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**Mastering Geography
Tools and Skills Workshop
Tamworth, 28 July 2017**

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NSW Syllabus Geography Kindergarten to Year 10

<http://syllabus.bostes.nsw.edu.au/hsie/geography-k10/>

Stage 1

Features of Place

Content Focus

Students investigate the natural and human features of places. They describe the reasons places change and identify the active role of citizens in the care of places. They learn about how people describe the weather and seasons of places. Students explore activities occurring in places and how the spaces within places can be used for different purposes.

Content

- Features of places
- Weather and seasons
- How places are organised

People And Places

Content Focus

Students explore places across a range of scales within Australia and Australia's location in the world. They describe connections people, including Aboriginal and Torres Strait Islander Peoples, have with places, both locally and globally. Students Identify Factors Affecting People's Accessibility To Places.

Content

- Australian places
- Australia's location
- People's connections to places
- Local and global connections

Stage 2

Places Are Similar And Different

Content Focus

Students examine natural and human features of Australia and the diverse characteristics of Australia's neighbouring countries. They explore the different climates, settlement patterns and demographic characteristics of places and use this information to imagine what it would be like to live in different places. Students consider how people's perceptions of places are the basis for actions to protect places and environments.

Content

- The Australian continent
- Australia's neighbours
- Climate of places
- Similarities and differences between places
- Perception and protection of places

Stage 2 (continued)

The Earth's Environment

Content Focus

Students explore the climate, natural vegetation and native animals of places in Australia and Asia. They examine the importance of natural vegetation and natural resources to the environment, animals and people and learn about the ways people value environments, including Aboriginal and Torres Strait Islander Peoples. Students identify sustainable practices and recognise that there are differing views on how sustainability can be achieved.

Content

- Different environments
- Significance of environments
- Perception of environments
- Protection of environments

Stage 3

Factors That Shape Places

Content Focus

Students investigate how people change the natural environment in Australia and other places around the world. They also explore how the environment influences the human characteristics of places. Students examine ways people influence the characteristics of places, including the management of spaces. Students explore the impact bushfires have on Australian people, places and environments and propose ways people can reduce the impact of bushfires in the future.

Content

- Factors that change environments
- Environments shape places
- Humans shape places
- Bushfire hazard

A Diverse And Connected World

Content Focus

Students explore countries of the Asia region and the connections Australia has with other countries across the world. Students learn about the diversity of the world's people, including the indigenous peoples of other countries. Students will explore and reflect upon similarities, differences and the importance of intercultural understanding.

Content

- Diversity across Asia
- The world's cultural diversity
- Global connections
- Connections shape perceptions

Stage 4

Landscapes And Landforms

Content Focus

Students explore landscapes and landforms using examples from Australia and throughout the world. They explain processes that create landscapes and shape individual landforms and they describe the value of landscapes and landforms to different people. Students examine issues of landscape degradation and ways to manage and protect landscapes and landforms. Students also investigate a natural hazard associated with landscapes and people's responses to that hazard.

Content

- Landscapes and landforms
- Value of landscapes and landforms
- Changing landscapes
- Landscape management and protection
- Geomorphic hazard

Place And Liveability

Content Focus

Students discuss factors that influence people's perceptions of the liveability of places. They investigate features and characteristics of places across a range of scales that support and enhance people's wellbeing such as community identity, environmental quality and access to services and facilities. Students assess the liveability of places and propose strategies to enhance the liveability of a place in Australia.

Content

- Influences and perceptions
- Access to services and facilities
- Environmental quality
- Community
- Enhancing liveability

Water In The World

Content Focus

Students examine water as a resource and the factors influencing water flows and availability of water resources in different places. They investigate the nature of water scarcity and assess ways of overcoming it. Students discuss variations in people's perceptions about the value of water and the need for sustainable water management. Students also investigate processes that continue to shape the environment including an atmospheric or hydrologic hazard.

Content

- Water resources
- The water cycle
- Australia's water resources
- Water scarcity and water management
- The value of water
- Natural hazard

Stage 4 (continued)

Interconnections

Content Focus

Students focus on the connections people have to places across a range of scales. They examine what shapes people's perceptions of places and how this influences their connections to places. Students explore how transport, information and communication technologies and trade link people to many places. They explain the effects of human activities, such as production, recreation and travel, on places and environments in Australia and across the world and investigate sustainability initiatives and possible futures for these places.

Content

- Personal connections
- Technology
- Trade

Stage 5

Sustainable Biomes

Content Focus

Students examine the physical characteristics and productivity of biomes. Students examine the correlation between the world's climatic zones and spatial distributions of biomes and their capacity to support food and non-food agricultural production. Students analyse the impact humans have on biomes in an effort to produce food and increase agricultural yields. They examine population trends and projections from Australia and across the world and forecast future food supply-and-demand issues. Challenges to food production are explored and management strategies investigated.

Content

- Biomes
- Changing biomes
- Biomes produce food
- Challenges to food production
- Food security

Stage 5 (continued)

Changing Places

Content Focus

Students examine the patterns and trends in population movements and the increasing urbanisation of countries. They discuss the reasons for internal and international migration patterns and the consequences of population movements, including the increased concentration of populations within countries. Students examine strategies to create liveable and sustainable urban places, propose solutions and suggest opportunities for active citizenship.

Content

- Causes and consequences of urbanisation
- Internal migration
- International migration
- Australia's urban future

Environmental Change And Management

Content Focus

Students develop an understanding of the functioning of environments and the scale of human-induced environmental change challenging sustainability. They explore worldviews influencing approaches to environmental use and management. Students undertake an investigative study of the causes and consequences of environmental change in an environment in Australia and another country. They compare and evaluate the management responses in both countries and propose ways individuals can contribute to environmental sustainability.

Content

- Environments
- Environmental change
- Environmental management
- Investigative study

Human Wellbeing

Content Focus

Students examine the nature of, and differences in, human wellbeing and development that exist within and between countries. They describe ways of measuring human wellbeing and development to reveal spatial variations and develop explanations for differences. Students investigate examples from Australia and across the world of issues affecting development, the impact on human wellbeing and the consequences of spatial variations across scales. Local, national and global initiatives to improve human wellbeing are also examined.

Content

- Human wellbeing and development
- Spatial variations in human wellbeing
- Human wellbeing in Australia
- Improving human wellbeing

NSW Syllabus Geography Kindergarten to Year 10 Geographical Inquiry Skills

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
<p>The following geographical skills are to be integrated in throughout Stage 1:</p> <p>Acquiring geographical information</p> <ul style="list-style-type: none"> • pose geographical questions • collect and record geographical data and information, for example, by observing, by interviewing, or using visual representations 	<p>The following geographical skills are to be integrated in throughout Stage 2:</p> <p>Acquiring geographical information</p> <ul style="list-style-type: none"> • develop geographical questions to investigate , • collect and record relevant geographical data and information, for example, by observing, by interviewing, conducting surveys, or using maps, visual representations, the media or the internet 	<p>The following geographical skills are to be integrated in throughout Stage 3:</p> <p style="text-align: center;">Acquiring geographical information</p> <ul style="list-style-type: none"> • develop geographical questions to investigate and plan an inquiry • collect and record relevant geographical data and information, using ethical protocols, from primary data and secondary information sources, for example, by observing, by interviewing, conducting surveys, or using maps, visual representations, statistical sources and reports, the media or the internet 	<p>The following geographical skills are to be integrated in throughout Stage 4:</p> <p>Acquiring geographical information</p> <ul style="list-style-type: none"> • develop geographically significant questions and plan an inquiry, using appropriate geographical methodologies and concepts • collect, select and record relevant geographical data and information, using ethical protocols, from appropriate primary data and secondary information sources 	<p>The following geographical skills are to be integrated in throughout Stage 5:</p> <p>Acquiring geographical information</p> <ul style="list-style-type: none"> • develop geographically significant questions and plan an inquiry that identifies and applies appropriate geographical methodologies and concepts • collect, select, record and organise relevant data and geographical information, using ethical protocols, from a variety of appropriate primary data and secondary information sources

