will impact on the ability of the forage to absorb nutrients, and this can affect the quality of the forage.

Soil structure, aeration and adequate drainage encourage plant root development. Strong root systems allow plants to access nutrients and water deeper into the soil. Crops with stronger root structures will be more productive and resilient. Good soil structure, as well as the presence of organic matter, improve water infiltration and reduce runoff. Soils with good organic matter content are less prone to erosion.

Cattle will be attracted to areas with better soil quality because it is likely to have better forage. This can lead to overgrazing. Cattle may be less likely to be attracted to site with poorer soil quality because the forage will be of lesser quality. These areas may then be underutilised.

Pasture quality can be affected by poor soil management, leading to erosion and inadequate drainage.

Locations with poor quality soils may be required to enhance soils with lime, compost or fertilisers, or use systems such as rotational grazing, or agroforestry. Synthetic fertilisers and supplements can be costly.

Topography

The shape and slope of the land can influence grazing patterns and ease of access. Different landforms such as valleys, hills, or plateaus have different soil types and fertility.

Steep and uneven terrain can limit available grazing and increase the risk of soil erosion. Slopes can be challenging to manage due to accessibility, difficulties in managing herds, and fencing. Soil erosion is more likely on slopes, with the loss of topsoil resulting in reduced soil productivity and sedimentation in local rivers and creeks.

Gently sloping land allows for natural water drainage which helps forage growth. Pasture growth can be hindered in areas that are low lying with waterlogged soils.

Higher elevations are generally cooler and this can influence the type of forage that will grow well. Higher elevations often have shorter growing seasons, limiting the amount of forage available.

The aspect of a slope refers to the direction in which it faces. The aspect can affect the amount of sunlight exposure, which can impact on forage growth. In the northern hemisphere, south-facing slopes receive more sunlight, while in the southern hemisphere the north-facing slopes receive more sunlight. Sunlight impacts on growth rates and quality of forage. Shaded slopes will produce less forage.

Topography affects how pastures are managed, including construction and maintenance of access roads, how well the pastures are utilised, and access to water sources. Steep, rugged terrain can make road and infrastructure maintenance expensive.

Water supply

Natural water features such as streams, ponds and springs are important for watering cattle. Access to clean, fresh water is crucial for cattle health to ensure access to drinking water. Water aids digestion, and is essential for cattle metabolism. Growing crops for feed, such as soybeans, corn and hay, requires substantial amounts of water.

Inadequate access to water can result in reduced feed production with reduced crop yields, higher crop prices, and reduced feed intake by cattle. Water scarcity leads to dehydration and reduced feed intake. Contaminated water sources can lead to disease outbreaks and reduced productivity. Irrigation is required in locations of inconsistent water supply.

Biodiversity

Healthy, biodiverse ecosystems contribute to soil fertility, water infiltration and pest control. Biodiversity in pastures results in better resilience – a variety of plant species and natural habitats can provide flexibility in the event of a natural hazard or pest attack, with some species more likely to survive than others. The prevalence of such natural predators as birds or insects can target pests and keep them under control. Providing a diverse range of crops for feed – grasses, legumes and other plants – provides better forage for cattle.

Questions

- Describe how weather and climate influence the growth of pasture for beef production.
- List the characteristics of temperate climates that make them suitable for large-scale beef production.
- Explain the challenges beef farmers face in regions with inconsistent rainfall or frequent droughts.
- Explain how extreme heat impacts cattle health and productivity. Suggest how farmers can mitigate heat stress.
- Explain how natural disasters such as flood, drought and storms can disrupt the beef industry.
- Describe why soil fertility is critical for beef farming.
- List the soil nutrients that are essential to support high-quality forage?
- Describe the methods farmers can use to improve soil quality in areas with poor fertility.
- Explain the concept of rotational grazing and how it can help improve soil quality and prevent overgrazing.
- Describe the impact that inadequate access to water can have on cattle feed production and cattle health.
- Explain how biodiversity can contribute to the resilience of cattle farms and the health of pastures.
- Explain the role of biodiversity in maintaining soil fertility and water filtration.
- Extended response: Examine how biophysical influences can affect ONE global economic activity.

Find a Geography Bulletin Article: Stage 6



Geography Teachers
Association NSW & ACT

The following table is a record of **GTANSW & ACT Bulletin** articles that support the **Geography Stage 6 Syllabus (2024)** in NSW.

Student activities, worksheets and PowerPoint presentations are included as Appendices.

Article and author	Edition / Year
Year 11 HSC Preliminary Year (2024 Syllabus)	
<p>New HSC Syllabus – Annual Conference Edition 2024 Introductory topic analysis</p> <ul style="list-style-type: none"> • Earth’s Natural Systems • People Patterns and Processes • Human – environment interactions <p><i>Lorraine Chaffer</i></p> <p>Supporting articles</p> <ul style="list-style-type: none"> • Charted: the world’s most populous countries (1973–2023) • Ranked: the 20 countries with the fastest declining populations • Gold mining is one of the world’s most destructive and unnecessary industries – here’s how to end it • Floods play a vital role in ecosystems – It’s time to get out of their way • Floods can be a disaster for humans – But for nature, it’s boom time • What Australia learned from recent devastating floods • 200 experts dissected the Black Summer bushfires in unprecedented detail. here are six lessons to heed • Indigenous expertise is reducing bushfires in Northern Australia. It’s time to consider similar approaches for other disasters • Why adapt to climate change (AdaptNSW) • Royal Botanic Garden & Australian Institute of Botanical Science (About) 	Volume 55, No 2, 2023
<p>Special 2024 Annual Conference Edition 2024 Year 11 Supporting articles / activities</p> <ul style="list-style-type: none"> • Power of the Pyramids (Population profiles). 	Volume 56, No 2, 2024

Earth's Natural Systems (2024 syllabus)

