Creating and preparing sources for short response, extended response and combined response assessment tasks

This document contains instructions and examples on how to create and prepare stimulus sources for short response, extended response and combined response assessment tasks.

Sourcing relevant data

Searching for and locating data – relevant to your objectives – can be a challenging task. This is made more difficult when data from reliable and accurate sources is of a high importance. There are a number of useful and reliable data publishers out there; these organisations make their data available and freely accessible to the public. Here are a couple of places to start:

World Bank

The World Bank provides free and open access to global development data. Users can browse by 'Country' or 'Indicator'. For example, search for data on indicators like climate change, poverty, aid effectiveness, education, and economy and growth. View data in line and bar graphs or on a basic map viewer. Download the data into a csv. file for further manipulation.

Our World in Data

Our World in Data is a useful website for obtaining data in pre-prepared visual modes including, graph, map and table displays. The site also contains articles and publications on a range of topics.
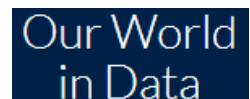
Australian Bureau of Statistics

The Australian Bureau of Statistics (ABS) is a useful website for obtaining data within Australia at a variety of levels including national, state and statistical area levels. Browse and access statistics for indicators including, economy, people, population, education and more. Reports often include graphs, diagrams and map images. Download or use published data for further manipulation in ArcGIS Online.

Gapminder

Gapminder provides access to data for a range of indicators including, population, energy, environment, and more. Users can download data as a csv. file for further use in ArcGIS Online. Data can also be viewed in several graph types and maps.

National Map

National Map is an open data portal hosted by the Australian Government. It has a range of national datasets on a variety of indicators. Data comes in a range of types including web services, csv. files and shape files.

State and council open data portals

Each state and city council often have their own open data portals that are freely accessible to the public. These sites often contain public data on parks and recreation, roads, parking, development areas, water and sewer, and more. Try searching for your city with the words 'open data' e.g. *'Gold Coast open data'*.

Preparing your data for ArcGIS Online

It is important to first prepare your sourced data so that it can be used in ArcGIS Online. Simply click the **'Add'** icon to add your data.

Add layer from Web

1. Copy the url from the website that contains the data layer.

    Data Custodian

    Geoscience Australia

    Esri ArcGIS MapServer URL

    http://services.ga.gov.au/gis/rest/services/NM_Hydrology_and_Marine_Points/MapServe

2. Paste the url into ArcGIS Online by selecting **Add** and then **Add layer from Web**.

    Add Layer from Web

    What type of data are you referencing?

    An ArcGIS Server Web Service ▼

    URL: https://services.ga.gov.au/gis/rest/services/Land_Cover_WM/MapServer
    ☐ Use as Basemap