<p>Processing geographical information</p> <ul style="list-style-type: none"> • represent data by constructing tables, graphs or maps • draw conclusions based on the interpretation of geographical information sorted into categories 	<p>Processing geographical information</p> <ul style="list-style-type: none"> • represent data by constructing tables, graphs and maps • represent information by constructing large-scale maps that conform to cartographic conventions, using spatial technologies as appropriate • interpret geographical data to identify distributions and patterns and draw conclusions 	<p>Processing geographical information</p> <ul style="list-style-type: none"> • evaluate sources for their usefulness • represent data in different forms, for example plans, graphs, tables, sketches and diagrams • represent different types of geographical information by constructing maps that conform to cartographic conventions using spatial technologies as appropriate (• interpret geographical data and information, using digital and spatial technologies as appropriate, and identify spatial distributions, patterns and trends, and infer relationships to draw conclusions (ACHGS037, ACHGS044) 	<p>Processing geographical information</p> <ul style="list-style-type: none"> • evaluate information sources for their reliability and • represent data in a range of appropriate forms, with and without the use of digital and spatial technologies • represent the spatial distribution of different types of geographical phenomena by constructing maps at different scales that conform to cartographic conventions, using spatial technologies as appropriate • analyse geographical data and other information using qualitative and quantitative methods, and digital and spatial technologies as appropriate, to identify and propose explanations for spatial distributions, patterns and trends and infer relationships • apply geographical concepts to draw conclusions based on the analysis of the data and information collected 	<p>Processing geographical information</p> <ul style="list-style-type: none"> • evaluate information sources for their reliability, bias and usefulness • represent multi-variable data in a range of appropriate forms, with and without the use of digital and spatial technologies <ul style="list-style-type: none"> represent the spatial distribution of geographical phenomena on maps that conform to cartographic conventions, using spatial technologies as appropriate • evaluate multi-variable data and other geographical information using qualitative and quantitative methods and digital and spatial technologies as appropriate to make generalisations and inferences, propose explanations for patterns, trends, relationships and anomalies, and predict outcomes • apply geographical concepts to synthesise information from various sources and draw conclusions based on the

				<p>analysis of data and information, taking into account alternative perspectives</p> <ul style="list-style-type: none"> • identify how geographical information systems (GIS) might be used to analyse geographical data and make predictions
<p>Communicating geographical information</p> <ul style="list-style-type: none"> • present findings in a range of communication forms • reflect on their learning and suggest responses to their findings 	<p>Communicating geographical information</p> <ul style="list-style-type: none"> • present findings in a range of communication forms, for example, written, oral, digital, graphic, tabular and visual, and use geographical terminology • reflect on their learning to propose individual action in response to a contemporary geographical challenge and identify the expected effects of the proposal 	<p>Communicating geographical information</p> <ul style="list-style-type: none"> • present findings and ideas in a range of communication forms as appropriate • reflect on their learning to propose individual and collective action in response to a contemporary geographical challenge and describe the expected effects of their proposal on different groups of people 	<p>Communicating geographical information</p> <ul style="list-style-type: none"> • present findings, arguments and ideas in a range of communication forms selected to suit a particular audience and purpose; using geographical terminology and digital technologies as appropriate • reflect on their learning to propose individual and collective action in response to a contemporary geographical challenge, taking account of environmental, economic and social considerations, and predict the expected outcomes of their proposal 	<p>Communicating geographical information</p> <ul style="list-style-type: none"> • present findings, arguments and explanations in a range of appropriate communication forms selected for their effectiveness and to suit audience and purpose, using relevant geographical terminology and digital technologies as appropriate • reflect on and evaluate the findings of an inquiry to propose individual and collective action in response to a contemporary geographical challenge, taking account of environmental, economic and social considerations; and explain the predicted outcomes and consequences of their proposal

NSW Syllabus Geography Kindergarten to Year 10 Geographic Tools

<p>The following geographical tools are to be integrated in throughout Stage 1:</p> <p>Examples may include:</p> <p>Maps</p> <ul style="list-style-type: none"> pictorial maps, large-scale maps, world map, globe <p>Fieldwork –</p> <ul style="list-style-type: none"> observing, collecting and recording data, conducting surveys <p>Graphs and statistics –</p> <ul style="list-style-type: none"> Tally charts, pictographs, data tables, column graphs, weather data <p>Spatial technologies –</p> <ul style="list-style-type: none"> virtual maps, satellite images <p>Visual representations –</p> <ul style="list-style-type: none"> photographs, illustrations, diagrams, story books, multimedia, web tools 	<p>The following geographical tools are to be integrated in throughout Stage 2:</p> <p>Examples may include:</p> <p>Maps</p> <ul style="list-style-type: none"> large-scale maps, world map, globe, sketch maps maps to identify location, direction, distance, map references, spatial distributions and patterns <p>Fieldwork</p> <ul style="list-style-type: none"> observing, measuring, collecting and recording data, conducting surveys or interviews fieldwork instruments such as measuring devices, maps, photographs <p>Graphs and statistics –</p> <ul style="list-style-type: none"> tally charts, pictographs, data tables, column graphs, simple statistics 	<p>The following geographical tools are to be integrated in throughout Stage 3:</p> <p>Examples may include:</p> <p>Maps</p> <ul style="list-style-type: none"> large-scale maps, small-scale maps, sketch maps, political maps, topographic maps, flowline maps maps to identify location, latitude, direction, distance, map references, spatial distributions and patterns <p>Fieldwork –</p> <ul style="list-style-type: none"> observing, measuring, collecting and recording data, conducting surveys and interviews fieldwork instruments such as measuring devices, maps, photographs, compasses, GPS <p>Graphs and statistics –</p> <ul style="list-style-type: none"> tally charts, pictographs, data tables, column graphs, 	<p>The following geographical tools are to be integrated in throughout Stage 4:</p> <p>Examples may include:</p> <p>Maps</p> <ul style="list-style-type: none"> sketch maps, relief maps, political maps, topographic maps, flowline maps, choropleth maps, isoline maps, précis maps, cartograms, synoptic charts maps to identify direction, scale and distance, area and grid references, latitude and longitude, altitude, area, contour lines, gradient, local relief <p>Fieldwork –</p> <ul style="list-style-type: none"> observing, measuring, collecting and recording data, developing and conducting surveys and interviews fieldwork instruments such as weather instruments, vegetation identification charts, compasses, GPS, GIS 	<p>The following geographical tools are to be integrated in throughout Stage 5:</p> <p>Examples may include:</p> <p>Maps</p> <ul style="list-style-type: none"> relief maps, political maps, topographic maps, choropleth maps, flowline maps, cadastral maps, thematic maps, isoline maps, land use maps, précis maps, special-purpose maps, cartograms, synoptic charts maps to identify direction, scale and distance, area and grid references, degrees and minutes of latitude and longitude, bearings, aspect, altitude, area, density, contour lines, gradient, local relief <p>Fieldwork –</p> <ul style="list-style-type: none"> observing, measuring,
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	<p>Spatial technologies –</p> <ul style="list-style-type: none"> virtual maps, satellite images, global positioning systems (GPS) <p>Visual representations –</p> <ul style="list-style-type: none"> photographs, illustrations, diagrams, story books, 	<p>simple statistics</p> <p>Spatial technologies –</p> <ul style="list-style-type: none"> virtual maps, satellite images, global positioning systems (GPS) <p>Visual representations –</p> <ul style="list-style-type: none"> photographs, illustrations, diagrams, story books, 	<p>Graphs and statistics –</p> <ul style="list-style-type: none"> data tables, pie graphs, column graphs, compound column graphs, line graphs, climate graphs, population profiles, multiple tables and graphs presented on a geographical theme, statistics to find patterns and trends <p>Spatial technologies –</p> <ul style="list-style-type: none"> virtual maps, satellite images, global positioning systems (GPS), geographic information systems (GIS) <p>Visual representations –</p> <ul style="list-style-type: none"> photographs, aerial photographs, illustrations, flow charts, annotated diagrams, multimedia, field sketches, cartoons, web tools 	<p>collecting and recording data, developing and conducting surveys and interviews</p> <ul style="list-style-type: none"> fieldwork instruments such as weather instruments, vegetation identification charts, compasses, clinometers, GPS, GIS or remote sensing <p>Graphs and statistics –</p> <ul style="list-style-type: none"> data tables, pie graphs, column graphs, compound column graphs, line graphs, scatter graphs, climate graphs, population profiles, multiple tables and graphs presented on a geographical theme, statistics to find patterns and trends, and to account for change <p>Spatial technologies</p> <ul style="list-style-type: none"> virtual maps, satellite images, global positioning systems (GPS), geographic information systems
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				(GIS), remote sensing data, augmented reality Visual representations As per Stage 4
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Geographic Tools