Understanding the Carbon Cycle / Appendices 3 and 4. <i>Lorraine Chaffer</i>	Volume 53, Special edition 2021
Carbon Cycle poster activities. <i>Lorraine Chaffer</i>	Volume 53, Special edition 2021
The Carbon Cycle game. <i>Adapted by Jennifer Ceven from "The Incredible Journey," Project Wet</i>	Volume 53, Special edition 2021
Guided reading activity.	Volume 53, Special Edition 2021
Madden Julian Oscillation (MJO). <i>Susan Bliss</i>	Volume 53, Special Edition 2021
Biophysical interactions: Understanding sea levels. <i>Ask NASA Climate blog</i>	Volume 52, No 3, 2020
Biophysical interactions: How I teach Global Atmospheric Circulation Model. <i>Tom Highnet</i>	Volume 52, No 3, 2020
Biophysical interactions: The cryosphere. <i>Lorraine Chaffer</i>	Volume 52, No 3, 2020
Stage 6 skills: cryosphere. (pp. 106–107) <i>Lorraine Chaffer</i>	Volume 52, No 3, 2020
Estuarine processes. <i>Marco Cimino</i>	Special HSC Edition, No 1, 2018

Human – Environment Interactions

En-ROADS Simulation: Exploring climate change solutions. <i>Louise Swanson</i>	Volume 57, No 2, 2025
Rising up: Building hope in the face of a changing world. <i>Kal Glanznig</i>	Volume 57, No 1. 2025
The Anthropocene: A new epoch on Earth's history. <i>Visual Capitalist</i>	Volume 55, No 4, 2023
Amazon: Skills activities / <i>Graphic news</i>	Volume 55, No 4, 2023
Continental transect – Canada from west to east. <i>Dr Grant Kleeman</i>	Volume 55, No 4, 2023
The world energy market and Australian energy. <i>Martin Pluss</i>	Volume 51, No 3, 2019

People, Patterns and Processes

Power of the Pyramids. <i>Earth Matters</i>	Volume 56, No 2, 2024
Venice: Skills activities. <i>Graphic News</i>	Volume 55, No 4, 2023
The problem of an ageing population. <i>Visual Capitalist</i>	Volume 52, No 1, 2020
Population boom or bust. <i>Grant Kleeman</i>	Volume 52, Special edition, 2020
Population: 'World population may shrink by 2020' / Skills activities. <i>Lorraine Chaffer</i>	Volume 52, Special edition, 2020
Population: 'One million face displacement by 2050' / Skills activities. <i>Lorraine Chaffer</i>	Volume 52, Special edition, 2020
Population: 'Nearly 80-million displaced worldwide' / Skills activities. <i>Lorraine Chaffer</i>	Volume 52, Special edition, 2020
Population and urbanisation: India. <i>Dr Susan Bliss</i>	Volume 51, No 2, 2019
Global Challenges: Population and development <i>Dr Paul Batten and De Bronwyn Batten</i>	Special HSC edition, No 1, 2018
Natural resources: 'Visualising the importance of environmental management in mining'. <i>Visual Capitalist</i>	Volume 52, Special edition, 2020
Case study: Rare earths. <i>Lorraine Chaffer</i>	Volume 52, Special edition, 2020
Natural resources: 'China may weaponise rare earths' / Skills activities. <i>Lorraine Chaffer</i>	Volume 52, Special edition, 2020
Natural resources: 'Environmental management in mining' / Skills activities. <i>Lorraine Chaffer</i>	Volume 52, Special edition, 2020
Natural resources: 'Visualising the importance of environmental management in mining' / <i>Visual Capitalist</i>	Volume 52, Special edition, 2020

Skills and fieldwork and examination questions

From the classroom to the field: Exploring fieldwork possibilities in the new Year 11 syllabus. <i>Kate Sampson</i>	Volume 56, No 4, 2024
Geography Explained Online –Turning chaos into collaboration. <i>Sam Coburn</i>	Volume 56, No 4, 2024
Practice questions for preliminary geography. <i>Sam Coburn</i>	Volume 56, No 4, 2024
Earth Observation: Big data and its application in the classroom. <i>Kevon Davies & Chris Jenkins</i>	Volume 55, No1, 2023
How are drones changing environmental monitoring? <i>Ann Crosby GEONADR</i>	Volume 55, No1, 2023
Geographical numeracy: Interpreting field data and graphing skills. <i>Kathy Jones</i>	Volume 55, No1, 2023
A mapping activity for Year 11. <i>Drew Collins</i>	Volume 54, No2, 2022
Simplifying the science. A guide to collecting fieldwork data for the Year 11 SGP. <i>Kathy Jones</i>	Volume 54, No1, 2022
Selected HSC map skills for Year 11. <i>Lorraine Chaffer</i>	Vol 53, Special Edition ,2021
Biophysical interactions (Relevant to 4 spheres) Canada: Beautiful, liveable yet vulnerable. <i>Lorraine Chaffer</i>	Volume 48, No 3, 2016 Volume 48, No 1, 2016
Biophysical interactions. Invasive species in Australia’s aquatic environments. <i>Lorraine Chaffer</i>	Volume 48, No 3, 2016
Natural resources: Sand mafia in India. <i>Dr Susan Bliss</i>	Volume, No 3, 2017
Natural resources: India’s Blood Mica. <i>Dr Susan Bliss</i>	Volume, No 3, 2017
Natural resources: Bangladesh leather. <i>Dr Susan Bliss</i>	Volume, No 3, 2017
Biophysical interactions- Malaria. <i>Marco Cimino</i>	Volume 48, No 2, 2016
Biophysical interactions: Flipped classroom. <i>Susan Caldis</i>	Volume 47, No 3, 2015

HSC NEW SYLLABUS

New HSC Syllabus – Special Conference Edition. *Lorraine Chaffer* Volume 55, No 2, 2023

- Introductory topic analysis
- Global sustainability Incl. guest presenters on sustainability Karen Davids (MRA consulting), Alison Jose (Circular centre) Alex Webb (MSC)
- Rural and urban places Including Andrew Toovey (Campbelltown), Larissa Shashkof (Lend Lease)
- Ecosystems and global biodiversity Including guest speaker Professor Brett Summerell (Australian Institute of Botanical Science / Royal Botanic Garden).

Supporting articles

- Royal Botanic Garden & Australian Institute of Botanical Science (About)
- Three core principles of circular economy

Special 2024 Annual Conference Edition. *Lorraine Chaffer*

Volume 56, No2, 2024

- Year 12 topic analysis.