    BROWSE FOR MORE LAYERS

    ADD LAYER   CANCEL

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3. Your web layer will be added to your map. You can now use 'snipping tool' to cut out your desired map extent and paste the source in your stimulus document. Alternatively, you can click **Print** and choose **Print with Legend** in ArcGIS Online and then use 'snipping tool' to paste the desired image into your stimulus document.
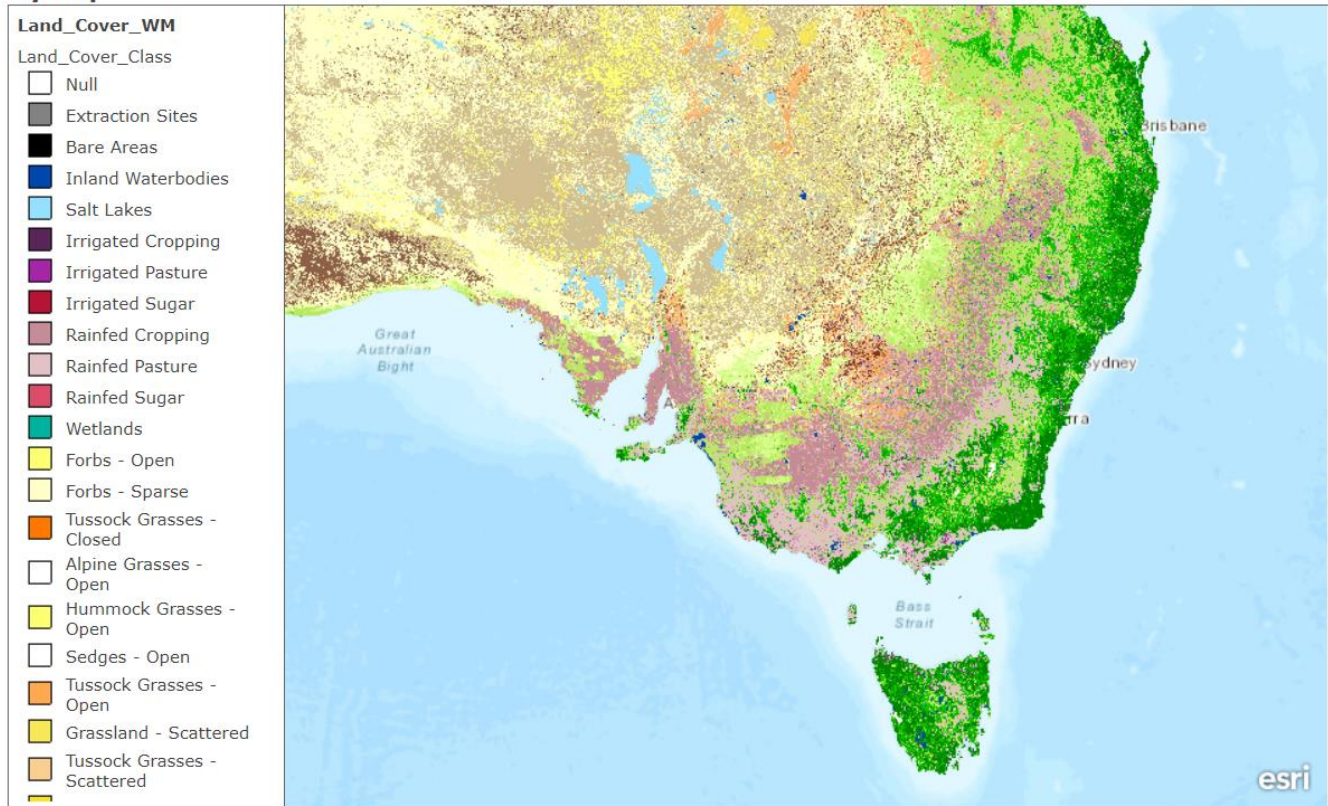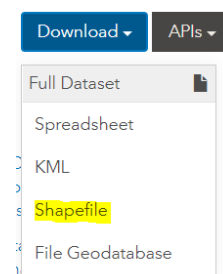
🖨 Print ▾

Figure 1: Australian land cover. A feature layer sourced from National Map.

Add layer from file (Shapefile)

1. Locate your data. If the data is in the form of a Shapefile, download it and save it in a suitable location. Shapefiles will be downloaded in a zip file. This is necessary for when you add them in ArcGIS Online.

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2. In ArcGIS Online, click **Add** and choose **Add layer from File**. Locate your zip file and click **Import Layer** to add it to the map.

Add Layer from File

Locate the file you want to import.

- Shapefile (ZIP archive containing all shapefile files)
- CSV or TXT files with optional address, place or coordinate locations (comma, semi-colon or tab delimited)
- GPX (GPS Exchange Format)
- GeoJSON (open standard format for simple geographical features)

