

Megacities and urban sprawl

Lesson Map : <http://esriaustralia.com.au/education/SpatialActivity2>

Engage

What characteristics define a city?

- Click on the lesson map link above to commence the lesson.
- ? What pattern can you identify from the map layer ‘The Earth At Night?’
[Noticeable clusters of population, which are not evenly distributed]
- ? Where are the highest density areas? Where are the lowest? *[Answers will vary]*

Explore

What is an urban area, and how are urban areas globally distributed?

- What are some characteristics of an urban area? *[High density, non-agricultural, surrounding a city, etc.]*
- On the ‘details’ pane, open the ‘contents’ tab. Turn on the layer ‘World Urban Sprawl’ by ticking the checkbox. Turn off all other layers. You must zoom in to view this layer.
- Zoom in and out to explore global megacities. Click on each urban area to find the city name.
- ? What cities in the world might be megacities? *[Answers will vary, but include Tokyo, London and New York]*

Explain

Where are the fastest growing megacities located?

- ? What is a megacity? *[City with a population of over 10 million people]*
- Turn on the layer called ‘Megacities.’
- ? Where are the most megacities located? *[Asia – India, China, Japan, Korea]*

Download student worksheet [here](#).

Time
20 minutes

Activity

Investigate the distribution of megacities, and impact of urban growth in megacities.

Learning Outcome

Students will be able to:

- Understand the global pattern of urban growth and megacities
- Analyse and measure the footprint of urban growth

ACARA Curriculum Link

[Year 8 Geography – Unit 2: Changing Nations](#)

[ACHGK054](#) | [ACHGS058](#) | [ACHGS059](#) | [ACHGS060](#) | [ACHGS062](#)

[Senior Secondary Geography – Unit 2: Sustainable places](#)

[ACHGE039](#) | [ACHGE045](#) | [ACHGE046](#) | [ACHGE037](#) | [ACHGE038](#)

[Senior Secondary Geography – Unit 4: Global transformations](#)

[ACHGE106](#) | [ACHGE112](#) | [ACHGE115](#)

- In the 'Megacities' layer, press the 'Show Table' icon. When the table opens, click the heading 'Growth.' A drop-down box will appear. Select 'Sort Descending.'
- ? Which megacities are growing the fastest? [*Karachi, Delhi, Dhaka, Guangzhou*]
- Investigate further by clicking on each of these city markers on the map, to open more detail.
- Optional: You can repeat this process to investigate the largest megacities by selecting 'Sort Ascending' for the 'Population' heading on the Megacities table.

Extend

How has the world's largest megacity changed over time?

- ? What factors might contribute to urban sprawl? [*Answers will vary, but may include access for open space, development of transport system to link commuters back to the CBD etc.*]
- In the 'contents' tab, turn on the following 3 layers by ticking the checkbox: 'Tokyo 1929', 'Tokyo 1954' and 'Tokyo 1972.' Click between these 3 layers to observe how Tokyo has changed over time
- Click the 'Measure' icon in the banner above the map, and click on the perimeter of Tokyo in 1929. Hint: Ensure you are measuring in square kilometers.
- ? What was the footprint of Tokyo city in 1929? [*Approximately 300 km²*]
- ? Repeat the measurement to determine the footprint of Tokyo city in 1954 and 1972. [*1954 – approx. 400km²; 1972 – approx. 1400km²*]
- ? What are some potential negative consequences of urban sprawl? [*Traffic congestion, pollution, pressure on resources, etc.*]

Next Steps:

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Australian schools can request a free ArcGIS Online account as part of Esri Australia's Classroom GIS Initiative. A school account provides additional mapping tools, content, features and privacy.

Learn more, or request a school account at <http://esriaustralia.com.au/education>

Acknowledgements:

This lesson map uses data sourced from an Esri GeoInquiry.

Accompanying lesson material has been amended to align with the Australian National Curriculum.

Teacher Feedback:

To share your feedback on this, or any Spatial Activity, please contact education@esriaustralia.com.au