Supporting articles / activities

- Sustainable tourism needs to be built with the help of locals
- Ultra-fast fashion is a disturbing trend undermining efforts to make the whole industry more sustainable
- The benefits and challenges of regional living: A case study of five regional cities
- These 7 Cities are tackling heatwaves with innovative solutions 2023
- Urban trees could cut extreme heat by up to 6 degrees.

GLOBAL SUSTAINABILITY

Previously People and economic activity (Articles relevant to new syllabus)

Global sustainability evaluation and critical analysis. <i>Khya Brooks</i>	Volume 56, No 4, 2024
Case study: Aquaculture. Appendix: PPT. <i>Lorraine Chaffer</i>	Volume 52, Special Edition, 2020
Economic activities and COVID-19. <i>Lorraine Chaffer</i>	Volume 52, No 3, 2020
Tourism update 2020. <i>Dr Grant Kleeman</i>	Volume 52, No 3, 2020
Stage 6 skills: Tourism. <i>Lorraine Chaffer</i>	Volume 52, No 3, 2020
Tourism: Future directions Internet research. <i>Louise Swanson</i>	Special HSC Edition, No 1, 2018
Wine industry update. <i>Dr. Grant Kleeman</i>	Special HSC Edition, No 1, 2018
Going bananas. <i>Rae Dufty-Jones</i>	Special HSC Edition, No 2, 2017
Dairy industry. <i>Drew Collins</i>	Special HSC Edition, No 2, 2017
Coffee production. <i>Patricia Dybell</i>	Special HSC Edition, No 2, 2017
Coffee interconnections. <i>Dr Susan Bliss</i>	Volume 49, No 4, 2017
Coffee biomes. <i>Dr Susan Bliss</i>	Volume 49, No 4, 2017
Chocolate (Cocoa). <i>Dr Susan Bliss</i>	Volume 49, No 1, 2017

Urban places	
Shenzhen, the little-known Silicon Valley of China. (A large city outside of Australia). <i>Robin Murray-Leslie</i>	Volume 57, No 2, 2025
The benefits and challenges of regional living: A case study of five regional cities. <i>L. Crommelin, T. Denham, L. Troy,, J. Harrison, H. Gilbert, S. Dühr,, and S. Pinnegar (2022)</i>	Volume 55, No2, 2023
Selecting case studies: Broken Hill. <i>David Proctor</i>	Volume 52, Special Edition, 2020
Urban dynamics of change at Sydney Olympic Park, Newington, Rhodes and The Waterfront. <i>Jaye Dunn</i>	Volume 52, Special Edition, 2020
Busting the bands: Mega cities. <i>Matt Carroll</i>	Volume 52, No 3, 2020
Stage 6 skills: Dharavi slum Mumbai. <i>Lorraine Chaffer</i>	Volume 52, No 3, 2020
Sydney's Darling Harbour: A case study in the dynamics driving change in a large city in the developed world. <i>Dr Grant Kleeman. Appendix 1a: Lorraine Chaffer</i>	Volume 51, No 2, 2019
Case study: Urban - Central Maitland. <i>Justin Mahoney</i>	Volume 51, No 2, 2019
Sydney's Green Square: How to develop a sustainable community in Australia's fastest growing city <i>The Urban Developer / Appendix 1a Green Square. Lorraine Chaffer</i>	Volume 51, No 2, 2019
Fieldwork: Urban places: Barangaroo. <i>Grace Larobina</i>	Special HSC Edition, No 1, 2018
Fieldwork: Urban places: Sydney. <i>Grace Larobina</i>	Special HSC Edition, No 1, 2018
Hong Kong: A large city study. <i>Tim Kelleher</i>	Volume 48, No 1, 2016
Detroit: A large city. <i>Alexandra Lucas</i>	Volume 47, No 2, 2015

Ecosystem and global biodiversity (2024 Syllabus)

LIQUID HEART: Restoring the Australian Alps. <i>Lorraine Chaffer</i>	Volume 57, Vol 2, 2025
White Rock: A hidden crisis gripping Australia's underwater forests. <i>Great Southern Reef Foundation</i>	Volume 57, Vol 1, 2025
The biggest threats to Earth's biodiversity. <i>Visual Capitalist</i>	Volume 56, No 2, 2024
How drones are changing environmental monitoring Anne Crosby, GEONADIR	Volume 55, No 1, 2023
Great Southern Reef case study. <i>Appendix: PPT Lorraine Chaffer</i>	Volume 53, No 4, 2021
Tropical rainforest heritage of Sumatra. <i>David Latimer</i>	Vol 53, Special Edition, 2021
Kakadu Wetlands. <i>Appendix 1 and Appendix 2. Kate Watson</i>	Vol 53, Special Edition, 2021
Connecting topics: Deforestation and natural cycles. <i>Lorraine Chaffer</i>	Vol 53, Special Edition, 2021
Case study: Ningaloo Reef. <i>David Latimer</i>	Volume 52, Special Edition, 2020
Case study taster: Oregon Dunes / Oregon Dunes Support Material. <i>Lorraine Chaffer</i>	Volume 52, Special Edition, 2020
Great Barrier Reef: Resilience and change. <i>Sydney University</i>	Volume 52, No 3, 2020
Great Barrier Reef: Catalyst activity. <i>Justin Mahoney</i>	Volume 52, No 3, 2020
The role of traditional strategies in managing coral reefs. <i>Louise Swanson</i>	Special HSC Edition, No 1, 2017
Evaluating: Traditional and contemporary management strategies applied to coral reefs. <i>Louise Swanson</i>	Special HSC Edition, No 1, 2017