Key websites

Board of studies <http://syllabus.bostes.nsw.edu.au/hsie/geography-k10/programming/>

Geospace: <http://www.geospace.edu.au>

Scoutle: <https://www.scoutle.edu.au>

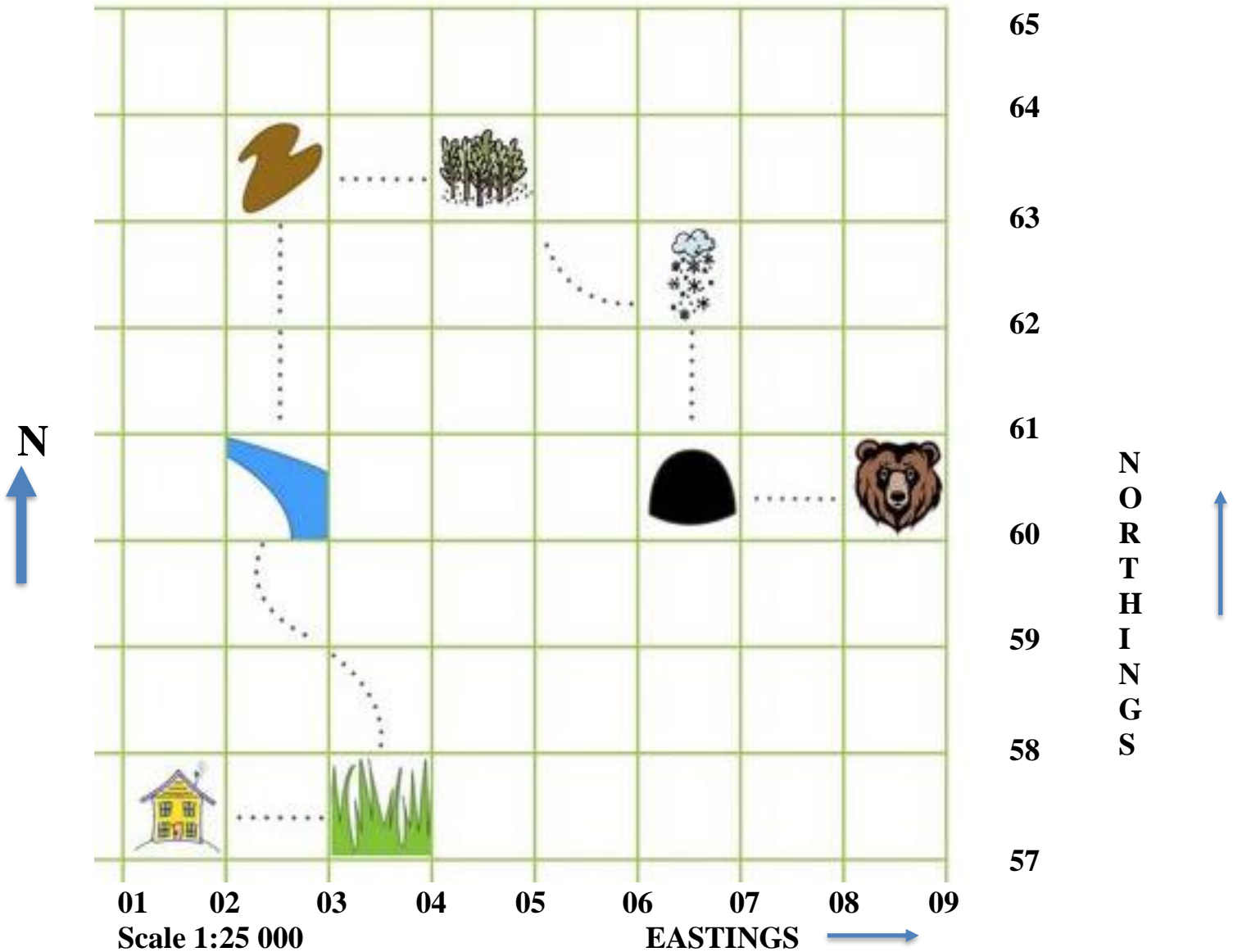
Echalk <http://www.echalk.co.uk>

Introducing Maps




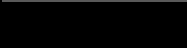
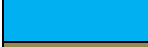
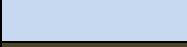


Story Books

Bear Hunt by Michael Rosen and Helen Oxenbury and map <https://tinyurl.com/y8amqoqb>

Bear Hunt



Legend

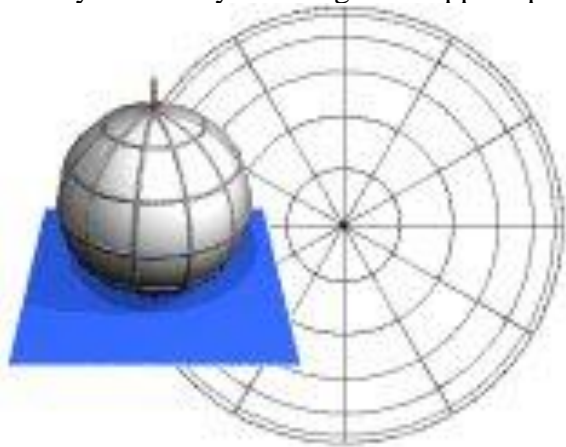
	Home		Forest
	Grass		Cave
	River		Snow
	Mud		Bear

BOLTS – border, orientation, legend, title, scale

Map projections

Explanation

A cartographic projection is a transformation from a round surface to a plane. The projection surface is usually created by touching the mapped sphere in one or more regions.



