OUTCOMES

The student will be able to:

- Identify, gather and evaluate geographical information
- Analyse, organise and synthesise geographical information
- Select and use appropriate written, oral and graphic forms to communicate geographical information
- Demonstrate a sense of place about an Australian urban environment
- Explain the geographical processes that form and transform Australian urban environments
- Analyse the impacts of different perspectives on geographical issues at local, national and global scale
- Apply geographical knowledge, understanding and skills with knowledge of civics to demonstrate informed and active citizenship
URBAN STUDY
CIRCULAR QUAY, THE ROCKS & DARLING HARBOUR

Aims and Objectives

- Examine issues arising from the changing size and distribution of the population including environmental, economic and social impacts.
- To learn about the nature of development.
- To examine the infrastructure required to support a city
- Examine equity issues related to class and ecologically sustainable development.

History and Statistics of Study Area

Sydney is the largest and oldest city in Australia and is the largest centre of secondary industry. Proclaimed a city in 1842, the CBD occupies over 1.5km². Since WWII much of the inner city has been rebuilt with modern office blocks and shopping complexes, although in some instances original and significant facades have been retained for their historical significance and aesthetic value. Many of the streets in Sydney continue to follow the tracks created by the earliest settlers and George Street and Pitt Street follow the course of the old Tank Stream, the city’s first water supply which has now been channeled underground.

Sydney as a world city

As of 2006 Sydney's population was 4.1 million people and occupied an area of 1687.4 square kilometres. Central Sydney is the most densely populated area of Australia with 4023 people per square kilometre. Sydney is now established as the corporate and financial capital of Australia and is an important financial centre of the Asia-Pacific region. It is home to the Australian Stock Exchange and the Reserve Bank of Australia, many Australian banks and major Australian corporations. It has Twentieth Century Fox studios and entertains over twenty million visitors a year. This makes it one of the most popular destinations in the world, along with New York, London, Hong Kong, Paris, Tokyo and Los Angeles. Because of these qualities it is defined as a beta global city/world city.

Sydney Harbour Bridge

The Sydney Harbour Bridge with a length of 1150m is one of the worlds longest single span bridges. The arch is 504m long and 134m high at the highest point. The bridge joins Sydney's CBD with it's mini-twin North Sydney, a high-rise satellite that took shape in the 1960's when space and traffic were becoming intolerably congested in the city.
Study Area

On the map identify the areas of study we will be addressing throughout the field study and the route we will be taking to get to each of these places.

Figure 1: Map of the study area
**NB**: Oblique means a photo taken from above at an angle.

**Land Use in North Sydney and the City**

- Examine the oblique photo and list as many different types of land use as you can (give specific examples).

<table>
<thead>
<tr>
<th>1888 - Parklands abundant especially current Opera House site (Bennelong Point) Wharfs/docks (shipping) Industry Smaller buildings - more &quot;open/ wider&quot; spaces.</th>
</tr>
</thead>
</table>

![Figure 2: Birds-eye view of Sydney 1888 (State Library NSW)](image)

- Compare this picture to the oblique photo. What differences do you notice?
  - Cultural buildings (Opera House, Harbour Bridge)
  - Multiple types of public transport (rail, ferry, road, plane)
  - Less open land/spaces/parkland
  - Changed shape of Circular Quay to allow for wharf construction

This picture was taken at a time when Sydney's urban sprawl began in earnest, with the number of people living in the outer suburbs of Sydney starting to approach the number living in the city itself. As the population of Sydney increased, the suburbs continued to grow and spread.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>CITY</th>
<th>SUBURBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1851</td>
<td>42,200</td>
<td>9,700</td>
</tr>
<tr>
<td>1871</td>
<td>74,400</td>
<td>63,210</td>
</tr>
<tr>
<td>1881</td>
<td>100,150</td>
<td>124,800</td>
</tr>
<tr>
<td>1891</td>
<td>107,652</td>
<td>275,631</td>
</tr>
</tbody>
</table>

- What benefits did the Harbour Bridge (completed in 1932) provide for the growing city?
  - It provided access to the North Shore of Sydney.
  - This took the population + space pressure of the "old" Sydney or what is now the CBD (Central Business District)
  - Allowed for the "spreading out" / "sprawl" of Sydney.
This compares to the skyscrapers in the Circular Quay city renewal development which will be 270 m high.