Skills, Fieldwork and exam preparation

Writing your own Year 12 Essay and short answer question <i>Martin plus</i>	Vol 55, No 3, 2023
2020 Examination – How to get the answer. <i>GTA Team</i>	Vol 53, Special Edition, 2021
2020 Geography HSC and scaling. <i>Graham Wright</i>	Vol 53, Special Edition, 2021
Geography effect: Two decades of change. <i>Martin Pluss</i>	Volume 52, Special Edition, 2020
Building confidence and success in Stage 6. <i>Khya Brooks</i>	Volume 52, No 3, 2020
Revision strategies and activities. <i>Alex Pentz</i>	Volume 52, No 3, 2020
A formative assessment approach for year 12. <i>Grace Larobina</i>	Volume 52, No 3, 2020
Building literacy capabilities for Geography. <i>David Proctor</i>	Volume 52, No 3, 2020
HSC essay scaffolds: Topic sentences. <i>Jaye Dunn</i>	Volume 52, No 3, 2020
Half a crossword. <i>Katerina Stojanovski</i>	Volume 52, No 3, 2020
HSC revision Crosswords. <i>David Proctor</i>	Volume 52, No 3, 2020
HSC skill development. <i>Lorraine Chaffer</i>	Special HSC Edition, No 1, 2018
Fieldwork essentials: Preparing for fieldwork. <i>Louise Swanson</i>	Special HSC Edition, No 1, 2018
Fieldwork essentials: Surveys and interviews. <i>Louise Swanson</i>	Special HSC Edition, No 1, 2018
Fieldwork essentials: Basic fieldwork tools and techniques. <i>Louise Swanson</i>	Special HSC Edition, No 1, 2018
Using podcasts and journal articles as a tool of professional learning and classroom instruction. <i>Susan Caldis</i>	Special HSC Edition, No 1, 2018
Using fieldwork references in HSC answers. <i>Lorraine Chaffer</i>	Special HSC Edition, No 1, 2017
Using organisational templates and checklists. <i>Lorraine Chaffer</i>	Special HSC Edition, No 1, 2017
Busting the bands. <i>Matt Carrol</i>	Special HSC Edition, No 1, 2017
Fieldwork: HSC Geography via regional NSW and Central Australia. <i>Susan Caldis</i>	Volume 47, No 1, 2015

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2025 Conference Report

by Conference Scholarship winner,
Kelly Ewen, Picton High School



As a first-time Senior Geography teacher, attending the 2025 Geography Teachers Association Conference in May this year was one of the most valuable experiences I have had in my teaching career thus far. I am currently in my fifth year of teaching and at the end of 2024 I was thrilled to find out that Senior Geography had enough students to run as a subject at my school in 2025. This would be the first time the subject had gotten up since 2019 and therefore the first time the new syllabus would be delivered at our school. Again, whilst thrilled, I was also obviously apprehensive at the seemingly daunting task ahead. On top of this, I felt an immense sense of responsibility to champion Geography with this new senior class, as well as to maintain the momentum of Stages 4 and 5. So, when the email came through announcing the GTA Conference for 2025, I jumped on the opportunity to develop my Geography-specific professional learning.

For me, there were several key highlights of the Conference that were motivating and inspiring to my geography nerd brain. Firstly, the presentation on White Rock and documentary screening provided a keen insight into real world geography issues and application of management strategies that I took back and discussed in my classroom. The following sessions on support materials for the new Geography Syllabus and navigating the Stage 6 Syllabus were both extremely helpful in providing insights into how to plan for Geography in the coming years. This was specifically useful as a teacher who had not yet taught Senior Geography, as I gained an understanding of both how to organise content, and what markers are looking for in the HSC. The expertise and experience of the presenters made these presentations invaluable.

The highlight of the second day was undoubtedly the enthusiasm and vibrance of Costa Georgiardi during his keynote presentation. His off-the-cuff recollections of being a Geography student, as well as passion for the environment, reminded me of the power of an engaging, devoted teacher, and inspired me to be able to capture a class in the same way one day.

All the experiences and sessions at the Conference left me overflowing with ideas and motivation to improve the delivery of Geography not only in my classroom but at my school as a whole. The concepts of change and resilience, whilst relevant in the wider application of Geography in the real world, resonated as well with me on a micro level. Having the skills and knowledge imparted by presenters as well as colleagues at the Conference made me feel immeasurably more confident moving forward as a Senior Geography teacher. It is clear that our students will have to face many challenges in the real world over the course of their lives. As teachers of this subject, I believe it is so important that we have the professional ability to not only instill in them a knowledge of the world around them but also give them the skills to see change happening, be resilient and make a difference in the future. Professional experiences such as the Geography Teachers Association Conference continue to ensure we can do this successfully.



Annual Conference
Fri 16 & Sat 17 May 2025,
Amora Hotel, 11 Jamison St, Sydney

2025 Conference Report

by Conference Scholarship winner, **Dylan Kramer,**
Rose Bay Secondary College

“Navigating Change: Geography for a Resilient Future” was the theme for the 2025 GTA Conference this year. The Conference brought together passionate geography educators to shape a more sustainable and engaged learning landscape. The Conference invited many keynote speakers, teachers showcasing hands-on workshops, and documentaries offering practical strategies for classroom transformation.

The Conference launched with a screening of the documentary *White Rock* introduced by Catia Abreu de Freitas. The film explored the environmental threat of long-spined sea urchins devastating kelp forests. The film has offered narrative-rich case studies that illustrate real-world environmental challenges. I’ve used the kelp forest story within my classroom to frame discussions on ecosystems and human responsibility.

Fleur Farah (NESA Subject Matter Officer) and Jenni Wenzel (Chief Education Officer, Aboriginal Education) presented a session on the new Stage 7–10 Geography syllabus. The presentation clearly illustrated the scope and purpose of the new syllabus and demonstrated how we as teachers should be aligning lessons tightly with syllabus outcomes and learning goals.



The workshops I attended were Learning Locally: Fieldwork in your local suburb by Christian Bell and Geoscience Australia – Historical satellite data by Dominic Iffland. The first session provided key insight into how we can engage students in local fieldwork, meet the mandatory fieldwork hours, and how to enrich student learning. The second session showcased geoscience tools and websites, including Digital Earth Australia, which has become my most-used resource within the classroom.

On Day Two, Costa Georgiadis, presenter of *Gardening Australia*, delivered a keynote on how we can cultivate resilience and navigate change. He delivered an enthusiastic presentation, which got us thinking about the way in which we navigate Geography and the multiple ways we can solve problems. Costa used beautiful metaphors to convey the beauty of Geography, which has inspired the way I think about it. The session was then followed by Blue Minds’ Kal Glanzig

and Cooper Chapman in a session about eco-anxiety and how we can turn the tide on mental health. The approach encouraged me to think about the spaces that we create in the classrooms and how we should be able to articulate environmental concerns and work on solutions.