Activity: orange and paper

Types of Maps

Political, physical, topographic maps, population, climate, weather, resources. www.worldmapper.org

Wall political map

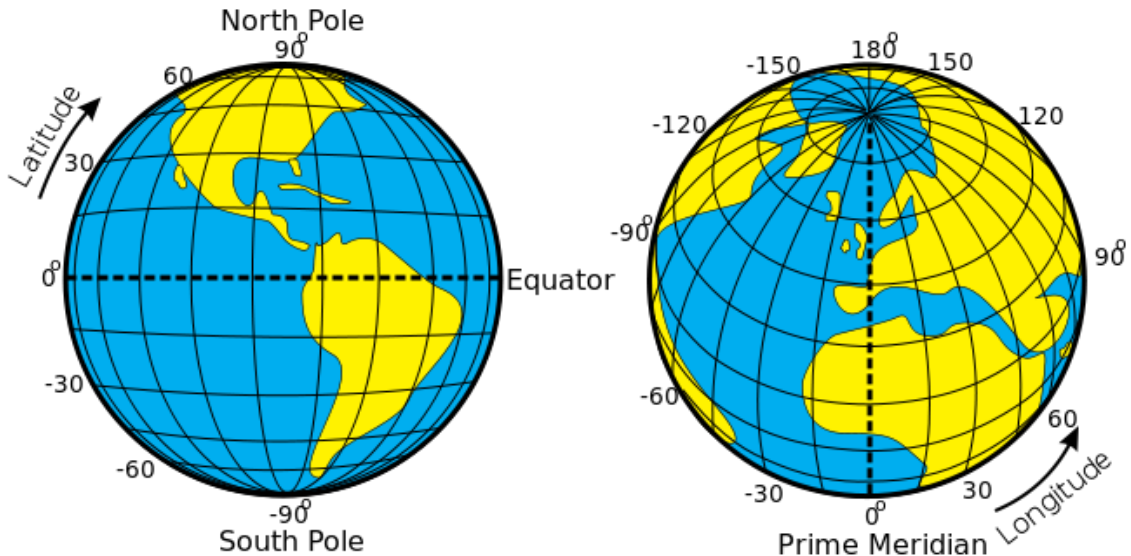
Activity: Me on the Map book

Tamworth Stimulus booklet – synoptic map, and topographic map.

Latitude and Longitude

Explanation

- Latitude (shown as a horizontal line) is the angular distance, in degrees, minutes, and seconds of a point north or south of the Equator. Lines of latitude are often referred to as parallels
- Longitude (shown as a vertical line) is the angular distance, in degrees, minutes, and seconds, of a point east or west of the Prime (Greenwich) Meridian Lines



- Latitude is written first and must ALWAYS include N (north) or S (south)
- Longitude is written next and must ALWAYS include E (east) or W (west)
- EXAMPLE: 31°N 145° E
- Laugh Lots
- Degrees are ALWAYS expressed as WHOLE NUMBERS
- Each degree is split into 60 minutes
- Each minute is split into 60 seconds

http://www.bbc.co.uk/bitesize/ks3/geography/geographical_enquiry/geographical_skills/revision/6/
<https://www.youtube.com/watch?v=swKBi6hHHMA>

Activities:

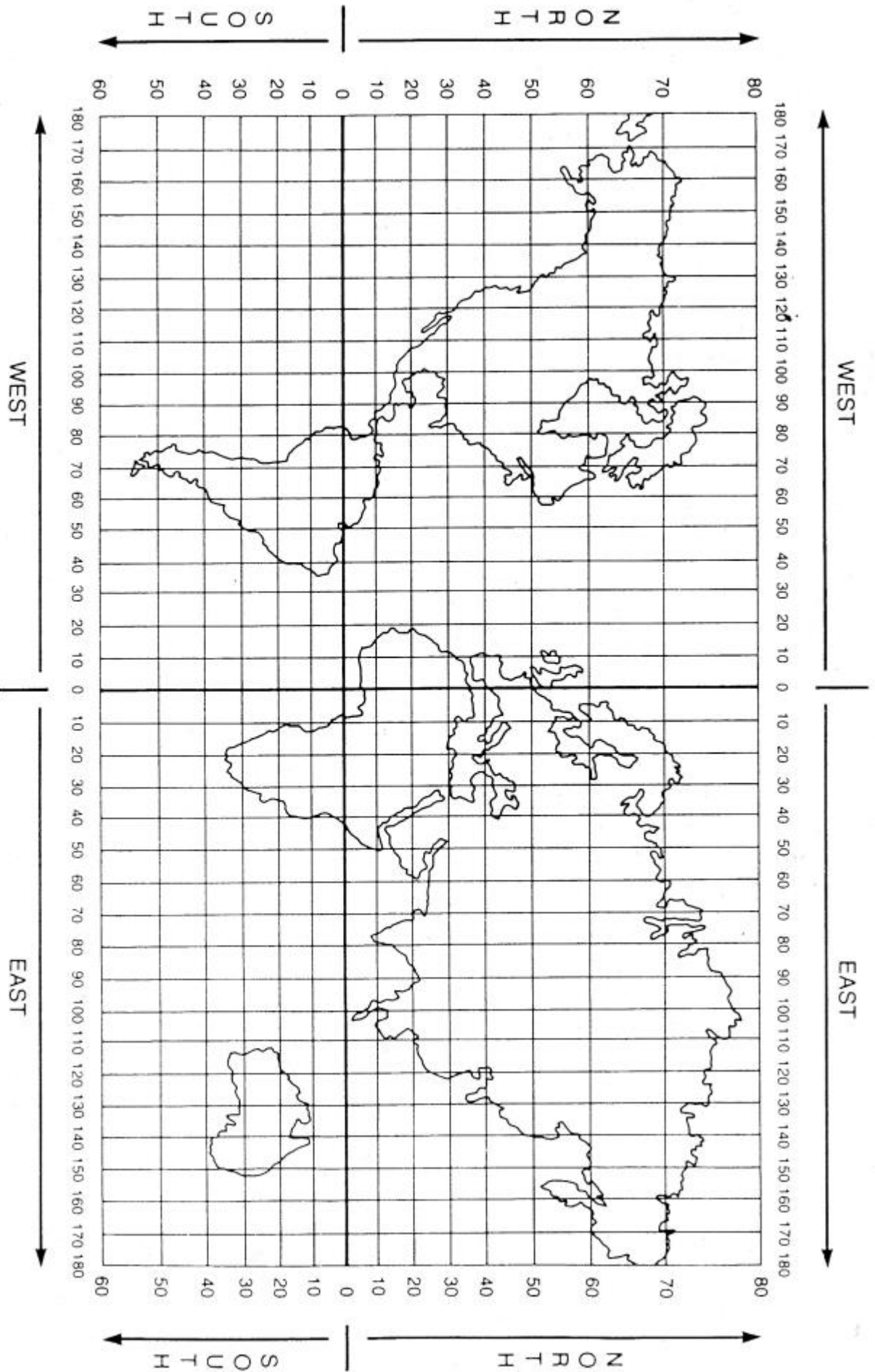
Google Earth latitude and longitude. Oranges, marker cones, balloons, paper plates, ribbon, set up classroom into hemispheres, pumpkin globe. Battleships

Orange activity

Refer to Source C, on page 2-3 of the Tamworth stimulus booklet to answer Question 1.