**Building Heights**

How does the height of the buildings in the Rocks compare with the buildings in the City?

There is a height restriction in the Rocks of 6-8 storeys in keeping with the heritage of the area.

<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1788 Old Government House, 9m</td>
</tr>
<tr>
<td>2. 1797 Clock Tower, 45m</td>
</tr>
<tr>
<td>3. 1802 Government Windmill, 11m</td>
</tr>
<tr>
<td>4. 1809 Old St Phillips Church, 15m</td>
</tr>
<tr>
<td>5. 1815-22 St James Church, 52m</td>
</tr>
<tr>
<td>6. 1850 Mort &amp; Co Woolstores, 21m</td>
</tr>
<tr>
<td>7. 1857-75 Town Hall Clock Tower, 57m</td>
</tr>
<tr>
<td>8. 1859-70 Chief Secretary's Building, 30m</td>
</tr>
<tr>
<td>9. 1879 Garden Palace Exhibition Building, 69m</td>
</tr>
<tr>
<td>10. 1885-87 GPO Tower, 73m</td>
</tr>
<tr>
<td>11. 1887-88 Hordens Bros Front Shop, 34m</td>
</tr>
<tr>
<td>12. 1889-91 The Australia Hotel, 56m</td>
</tr>
<tr>
<td>13. 1892-98 Société Générale, 40m</td>
</tr>
<tr>
<td>14. 1893 Horden Warehouse, 40m</td>
</tr>
<tr>
<td>15. 1893 Queen Victoria Building, 58m</td>
</tr>
<tr>
<td>16. 1902-04 Marcus Clark Store, 40m</td>
</tr>
<tr>
<td>17. 1910 Nelson House, 40m</td>
</tr>
<tr>
<td>18. 1911-12 Culwulla Chambers, 49m</td>
</tr>
<tr>
<td>19. 1912-16 Trust Building, 66m</td>
</tr>
<tr>
<td>20. 1922-24 Marcus Clark Store, 67m</td>
</tr>
<tr>
<td>21. 1926-30 T&amp;G Building, 88m</td>
</tr>
<tr>
<td>22. 1937-38 AWA Tower, 111m</td>
</tr>
<tr>
<td>23. 1959-63 AMP Building, 116m</td>
</tr>
<tr>
<td>24. 1965-67 State Office Block, 128m</td>
</tr>
<tr>
<td>25. 1965-69 Australia Square Tower, 170m</td>
</tr>
<tr>
<td>26. 1974-76 AMP Centre, 189m</td>
</tr>
<tr>
<td>27. 1975-77 MLC Centre, 228m</td>
</tr>
<tr>
<td>28. 1977-81 AMP Tower (Centrepoint) 305m</td>
</tr>
</tbody>
</table>

Figure 3: Comparison of Heights of Sydney's Buildings (Ashton and Waterson, 2000, pp.66-67)

When did the largest height increases occur? What world-wide event would have assisted this progress?

1930-1950's (Post WWII). This was due to new developments in engineering technology and materials (metal, glass). Sandstone and brick are materials limited to height capabilities for construction.

Outline the economic, scientific and social changes that resulted in these engineering advances.

Increased population and increased number of skilled workers with a focus on economic/business activity (white collar) rather than physical laboring (blue collar).

Why haven't the buildings continued to increase in size?

- Not much city space left
- Development of other areas (eg: Macquarie Park, Parramatta, Norwest).
- Development of outer areas
- Development of outer areas
- Development of outer areas
- Development of outer areas
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- Development of outer areas
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- Development of outer areas
- Development of outer areas
Circular Quay and The Rocks

Figure 4: Circular Quay 1900-1910

Figure 5: Circular Quay 1960

Figure 6: Circular Quay 2011

What are the obvious differences you notice in landuse in the photos of Circular Quay?