The 2025 Conference mixed big ideas with practical takeaways. The keynotes and workshops have already changed how I frame lessons, think about wellbeing, and design classroom resources. More importantly than anything, it reinforced the importance of Geography and how it is a creative, collaborative subject rooted in the real world.

Geography's Big Week Out & The AGTA Board Meeting



Geography Teachers Association NSW & ACT

Ella Williamson, Marsden High School

Geography's Big Week Out, Canberra – September 2024/2025

In September/October 2024 and 2025, Geography's Big Week Out (GBWO) was hosted by GTA NSW ACT in Canberra, bringing together selected Year 11 students from across Australia to extend their geographical knowledge and skills. The program provided an intensive fieldwork experience, allowing students to apply inquiry methodologies in diverse environments.

Field activities included examining alpine landscapes and climate processes at Thredbo and Perisher Valley, exploring sustainability and land management practices at the National Arboretum, and investigating biodiversity and conservation

issues at the National Zoo and Aquarium. These experiences challenged students' geographical thinking, connected them with contemporary environmental and social issues, and fostered collaboration among peers from different states and territories.

The week highlighted the importance of fieldwork in developing geographical understanding and showcased the role of GBWO in nurturing future leaders in the discipline. At the conclusion of the week, four finalists were selected to represent Australia at the International Geography Olympiad—Bangkok (2024 cohort) and Istanbul (2025 cohort).



GBWO excursion to Thredbo



AGTA Board Meeting, Adelaide – May 2025

In May 2025, the Australian Geography Teachers' Association (AGTA) Board Meeting was held in Adelaide, bringing together educators, academics, and practitioners from across the country to explore the future of geography education. A central theme of the Board meeting was the uncertain trajectory of Geography within Australian universities, with delegates engaging in critical discussion about the implications for teacher preparation, subject expertise, and the long-term visibility of the discipline.

Another focus was how best to support out-of-field geography teachers, with participants sharing strategies, professional learning opportunities, and

resource development to strengthen classroom practice. The conference also provided valuable opportunities to build networks and foster collaboration across state and territory associations. A highlight included visiting the Royal Geographical Society of South Australia, which offered insights into the discipline's rich history and ongoing contribution to scholarship. The event reinforced AGTA's central role in advocating for and sustaining geography education nationally, while also informing GTA NSW & ACT's work in supporting teachers and strengthening advocacy across our region.