1. What is approximate latitude and longitude for Burgess Park?
(A) 150° 56'E; 31° 05'S
(B) 31° 06'S 150° 56'E
(C) 31° 05'S 150° 54'E
(D) 31° 05'S 150° 56'E

Battleships Map



Topographic Maps

Scale

Explanation

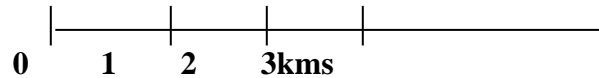
The scale on a map is a statement of the relationship between the measurement on the map and the corresponding measurement on the earth's surface.

Activities: Me on the Map Joan Sweeney mapping classroom, school, street.

- **Ratio 1:100 000** common way of stating scale and means every one centimeter on the map represents 100000

- **Statement e.g. One centimetre represents 1000 meters**

- **Line scale**



- **Representative fraction** $\frac{1}{100\ 000}$

- **Statement One centimeter represents 1000 meters**

Common scales

Scale	Fraction	Meters	Kilometers
1:100 000	$\frac{1}{100000}$	1000	1
1: 50 000	$\frac{1}{50000}$	500	.5
1:25 000	$\frac{1}{25000}$	250	.25

Large scale and small scale

Remember that the scale is a ratio or a fraction, and $1/100$ is much bigger than $1/500,000$. The larger the second number, the larger the denominator of the fraction, therefore the smaller the scale of the map.

<http://www.screenr.com/FEG>

Refer to Source C on page 2-3 of the Tamworth Stimulus booklet.

1. What is the scale of the map?
-

Refer to Source C on page 3 and Source F on page 4 of the Tamworth Stimulus booklet. for questions 2 and 3.

2. What is the scale of the map expressed as a statement?

- (A) 1 cm represents 250 metres
- (B) 1 cm represents 500 metres
- (C) 1 cm represents 2500 metres
- (D) 1 cm represents 5000 metres

3. Which map has the largest scale Source C or Source F?

Area References and Grid References

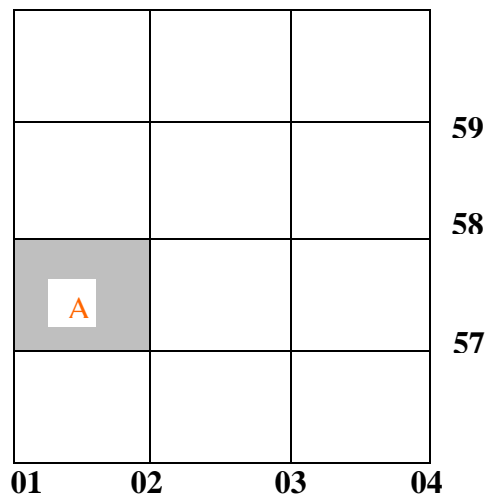
Refer to the Bear Hunt map page 16.

Explanation

Topographic maps show the specific details in a relatively small area on the ground, such as landform features and urban areas. Latitude and longitude is useful for locating places on small scale maps though on larger scale maps a grid system to locate specific features. The (horizontal) east-west axis grid numbers are called Eastings, and (vertical) north-south axis are called Northings. Eastings are always written before Northings. An area reference is located by using the bottom left hand corner of the grid square.

<http://www.screenr.com/mEG>

- **Area references area 4 figures: eastings before northings, bottom left hand corner of the grid**



Eastings

For example the Area Reference for **A** is AR0157.

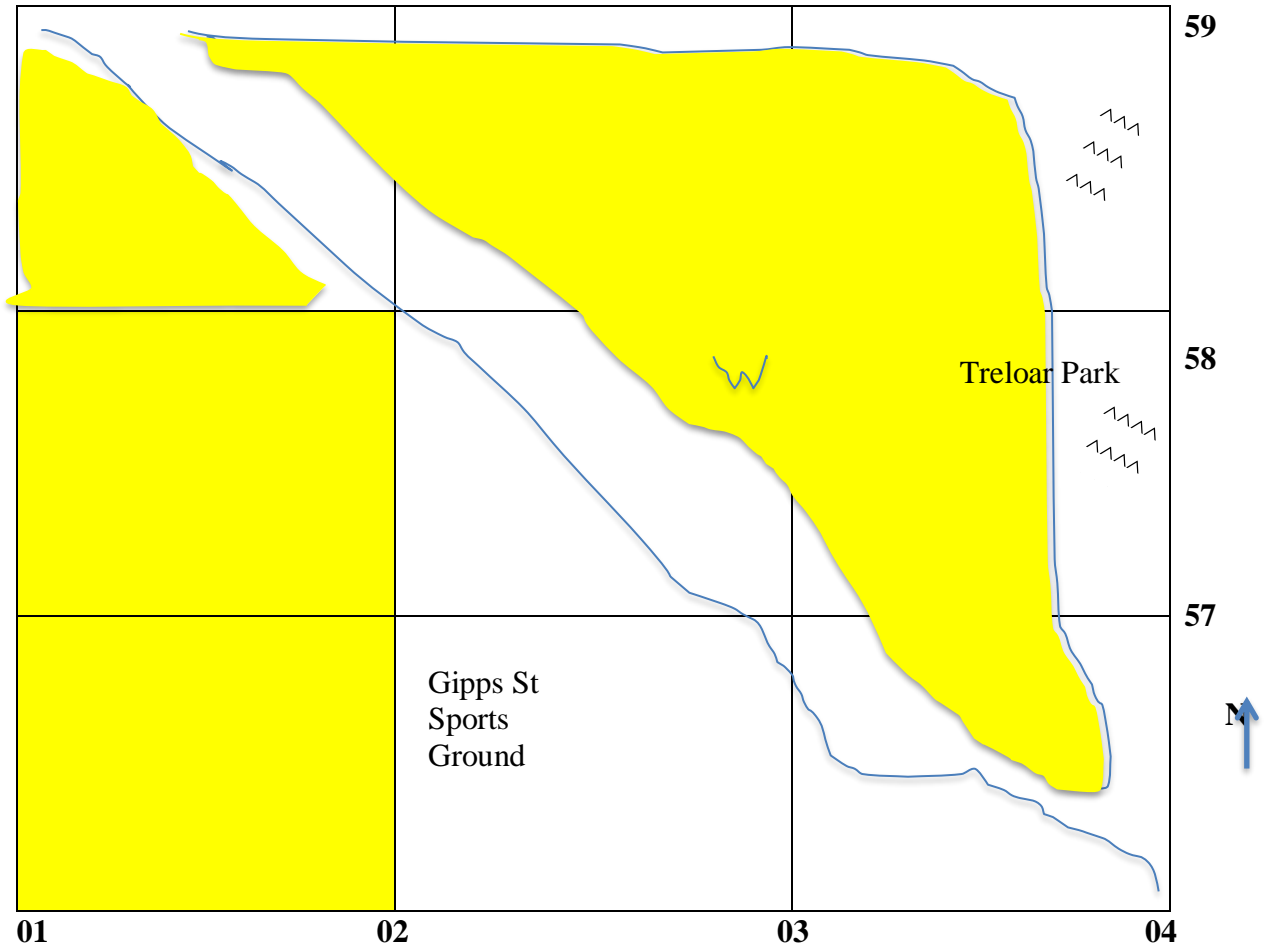
Grid references are 6 figure references that provide a more specific location.

The Grid Reference for **A** is GR015574

Refer to Source C, the topographic map extract of Tamworth and legend, on pages 2 and 3 of the stimulus booklet.