- Height of buildings has increased
- Space between buildings has decreased
- In 1910 most buildings were small.
- What might have caused these changes?
  - Changes in industry of the area
  - Changes in economic status of the area
  - Changes in land use and type of activities (tourism now)

List some of the issues that a growing transport network (required by a city of Sydney's size) would create.

- Pollution (air, water, litter, noise)
- Larger carbon footprint

Noise Pollution - Use the Noise Meters to record noise levels at the following locations.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>LANDUSE &amp; ASSOCIATED ACTIVITIES</th>
<th>SOUND LEVEL IN DECIBELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>HARBOUR BRIDGE</td>
<td>Roadway—traffic and trains</td>
<td>85</td>
</tr>
<tr>
<td>THE ROCKS</td>
<td>tourism, retail, residential</td>
<td>57</td>
</tr>
<tr>
<td>OBSERVATORY HILL</td>
<td>Public Park Space</td>
<td>58</td>
</tr>
<tr>
<td>CIRCULAR QUAY</td>
<td>tourism, transport</td>
<td>69</td>
</tr>
</tbody>
</table>

Which location recorded the highest sound level? Circular Quay
**Architectural Differences**

The Rock's is one of Australia's major archaeological sites. Now protected from destruction, many buildings in this area date back to Australia's earliest European settlement, while others are significant examples from more modern eras.

Examine Figure 7, how did the amount of land per building allotment change between 1795-1830 and 1830-1900? Discuss how this compares to the current situation in the wider Sydney region?

![Figure 7: Early maps of the Rocks](image)

The first buildings in the Rocks were constructed haphazardly with no real urban planning in place to ensure neat rows of houses and straight roads. Most buildings were constructed along the natural landform and cliff lines and a lot of them faced the sea rather than the road, which indicates a reliance on ships for news, trade and work in the early days of the colony.

Susannah Place is a row of terrace houses and a corner shop that was built in 1844. It has been conserved (to slow down the rate of decay) but has not been restored, so it shows the peeling paint and run-down appearance that many of the rocks houses had. This contributed to the perception that the rocks was a disease-infested slum and from 1900 - 1915 led to the demolition of hundreds of houses in the rocks, including those directly across the road from Susannah Place.

Examine the new terraces near Susannah Place. What do you notice about their size and shape?

New material used in new terraces looks neutral in colour, clean designed to blend in with look of older terraces.

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Fig 8. Taken looking up Susannah Place, the new museum is shown in right hand corner as a "cheap, cash grocer" (Circa 1900) From Karsken G (1999) Inside the Rocks
Demolition of the Rocks

The beginning of the 20th century presented some real challenges for The Rocks. In 1900, there was an outbreak of bubonic plague in Sydney, one of the first victims was a wharf worker from the Rocks. The stigma of slum hung heavy over The Rocks, however of the 103 people who died from the plague, only three were from The Rocks.

As part of the response to the plague the government of New South Wales resumed virtually the entire headland from Circular Quay to Darling Harbour. Approximately 900 houses were bought as well as the surrounding wharves, bond stores, factories, workshops, offices and pubs.

W.S Jevons a Government assayist (appraises the state of affairs) noted the following:

"Nowhere have I seen such a retreat for filth and vice as the Rocks of Sydney. Few places could be found more healthily and delightfully situated, but nowhere are the country and the beauty of nature so painfully contrasted with the misery and deformity which lie to the charge of man".

(Ashton P, Waterson D, 2000, "Sydney takes Shape")

Figure 9: Carahers Lane in 1900 (Kaskens, 1999)

What reasons do you think the government may have had for demolishing these buildings?

Buildings were put under "compulsory acquisition which meant they were taken or demolished to make way for freeway roads + Harbour Bridge. Excuse was the area was a pow, diseased + dirty "slum" full of the plague after 4 deaths, the area was actually quite clean, so this was an excuse.

Can you think of a modern example of this type of activity?