Thursday 16th October @ 4:00 pm - 5:30 pm

Upcoming Webinar

Exploring the new 7-10 Geography Syllabus

Presented by: Khya Brooks & Jade Cunningham

\$60.00 Members Price

\$100.00 Non Members Price

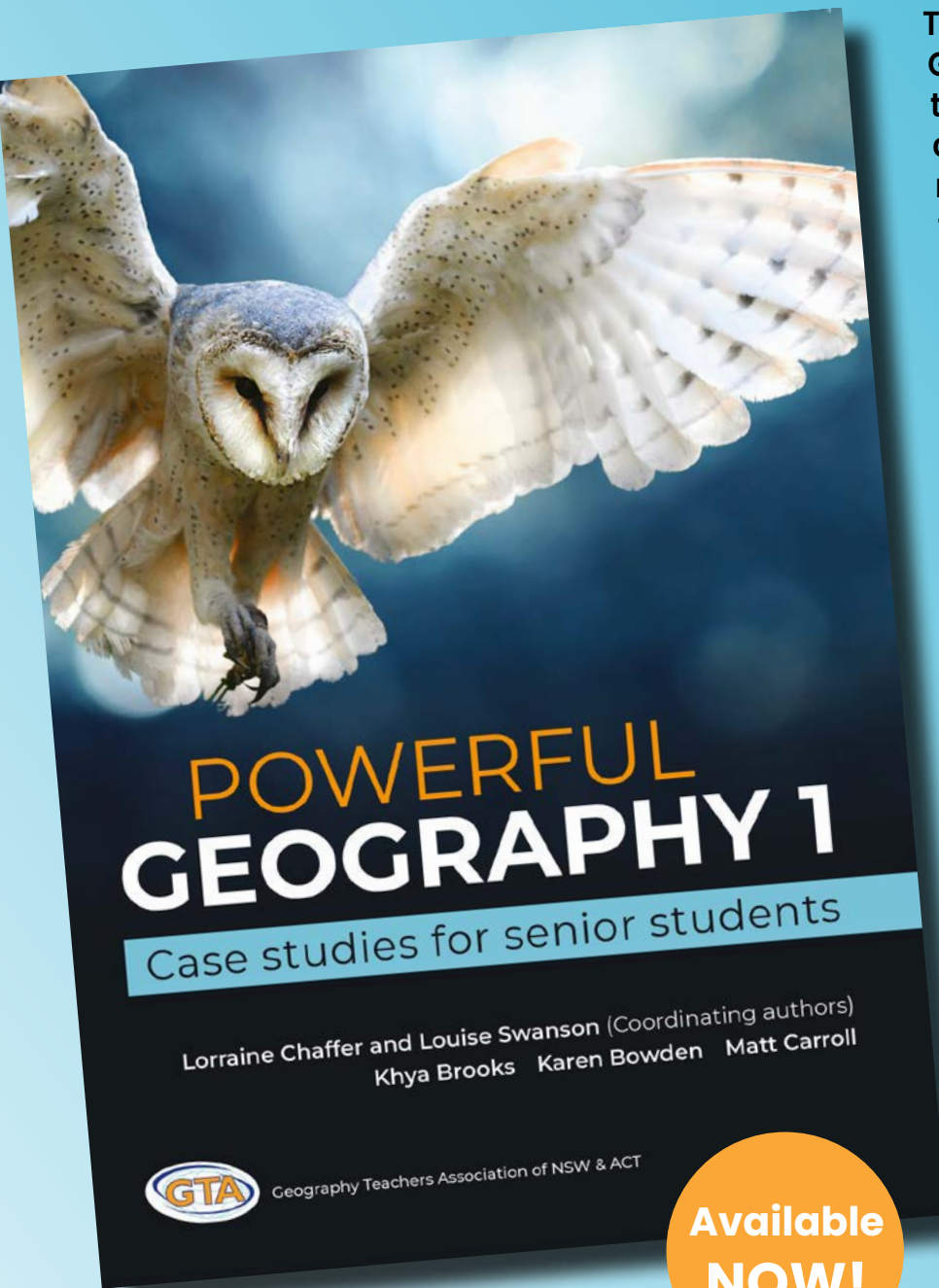


Geography Teachers
Association NSW & ACT

Upcoming GTA Webinars

Week	MON	TUES	WED	THURS	FRI
1	OCT 13TH	OCT 14TH	OCT 15TH	Exploring the new 7-10 Geography Syllabus	OCT 17TH
2	OCT 20TH	OCT 21ST	OCT 22ND	Learning Locally: Developing Geography Excursions in your school's suburb	OCT 24TH
3	OCT 27TH	OCT 28TH	Structured Freedom: Bridging the gap between direct instruction and inquiry learning	OCT 30TH	OCT 31ST
4	NOV 3RD	NOV 4TH	NOV 5TH	NOV 6TH	NOV 7TH
5	NOV 10TH	NOV 11TH	NOV 12TH	Why HSC Geography? A strategic academic choice connecting students to in-demand careers	NOV 14TH
6	NOV 17TH	NOV 18TH	NOV 19TH	NOV 20TH	NOV 21ST
7	NOV 24TH	Integration of key concepts of SPICESS in the new syllabus	NOV 26TH	NOV 27TH	NOV 28TH
8	DEC 1ST	Rural and Urban Places: Seoul as a large city	DEC 3RD	DEC 4TH	DEC 5TH

POWERFUL GEOGRAPHY 1



The team of authors for Powerful Geography 1 are excited about the case studies they have created, the beautiful illustrations, many never seen before, and the inclusion of Visualise This, concept explainers.

This book offers teachers and students a range of case studies to support teaching the NESA Stage Geography Syllabus (2022). The use of GEO stories (micro studies), large case studies and a visual dictionary (Visualise This) for each Content Focus Area covers essential content knowledge, concepts, tools, and skills.

Featuring:

- Contemporary case studies for each Content Focus Area
- GEO stories – micro case studies to simulate discussion and differentiate learning.
- Visualise This – key concepts explained using illustrations
- Student Activities – Core knowledge, Application, Extension, Fieldwork & Skills.
- A Google Drive of support materials for purchasers includes teaching programs, PPT presentations, worksheets, chapter summaries and other resources. The link is posted with the books.

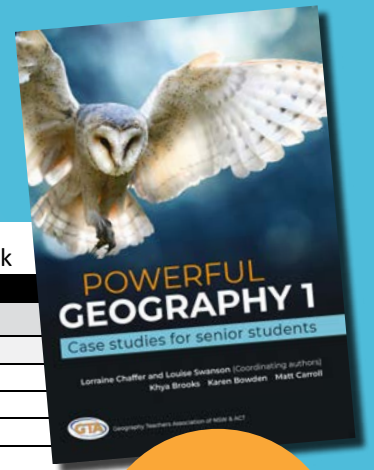
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POWERFUL GEOGRAPHY 1: A Guide to Case Studies



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POWERFUL GEOGRAPHY 1: YEAR 11 *Potential Differentiation **Potential Fieldwork

CASE STUDY	Page	Where you can use this content
EARTH'S NATURAL SYSTEMS		
Small case studies / GEOstories		
Wildlife migrations	6	Wonder of nature, ecological systems
Forest elephants	11	Ecological systems *
Whales	15	Ecological systems *
Dust cycle	17	Geomorphic systems *
Iceberg alley	21	Atmosphere – hydrosphere systems
Major case studies		
The cryosphere	24	Earth's natural systems through the cryosphere. Place study- Patagonia.
Forests **	68	Earth's natural systems through forests. Place studies – Canada's Boreal forests; Congo rainforest
Supporting concepts / Visualise This		
Earth's natural systems	106	Cryosphere and forests / Lake Eyre Basin & Arctic regions / Floods / Climate change-SIDS.
Global atmospheric circulation	109	Congo rainforest / Lake Eyre Basin Option
Global ocean circulation	112	Antarctic and Patagonia / Arctic region Year 12- Coral Triangle & Great Southern Reef
Glacial and interglacial cycles	115	Patagonia and Boreal forests
Ecological succession **	118	Cryosphere; Boreal forests, land cover change.
Permafrost *	123	Cryosphere /Arctic region option study
Fieldwork techniques – Physical	126	Any case study in which students do fieldwork, Venice
PEOPLE, PATTERNS AND PROCESSES		
Small case studies / GEOstories		
Environmental refugees*	136	Migration, Uganda
Global sand crisis*	141	Resource consumption and impacts / Singapore Year 12
Sea floor mining *	147	Earth's natural resources
Churchill	153	Option topic: Human resilience
Satellite Networks (Digital)		Option topic: Technological advances
Major case studies		
Population and Resources Japan and Uganda Oil in Nigeria	160	Population & resource consumption Comparative study of two countries Factors influencing resource use, impacts.
Venice	196	Option topic: Human resilience
Ukraine	230	Option topic: Political power and contested spaces
Supporting concepts / Visualise This		
Demographic transition model	260	Population change- Uganda
Population perspectives *	263	Population change
Global value chains *	266	Resource consumption
Global commons *	269	Resource consumption
Fieldwork techniques – Human **	274	Any case study in which students do fieldwork
HUMAN – ENVIRONMENT INTERACTIONS		
Small case studies / GEOstories		
Wollemi pine	282	Option topic: Natural hazards
Netherlands –flood management	285	Option topic: Natural Hazards
Madagascar: forests of hope mangrove *	291	Landuse & land cover change: Deforestation, reforestation
Morocco: Lost oases *	296	Landuse and land cover change:
Species migration *	303	Land cover change, Climate change
NSW National Park management **	308	Option topic: Natural hazards
Major case studies		
Lake Eyre Basin Region **	318	Option topic: Geographic region
The Arctic Region	358	Option topic: Geographic region
Climate change: Small island developing nations (SIDS)	400	Option topic: Climate change Land cover change
North coast floods 2022 (Digital) **		Option topic: A contemporary Hazard Stage 4 Water cycle- hazard.
Supporting concepts / Visualise This		
The Anthropocene	436	The Arctic region and SIDS
Land cover change **	439	The Arctic region, SIDS, North coast floods
Antarctica's doomsday glacier	444	Land cover change
THE GEOGRAPHICAL INVESTIGATION		
A modelled approach to undertaking the Geographical Investigation – using examples from a student SGP		