File: [Choose file] Light_rail_ur...ndary-shp.zip

◉ Generalize features for web display
○ Keep original features

[IMPORT LAYER]   CANCEL

4. Your shapefile will be added to your map. You can now use 'snipping tool' to cut out your desired map extent and paste the source in your stimulus document. Alternatively, you can click **Print** and choose **Print with Legend** in ArcGIS Online and then use 'Snipping tool' to paste the desired image into your stimulus document.
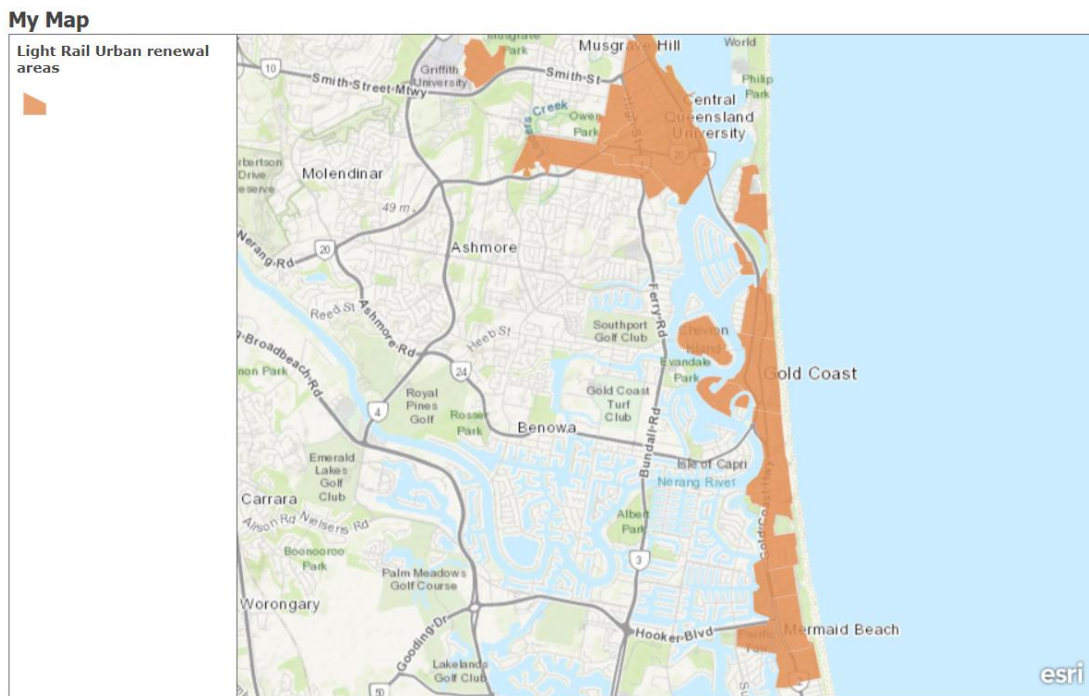

Figure 2: Light Rail urban renewal areas on the Gold Coast. Sourced from Gold Coast Open Data Portal.

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Add layer from file (CSV)

1. Locate your data, download it and save your file in a suitable location.
2. Before importing it into ArcGIS Online, you must first clean your data. You can learn how to do this by accessing our professional development resources:
   - Video tutorial: Cleaning data
   - Training template: Cleaning data (XSLX)
3. Once your data has been cleaned and formatted correctly, it is now ready to be imported into ArcGIS Online. Click **Add** and choose **Add layer from File**. Browse for your csv. file and click **Import Layer**.

Add Layer from File

Locate the file you want to import.

- Shapefile (ZIP archive containing all shapefile files)
- CSV or TXT files with optional address, place or coordinate locations (comma, semi-colon or tab delimited)
- GPX (GPS Exchange Format)
- GeoJSON (open standard format for simple geographical features)

File: [Choose file] Australian bir…rates CSV.csv

Tip: You can also drag and drop a CSV or GPX file from your desktop onto your map.

[IMPORT LAYER]   CANCEL

4. Specify how you wish to **Locate features by**. If your CSV file contains latitude and longitude data, choose 'Coordinates' and click **Add Layer**. If your file contains locational data (e.g. country names, state names, addresses etc.), choose 'Addresses or places'.

a. Use the drop-down menu to specify where your data is located.

b. Set the location field that contains your locational data.

c. Click **Add Layer**.

Locate features by:

○ Coordinates ⦿ Addresses or Places ○ None, add as table

In: Australia ▾

Review the location fields. Click on a cell to change it.

Field Name	Location Fields
Location	State
State_code	Not used
Registered_births_2017	Not used
Registered_births_2018	Not used

[ADD LAYER]   CANCEL

5. Manipulate the style of your data to reflect the way it is displayed. You can access our professional development resources to learn how to do this:
    - Video tutorial: Adding and styling layers
    - Step-by-step guide (PDF): Adding and styling layers