Compulsory Acquisition of land around Rose Hill + Riverstone to make way for the North-West Railway. Acquisition of homes in the Hills for the M2
Map Work

Using a compass and the aerial photographs find the features listed below and indicate them on the diagram below as shown.

1. The Rocks  
2. Luna Park  
3. McMahon's Point  
4. Goat Island  
5. Balmain East  
6. Pyrmont

Diagram:

- The Rocks: ENE
- Luna Park: NNE
- McMahon's Point: NNW
- Goat Island: NW
- Balmain East: WNW
- Pyrmont: SW

Diagram showing the layout with arrows pointing to each feature from a central point labeled "Observatory Hill."
Landuse Map

During the course of the day observe the different land uses in and around the study area and map their location. Develop symbols / colours to indicate the different land uses and record them in the key below. Make sure you include the areas along the shoreline and those further inland.

Figure 10: Landuse Map
Dynamics of Change—Urban Growth and Decline

The suburb of Balmain was occupied before European settlement by the Eora people. Early settlers described the Eora driving mobs of kangaroos down the East Balmain hill towards the water where the kangaroos were then killed.

In 1800 the then governor of NSW, John Hunter, granted a 2 square kilometre block of land to Doctor William Balmain. This land was first settled in 1836 after which it became an industrial centre with a metal foundry, boiler-making and a dry dock.

In 1897 a coal mine was established which descended vertically about 200 metres then sloped off at an angle under Sydney Harbour to exploit a seam near Goat Island. This coal mine supported a group of English coal miners until 1931 when it was closed. The miners’ small, rustic cottages can be seen scattered throughout the suburb. By 1920 mining and railway equipment was also manufactured.

In the 1960’s much of the old working class culture was breaking down and replaced by university students and the middle class. Its rising house prices reflect the changing nature of the suburb. In 2008 the median house price was $882,500.

![Figure 11: The Rocks 1905](image)

What factors have contributed to urban renewal in the Balmain area?

- Increased wealth moving to area. In 1980s–1990s young working couples with high disposable income moved into area and bought old rundown workers cottage very cheaply. They did them up "renovated" in a process known as "gentrification".
- Area appealing due to water views + closeness to city as well as transport links such as ferry, road, light rail. This influx of people + wealth has attracted more: money, business, restaurants + technology to the area.
Urban Renewal

Figure 12: Photo of Sydney Harbour Bridge in 1940

Examine the above photograph. How has Bennelong Point changed? What does this tell you about the cultural changes taking place in Sydney? Now the site of the Opera House. A cultural tourist + entertainment centre. All industry/shipping has moved out.

Compare the Finger Wharf area at Walsh Bay with its current use. How has it changed? Still used for some shipping/warehousing, but also high rise and expensive residential apartments, restaurants and businesses. Shipping has been diverted from the Finger Wharves to Port Botany, Wollongong and Newcastle.

How do you think this has affected the social make-up of this area?

It is allowed the space to make use of the location and beauty of Sydney Harbour rather than a view of shipping containers

Examine the retail advertisements to identify the type of properties for sale in the area. Note the range of property sale and rental prices. How do these compare to those in your neighbourhood and Sydney as a whole?

Rich in poor out.

Healthy middle class with high disposable income, working class moved out.
Spatial & Social Inequality

As Sydney's population grows and the suburbs continue to expand into the remaining pockets of land, the spatial and social inequalities between suburbs are becoming more evident. Areas of concern include access to educational and childcare facilities, transport, healthcare and emergency services, including an adequate police force to keep order. The limited amount of land available also influences the size of housing blocks and the area reserved for public use, such as parks and bushland.

To explore this issue further we will compare two suburbs of Sydney, Mosman and Greenacre, to identify some of the differences that exist between the two areas. Mosman is located in the North-east of Sydney, approximately 9 km by road from the CBD. It is an affluent suburb with a median house price of $1.745 million. Greenacre is located in the south-west of Sydney, approximately 18 km from the CBD It is a working-class suburb with a median house price of $420 thousand.