POWERFUL GEOGRAPHY 2

Powerful Geography 2's authors are excited about the new and extensively researched case studies they have created, and the supporting illustrative materials.

Contemporary case studies for each Year 12 Content Focus Area, GEOstories and Visualise This covers essential content knowledge, concepts, tools, and skills to support teaching the NESA Stage 6 (11-12) Geography Syllabus (2022).

The books were published in February 2025.

A Google Drive of support materials is available to all purchasers of PG2 and is emailed once an order is received. Teaching programs, PPT presentations, worksheets, topic summaries and other resources are available for each case study.

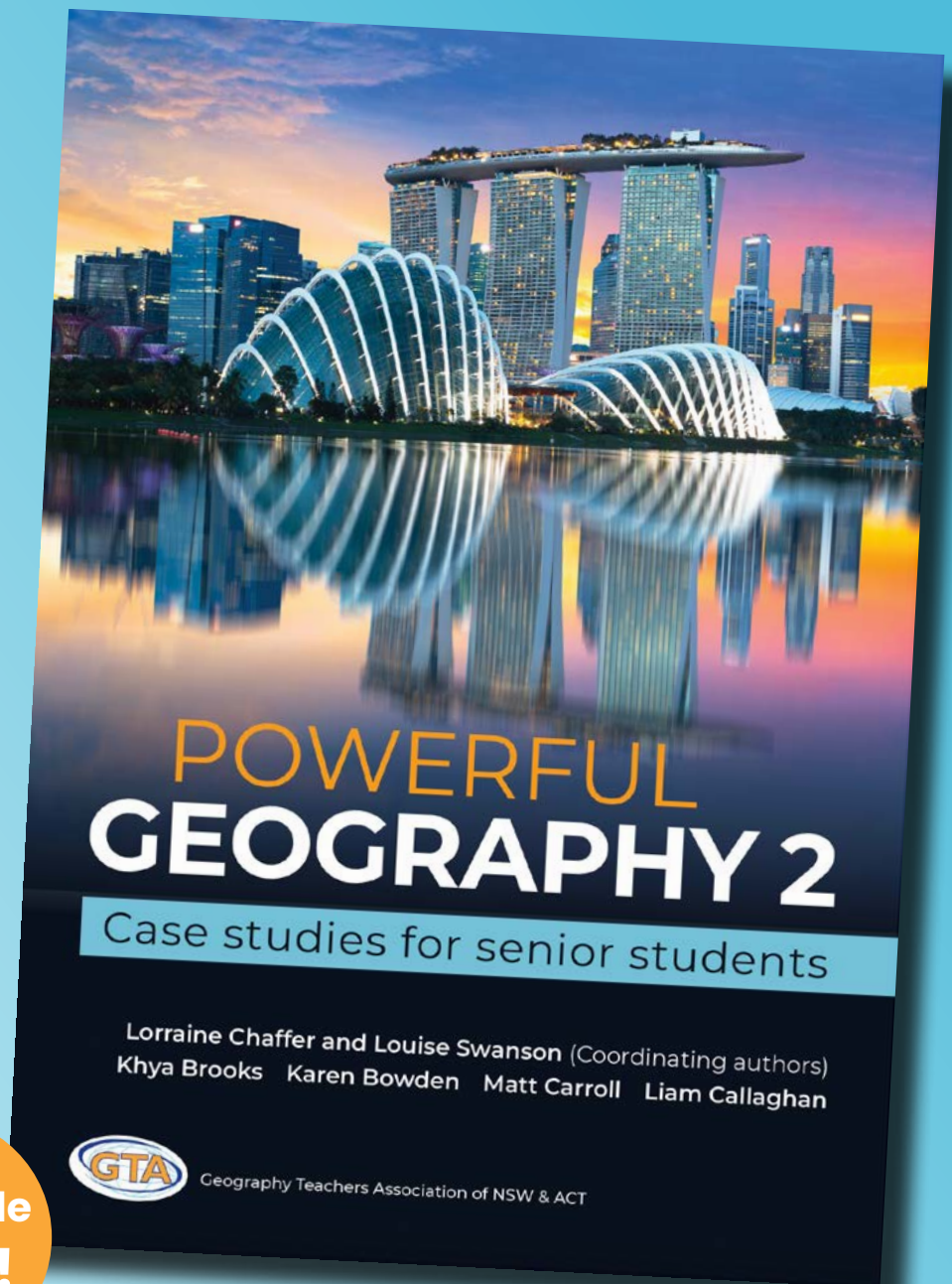
Teachers will continue to be supported via the [Powerful Geography Year 12 Authors Blog](#) where Teaching programs and relevant commentary and advice are being provided.

