

Introduction to the Murray-Darling Basin

Lesson Map: <http://esriaustralia.com.au/education/SpatialActivity12>

Engage

Where is the Murray-Darling Basin located?

- Click on the map URL above to open the lesson map.
- ? Across how many States and Territories does the Murray-Darling Basin sit? Name these States and Territories. *[5 - QLD, NSW, VIC, SA, ACT]*
- ? How large is the Murray-Darling Basin?
- To calculate area, select the Measure tool. Choose Area, and change the units to Sq. Kilometers.
- Click to outline the Murray-Darling Basin. Double click when you have completed your outline, and view the total area in the Measure window.
- ? How large is the Murray-Darling Basin? *[Approx. 1 059 000 Sq. Km]*
- ? Australia has an area of 7.69 million km². What percentage of Australia's landmass does the Murray-Darling Basin occupy? *[Approx. 14%]*

Explore

How does topography influence the Murray-Darling Basin?

- In the Details pane, under the heading Content, tick the checkbox to turn off the layer called Murray-Darling Basin.
- The base map is a topographic map of Australia.
- ? Describe the topography of the Murray-Darling Basin, by turning the Murray-Darling Basin layer on and off. *[More mountainous along the coast, along the Great Diving Range]*
- ? In Bookmarks, select the bookmarked place Major MDB Rivers. By investigating the base map, which are the dominant rivers in the Murray-Darling Basin?

Download student worksheet [here](#).

Time
20 minutes

Activity

Investigate the location, topography and rainfall across the Murray Darling Basin, and the agricultural significance of this catchment.

Learning Outcome

Students will be able to:

- Understand the impact of rainfall and topography on rivers and catchments
- Investigate rainfall and topography across the Murray-Darling Basin
- Analyse the agricultural significance of the Basin

ACARA Curriculum Link

[Year 7 Geography - Unit 1: Water in the World](#)

[ACHGK038](#) | [ACHGS049](#) | [ASHGS050](#)
| [ACHGS051](#) | [ACHGS052](#)

[Senior secondary Curriculum – Geography – Unit 3: Land cover transformations](#)

[ACHGE066](#) | [ACHGE072](#) | [ACHGE060](#)

Open Source Data:

Rainfall Averages: *Bureau of Meteorology, 2016*

Cropland and Pastural Land Data: *EarthSat, 2014*

[Darling, Barron, Macquarie, Lachlan and Murray]

- Rivers begin in areas of high elevation, where rain or snow collects and forms channels. Rivers flow downhill due to gravity, and eventually flow into another river, ocean, stream or lake.
- ? Turn on the layer Murray-Darling Basin. Where do most rivers in the basin begin?
[Eastward, along the Great Dividing Range.]
- ? Where does the Murray-Darling Basin meet the ocean? *[Lake Alexandria in South Australia]*

Explain

How does rainfall influence the Murray-Darling Basin?

- In the Details pane, under the heading Content, tick the checkbox to turn on the layer Maximum Annual Rainfall. Turn off all other layers.
- ? Describe the pattern of rainfall around Australia? *[Generally, more rain along the Northern and Eastern coasts, becoming drier inland]*
- We know most rivers in the Murray-Darling Basin begin atop the Great Dividing Range.
- ? Open the legend, and investigate the amount of rainfall experienced along the Great Dividing Range in 2016. *[3,373 - 3,416mm]*
- ? By turning the Murray-Darling Basin on, describe the pattern of rainfall across the Basin? *[More rain to the East and South, becoming drier in the West and South-West]*
- ? Investigate the course of all the Rivers in the Basin. What pattern is visible here, in relation to rainfall? *[Rivers start flowing in areas of higher rainfall]*

Extend

How is Australian agriculture dependent on the Murray-Darling Basin?

- In the Content page, tick the checkbox to turn on the layer Pastural Land. Open the Legend.
- ? Turn the Murray-Darling Basin layer on and off to describe the level of Pastural Land within the Basin as a proportion of all national Pastural Land *[MDB covers most of NSW's high level pastoral land, and approx. 1/3 of Australia's high level]*

Teacher Feedback:

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

pastural land.]

- In the Content page, tick the checkbox to turn on the layer Cropland Area Turn off all other layers. Open the Legend.
- ? Turn the Murray-Darling Basin layer on and off to describe the level of Cropland Area within the Basin as a proportion of national Cropland Area *[MDB covers most, if not all high-level cropland in QLD, NSW, VIC and ACT. The MDB covers approximately 50% of Australia's high-level crop land]*
- ? Optional: Discuss the impacts of reduced rainfall across the Murray Darling Basin, socially, economically, and environmentally. *[Answers will vary]*

Next Steps:

Request a free ArcGIS Online Account for your school:

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

Learn more about ArcGIS Online, and apply for your ArcGIS Online School subscription at <http://esriaustralia.com.au/education>