1. What is the Area Reference for Garrieties Gully?
 - (A) AR 0558
 - (B) AR 0459
 - (C) AR 0458
 - (D) AR 5905
2. In which quadrant is Tamworth golf course located?
 - (A) SE
 - (B) NE
 - (C) SW
 - (D) NW

Tamworth



Scale 1: 25 000

Legend

^^^^^^	Mountain
————	River
■	Urban area
F	Farm
H	House
M	Mine
S	School

Refer to the floor map for the questions below.

1. What is the Area Reference for Victoria Park?	
2. What is the Area Reference for Gipps St Sports Ground	
3. What is the Grid Reference for the Place of Worship?	

4. Place the cards in the pack you have been given in the location on the floor map you think is appropriate. Place a symbol for this feature on your map.

Feature	Symbol
Farm	
House	
Mine	
School	

5. In the table below record the Area Reference of your cards.

Feature	Area Reference (4figures)	Grid Reference (6figures)
Farm		
House		
Mine		
School		

6. Look at where you have placed the house, school, farm and mine, what environmental problems could you see occurring?
In your pack you have an environmental red card. Place the card on your map to indicate where severe environmental problem could occur.
7. Outline how you could prevent the red environmental issue from occurring.

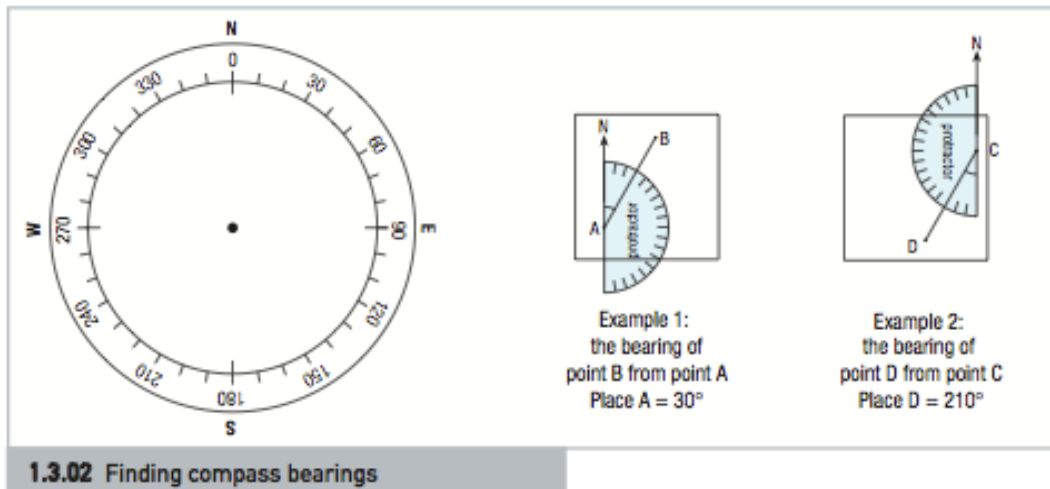
Direction and Bearing

Explanation

- **Direction:** uses compass points. The cardinal points are n s e w and intermediate points ne se nw sw
- **Bearing** is a direction in degrees clockwise from north e.g. A from B

<https://www.screenr.com/vEG>

<http://subscription.echalk.co.uk/Geography/geography.html>



Refer to Source C on page 3.

1. What is the direction of Gipps St Sports Ground AR0257 from Treloar Park AR 0358?

- (A) East
- (B) West
- (C) Southeast
- (D) Southwest

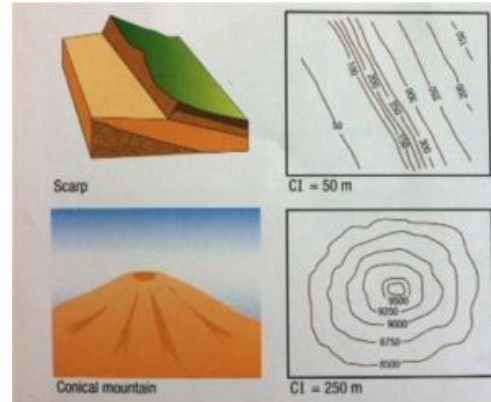
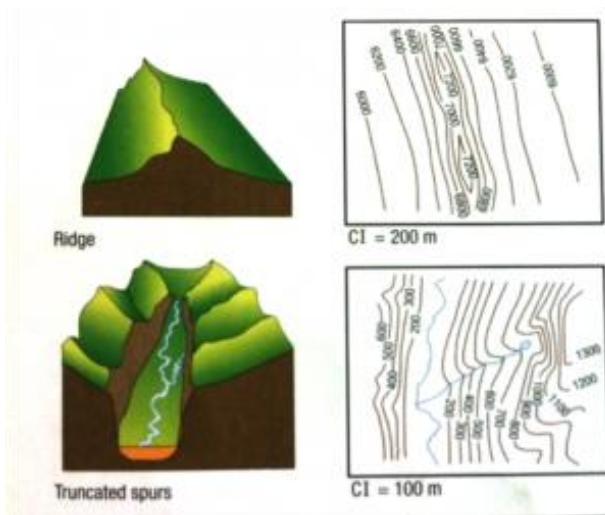
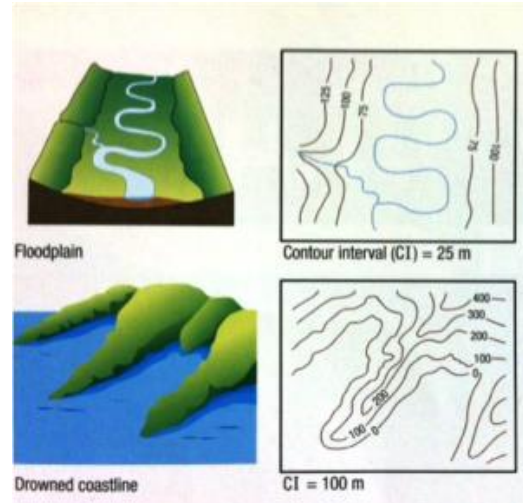
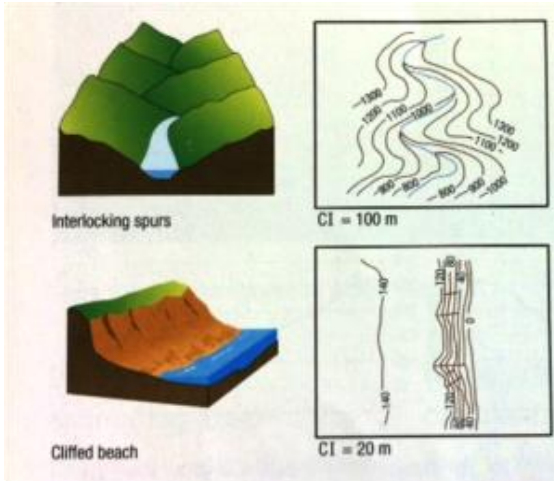
2. What is the bearing from the communication tower in AR 0461 to the spot height in AR 0661?

- (A) 82°
- (B) 98°
- (C) 262°
- (D) 378°

Contours

Explanation

Contours join places of equal height. Contours also indicate the shape of the landforms.



Australian Explorations: G Kleeman et al

Activity

Bread, Plasticine/playdough, water and rock, tracing contour and model making.