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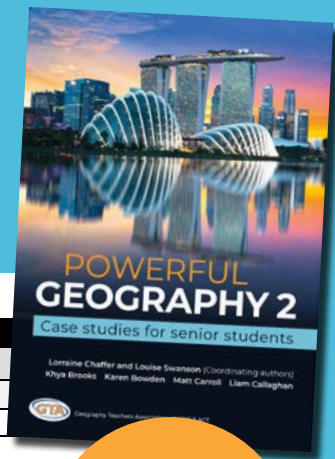
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POWERFUL GEOGRAPHY 2: A Guide to Case Studies



POWERFUL GEOGRAPHY 2: YEAR 12 *Potential Differentiation **Potential Fieldwork

CASE STUDY		Where you can use this content
GLOBAL SUSTAINABILITY (GS)		
Small case studies / GEOstories		
Avocado production in Mexico		Influences on economic activities
Benefit sharing Agreement: The San peoples		Marlinja, Salmon, Bananas
Major case studies		
Banana Industry **		Global economic activity
Salmon Aquaculture **		Global economic activity
Fashion **		Global economic activity
Supporting concepts / Visualise This		
Criteria for evaluating industry sustainability		Banana, Salmon, Fashion & Avocado studies
Pillars of sustainability		Banana / Salmon / Fashion & Avocado studies
A Circular economy		Salmon / Fashion studies
Sustainable Development Goals		Salmon / Benefit sharing.
Benefit sharing		The San peoples, Banana Industry, Marlinja (RUP)
ECOSYSTEMS and GLOBAL BIODIVERSITY (EGB)		
Small case studies / GEOstories		
The Okavango Delta *		Nature and complexity of biodiversity / ecological and human stresses / strategies for management Comparative management study for Florida Everglades
Two communities: Traditional Ecological knowledge *		Role of Indigenous peoples in ecosystem management / Coral Triangle
Major case studies. * Option for Fieldwork		
Great Southern Reef: Kelp Forest Ecosystem (GSR) **		Ecosystem case study in Australia *
Comparative management - South Korea		Comparative management – South Korea
Coral Triangle: Coral Reef Ecosystem (CT)		Ecosystem case study overseas
Comparative management study – GBR**		Comparative management – Australia *
Florida Everglades: Wetland Ecosystem (FEW)		Ecosystem case study overseas
Comparative management - Okavango Delta		Comparative management – Africa **Features of freshwater wetlands
Kosciusko National Park: Alpine ecosystem. (KNP) **		Ecosystem case study in Australia *
Comparative management - Greater Himalaya NP		Comparative management - India
Supporting concepts / Visualise This		
Traditional ecological Knowledge		Role of Indigenous peoples in ecosystem management / CT, GSR
Feedback loops		GSR, CT, KNP
Tipping points		GSR, CT, FEW, KNP.
Shifting baselines		GSR, CT, FEW, KNP
Rewilding		Global biodiversity / Lake Eyre Basin (Year 11)
RURAL and URBAN PLACES (RUP)		
Small case studies / GEOstories		
Ljubljana, Slovenia. - European Green Capital - The Bee Path project		Strategies for the sustainable management urban places One successful initiative or project.
Malinga, Northern Territory - Solar farm and battery project		Strategies for the sustainable management of rural Places (remote). One successful initiative or project.
Wagga * - Managing urban salinity in Lloyd.		Strategies for the sustainable management urban places. One successful initiative / project.
Major case studies		
Bellingen **		One place in a rural setting
Green Square **		One place within a larger urban settlement.
Singapore		One large city over 5 million people
Supporting concepts / Visualise This		
Urban settlement patterns		Marlinja / Bellingen **
Urban hierarchies and spheres of influence		Bellingen ** / Singapore

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Do you have an effective teaching activity, resource, or classroom practice that you'd love to share? The GTANSW & ACT welcomes contributions and encourages educators to submit articles to the *Geography Bulletin*. We prefer to receive articles in Microsoft Word, with any images attached as separate files. Placing images in Word to indicate where they should appear can be helpful, however images embedded into Word become compressed and lose data, so please ALSO supply the original images as separate files. If you have questions, or to send articles for consideration, email editor@gtanswact.org.au.



Advice To Contributors

Geography Bulletin guidelines

1. Objective: The *Geography Bulletin* is the quarterly journal of The Geography Teachers' Association of NSW & ACT Inc. The role of the *Geography Bulletin* is to disseminate up-to-date geographical information and to widen access to new geographic teaching ideas, methods and content. Articles of interest to teachers and students of geography in both secondary and tertiary institutions are invited, and contributions of factually correct, informed analyses, and case studies suitable for use in secondary schools are particularly welcomed.

2. Content: Articles, not normally exceeding 5,000 words, should be submitted to the GTA NSW & ACT Office by email editor@gtanswact.org.au. Submissions can also be sent directly to the editor: Louise Swanson (editor@gtanswact.org.au). Articles are welcomed from tertiary and secondary teachers, students, business and government representatives. Articles may also be solicited from time to time. Articles submitted will be evaluated according to their ability to meet the objectives outlined above.

3. Format: Digital submission in Word format.

- Tables should be on separate pages, one per page, and figures should be clearly drawn, one per page, in black on opaque coloured background, suitable for reproduction.
- Photographs should be in high resolution digital format. An indication should be given in the text of approximate location of tables, figures and photographs.
- Every illustration needs a caption.
- Photographs, tables and illustrations sourced from the internet must acknowledge the source and have a URL link to the original context.

Note: Please try to limit the number of images per page to facilitate ease of reproduction by teachers.

Diagrams created using templates should be saved as an image for ease of incorporation into the Bulletin.

All assessment or skills tasks should have an introduction explaining links to syllabus content and outcomes. A Marking Guideline for this type of article is encouraged.

4. Title: The title should be short, yet clear and descriptive. The author's name should appear in full, together with a full title of position held and location of employment.

5. Covering Letter: As email with submitted articles. If the manuscript has been submitted to another journal, this should be stated clearly.

6. Photo of Contributor: Contributors may enclose a passport-type photograph and a brief biographical statement as part of their article.

7. References should follow the conventional author-date format:

Abbott, B. K. (1980) *The historical and geographical development of Muswellbrook* Newcastle: Hunter Valley Press.

Harrison, T. L. (1973a) *Railway to Jugiong* Adelaide: The Rosebud Press. (2nd Ed.)

8. Spelling should follow the Macquarie Dictionary, and Australian place names should follow the Geographical Place Names Board for the appropriate state.

Refereeing

All suitable manuscripts submitted to the *Geography Bulletin* are subject to the process of review. The authors and contributors alone are responsible for the opinions expressed in their articles and while reasonable checks are made to ensure the accuracy of all statements, neither the editor nor the Geography Teachers' Association of NSW & ACT Inc accepts responsibility for statements or opinions expressed herein.

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