Examine the aerial photographs of the two suburbs and answer the following questions

➡️ What types of transport can you see, or do you think are available for each of the suburbs? Which ones do you think are likely to be the used the most?

➡️ Besides residential areas, what is the other dominant land use in the Greenacre area? Do you find this type of land use in the Mosman area? Why?

➡️ Observe the amount of free space, recreational areas, parks and bushland in each of the suburbs. Which of the suburbs has the most, and where is it located?

➡️ What other factors may also contribute to the differences in house prices? Consider aesthetic features and location.

➡️ What problems is Sydney facing as a result of the population increase and continued suburban sprawl?
Changes Over Time

Examine and compare the 1866 map of this region with the current map. How has landfill changed parts of Sydney? Identify reasons for using land fill and give other examples.

Darling Harbour used to be a bay. It was “reclaimed” and rocks/land added in the 1980s. It was built/constructed specifically for the purpose of recreation, cultural tourism, public space

Figure 13: Darling Harbour, 1927 (Ashton and Waterson, 2000, pp.55)

Examine Darling Harbour on the aerial photographs. What changes have occurred there since 1982? Why do you think they have taken place? Consider changes to social values and the way that waterways are used.

In 1982 area still used for wholesale/warehouse/docks/railway. 
2001 - more green space, Chinese gardens, IMAX, Convention Centre. 
A cultural, tourism and recreational centre. Tends to be tourist cruise only.
Darling Harbour receives over 16 million visitors per year. What benefits does this bring to Sydney? Remaining water use from tourism = jobs = more attractions for national + O.S. tourists.

Why is there so much redevelopment occurring in Pyrmont? What do you notice about the way it is being done? Redevelopment started in 1992. Prior to this the area was a grass overgrown, deserted wasteland. Population in 1900 was 30,000 and in 1970 - 800 people. Empty factories and buildings made area look like a slum. Govt got involved to redevelop area by selling buildings off cheaply. Lots of developers bought as land was close to city, great views, infrastructure already there (urban consolidation). Did not do warehouse/heritage style apartments (like the Rocks). Bulldozed all + constructed high rise high $ waterfront apartments.
SUPPLEMENTARY ACTIVITY
Water Pollution in Sydney Harbour

Stormwater drains are not the only source of pollution in Sydney Harbour. The greatest cause of concern is the high levels of dioxin in the harbour. Dioxins are a by-product of some industrial processes that have historically occurred around the edge of the Harbour and along Parramatta River. These activities included coal tar production, textile and leather dyeing and the production of pesticides such as DDT and Agent Orange (used by the USA in the Vietnam war with devastating consequences for the people exposed to it and now linked with ongoing birth defects in the areas that were sprayed), both of which are now banned. Dioxins are long-lasting toxic compounds that are known to be carcinogenic (cancer-causing) to humans. They are also bio-accumulating, which means that organisms absorb the dioxins into their tissues, and if they are eaten the toxins are then absorbed by their consumers and so on up the food chain.

The worst source of this particular type of contamination is the old Union Carbide factory site on the banks of Homebush Bay. This area has long been known to contain high levels of toxin and has been closed to fishing since 1989. Recent testing has found that other areas of Sydney Harbour now also show high levels of toxins in fish (as shown in Figure 3) and in January 2006 a ban on commercial fishing in the harbour was implemented. Recreational fishermen were also advised to limit the amount of fish they catch and eat in the harbour to less than 150 grams per month.

![Figure 14: Graph of Dioxin Levels in Bream caught in Sydney](image)

Examine the graph of dioxin levels in bream. Are fish from any of the areas tested in Sydney Harbour safe to eat based on the European Union limits?

What implications does the bio-accumulating nature of dioxins have for organisms such as Little Penguins, dolphins and migratory birds, such as herons that spend time in and around the Harbour?

Acknowledgements
- Kassen (1999) Inside the Rocks: The Archaeology of a Neighbourhood, Hale & Tremonger, Sydney
- www.foodauthority.nsw.gove.au/c-dioxins.htm
- localhistoryviews.com, Sydney 1900-1910 (2008) York UK,

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