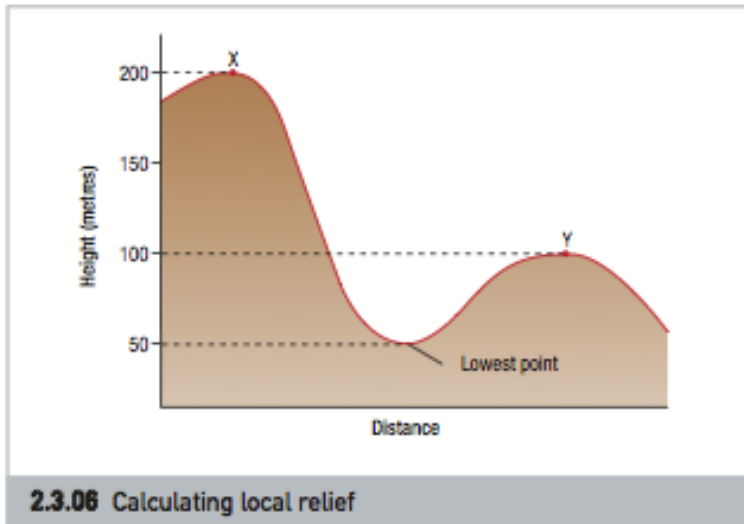
Refer to Source C on page 3 of the Tamworth Stimulus booklet

1. What is the contour interval of the map?	
2. What is the height at GR043602?	
2. Describe the landforms north of Northing 61.	

Local Relief

Explanation

Difference between the highest and lowest points in a given area.



Australian Explorations: G Kleeman et al

Aspect

Explanation

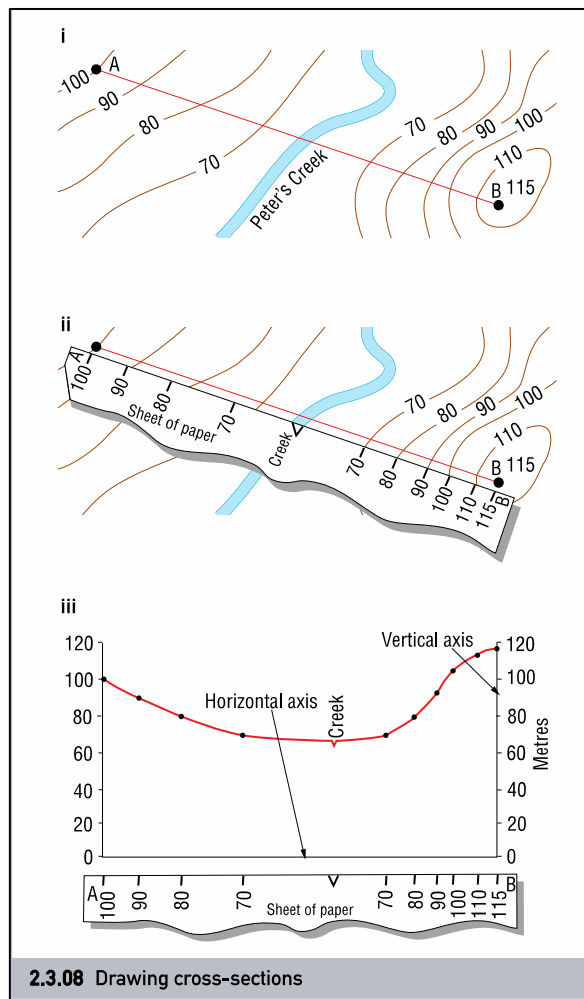
The direction a slope is facing.

Refer to Source E on page 3 of the Tamworth Stimulus booklet.

What is the aspect of the slope at GR058618?	
----------------------------------------------	--

Constructing a Cross Section

- A **cross section** is a diagrammatic representation of the shape of the land
Echalk <http://subscription.echalk.co.uk/Geography/geography.html>
- A **transect** shows the features of the built and biophysical environment and how they change from place to another place.
<https://www.youtube.com/watch?v=StDYPIuk25M>

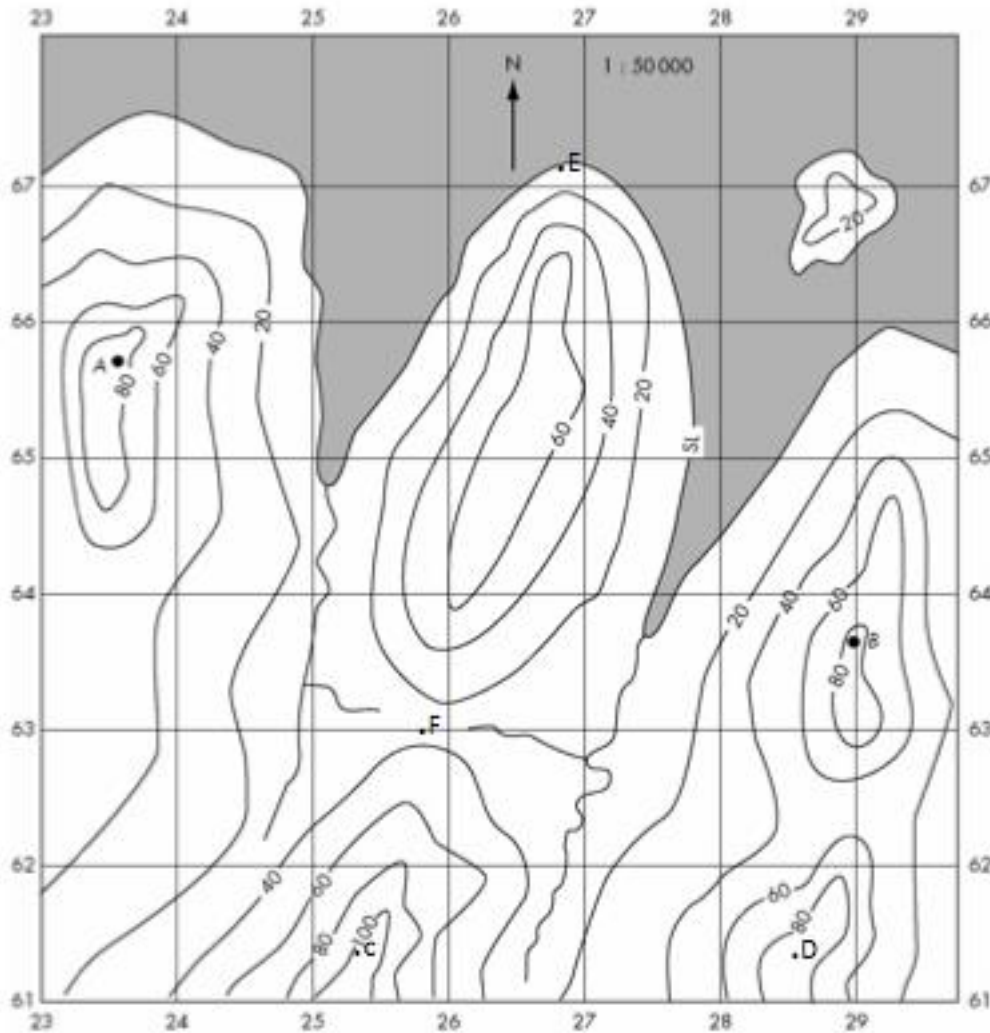


Australian Explorations: G Kleeman et al

Steps in constructing a cross-section.

1. Imagine walking the path between the two points- what would the walk be like?
2. Place a piece of paper between the two points.
3. Mark where each contour crosses the piece of paper and label each contour with the corresponding height. Also mark on rivers, major roads.
4. Draw a graph with vertical and horizontal axes. Decide on an appropriate scale for the vertical axes, 1 cm represents-----metres.
5. Place the paper with the contour markings between the vertical axes and plot the heights using dots.
6. Join the dots using freehand.

- Example: Use the map below to construct a Cross section from A to B



1 cm:
20m

Vertical Exaggeration
Explanation

$$\text{V.E.} = \frac{\text{V.S.} - \text{scale from the graph in metres}}{\text{H.S.} - \text{scale from the map in metres}}$$

• **Example:**

V.S. = 1 cm represents 20m

H.S. = 1 cm represents 100000 i.e. 1000m

$$\text{V.E.} = \frac{1}{20}$$

$$\frac{1}{1000}$$

$$= \frac{1000}{20}$$

$$= 50$$

A vertical exaggeration between 8 and 10 provides a reasonable indication of the shape of the landforms.

Calculate the VE for the cross sections on the map on page 13.

A to B
C to D
E to F

Gradient

Gradient = $\frac{\text{rise (difference in height between the two places in metres)}}{\text{Run (distance between the two places in metres)}}$

Example.

Height of A = 430m

Height of B = 220 m

Distance between A and B = 1.2km

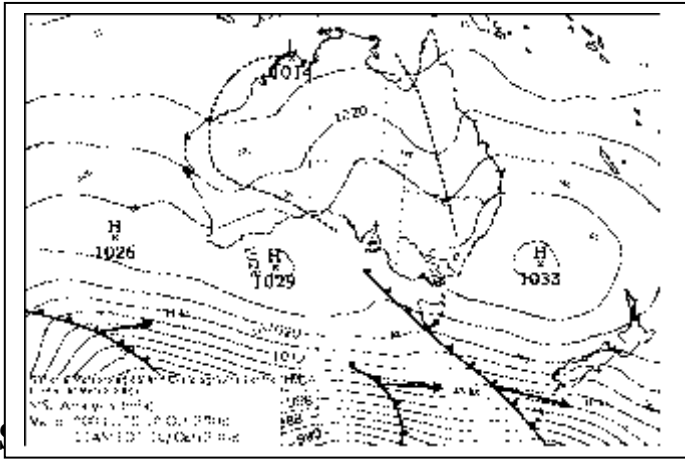
Rise = 210m = press recipicol button. = .

Run = 1200m

Write answer in the form of 1 in

1. Using the map on page 13 calculate the gradient for the following:

A to B	Gradient = A in metres = B in metres = Distance between A and B = in metres Calculation Answer: 1 in
C to D	Gradient = C in metres = D in metres = Distance between C and D = in metres Calculation Answer: 1 in



<https://www.youtube.com/watch?v=sbqZSzBgZjA>

Refer to Source F on page 4 of Tamworth Stimulus booklet.

Graphs and Statistics

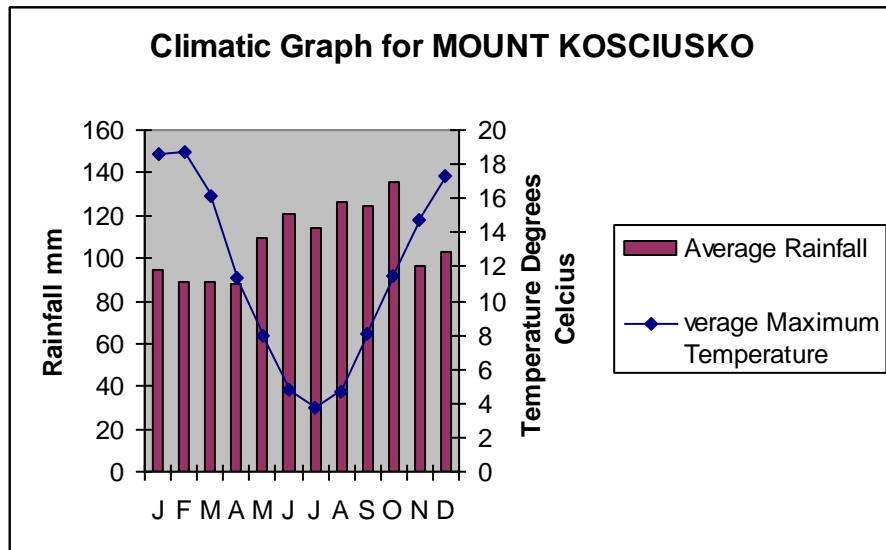
Climate Graph - Line and column graph

Activity:

Collect temperature, rainfall, wind information and create daily chart. Use Bureau of Meteorology to gather climate data.

Climate graph– Mt Kosciusko Climate statistics. Adapted from David Leat **Thinking through Geography**

Living in Mount Kosciusko



1. Look at the climate graph above.
2. Try to work out which month fits each of the five statements best.
3. Write down your reasons for choosing the month.

	Statement	Month	Reason
1	Today was the hottest day of the year		
2	There has been the most rain all year		
3	Today it was chilly and raining		
4	We have to keep fires burning all day to keep warm		
5	Many tourists come for bushwalks to Mount Kosciusko		

Refer to Source G on page 4 Tamworth Stimulus booklet.

Visual Representations

- Flow diagram-water cycle – sandwich bags.
- Books – Window Jeanie Baker – Visible Thinking Routines - website
http://www.visiblethinkingpz.org/VisibleThinking_html_files/VisibleThinking1.html
- Art
- Photos – ground, oblique, aerial.
- Satellite images
- **Refer to the Tamworth Stimulus booklet.**

Fieldwork

Activities

Observing, measuring, collecting and recording data, conducting surveys and interviews. Using fieldwork instruments such as measuring devices, maps, photographs, compasses, GPS

- Mapping school, street
- Collecting climate data
- Livability Study
- **Refer to the Tamworth Stimulus booklet.**

Liveability Survey Example

1. Observe what is around you and complete the liveability survey.

Measurement	Method of data collection	Count
Amount of traffic	Count passing traffic for 5 minutes- Harris street	
Shops nearby	Look on a map or observe main shopping street	
Schools nearby	Observe	
Parks nearby	Observe	
Bus stops/Taxis/transport	Observe	
Litter	Count amount	
Noise	Measure using iPhone app (teacher)	
Housing ambience	Visit the street and decide ambience on a scale of 1-5	
Trees and gardens	Visit the street and decide how nice on a scale of 1-5	
Paths and streetlights	Visit the street and decide how good on a scale of 1-5	

Give each measurement a score out of 5, with 5 being **excellent** and 1 being **poor**.

Amount of traffic

Many cars make a street dangerous and noisy. They can also cause pollution. It is harder for people to meet their neighbours if they live on a busy road.

1 Poor	2 Fair	3 Average	4 Good	5 Excellent
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Access to shops

If shops are near to where you live you can easily get what you need.

1 Poor	2 Fair	3 Average	4 Good	5 Excellent
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Access to schools

If there is a school nearby, children can walk to school which is better for them.

1 Poor	2 Fair	3 Average	4 Good	5 Excellent
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Access to parks

Parks are places where children can play and people can do sport or walk the dog. They also look nice.

1 Poor	2 Fair	3 Average	4 Good	5 Excellent
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Urban Living Index <http://www.smh.com.au/nsw/sydneys-most-liveable-suburbs-the-urban-living-index-20151118-gl1tx0.html>