6. Once you have finished styling your data, you are able to use 'snipping tool' to cut out your desired map extent and paste the source in your stimulus document. Alternatively, you can click **Print** and choose **Print with Legend** in ArcGIS Online and then use 'snipping tool' to paste the desired image into your stimulus document.
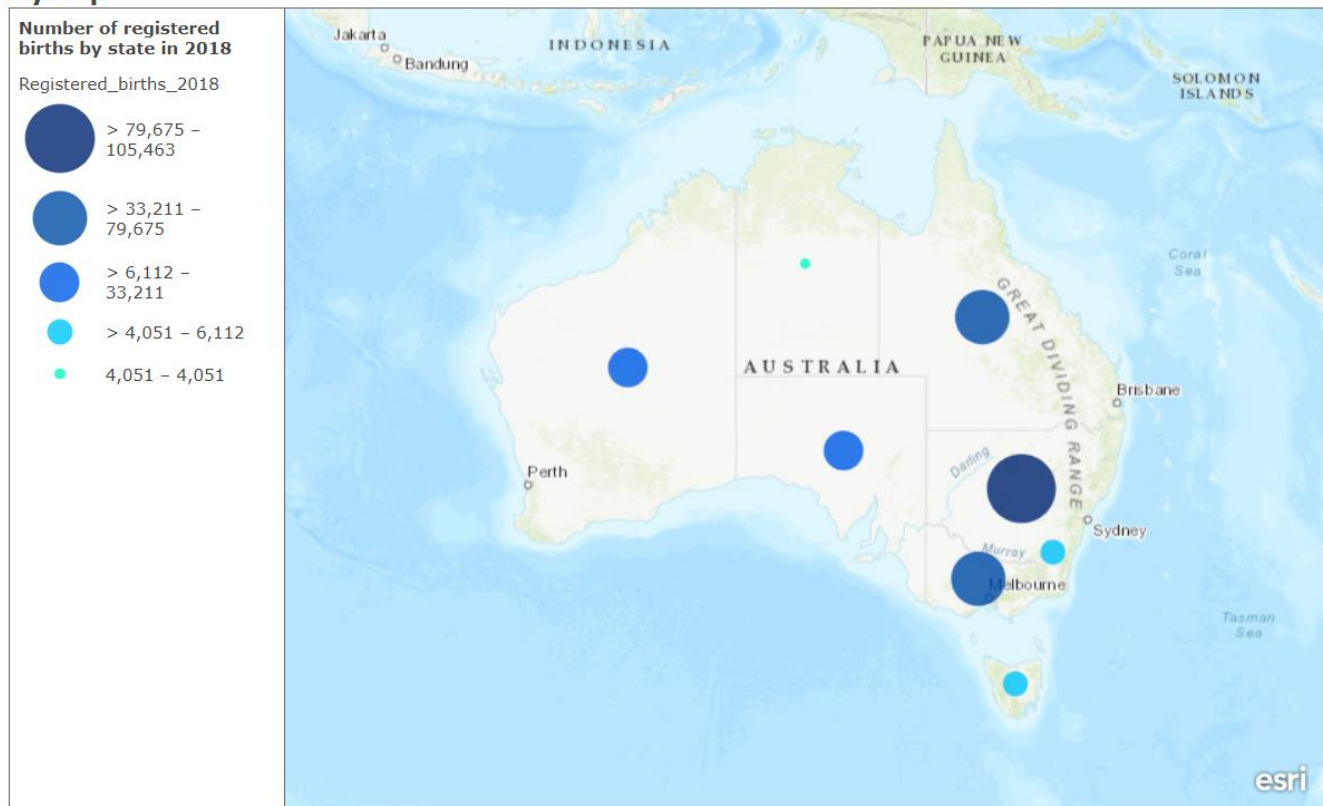

*Figure 3: Number of registered births by state in 2018. Sourced from the Australian Bureau of Statistics.*

7. You can take this one step further by creating choropleth maps with your csv. file data. Learn how to do so by visiting our professional development page.

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Adding layers from Living Atlas and ArcGIS Online

Finding data layers online isn't always necessary. You can search for existing layers in Living Atlas and ArcGIS Online, add them to your map and use 'Snipping tool' to paste them into your stimulus document.

1. In ArcGIS Online, click **Add**. Choose **Browse from Living Atlas** or **Search for Layers** in ArcGIS Online.
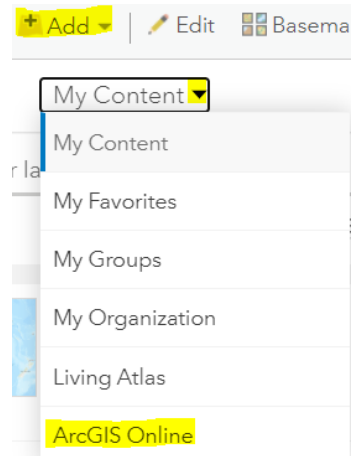
2. Search for a layer in either Living Atlas or ArcGIS Online. Add it to the map with the **+** icon.
3. Click **Print** and choose **Print with Legend**. Use 'Snipping tool' to paste an image into your stimulus document. Here are some examples below:
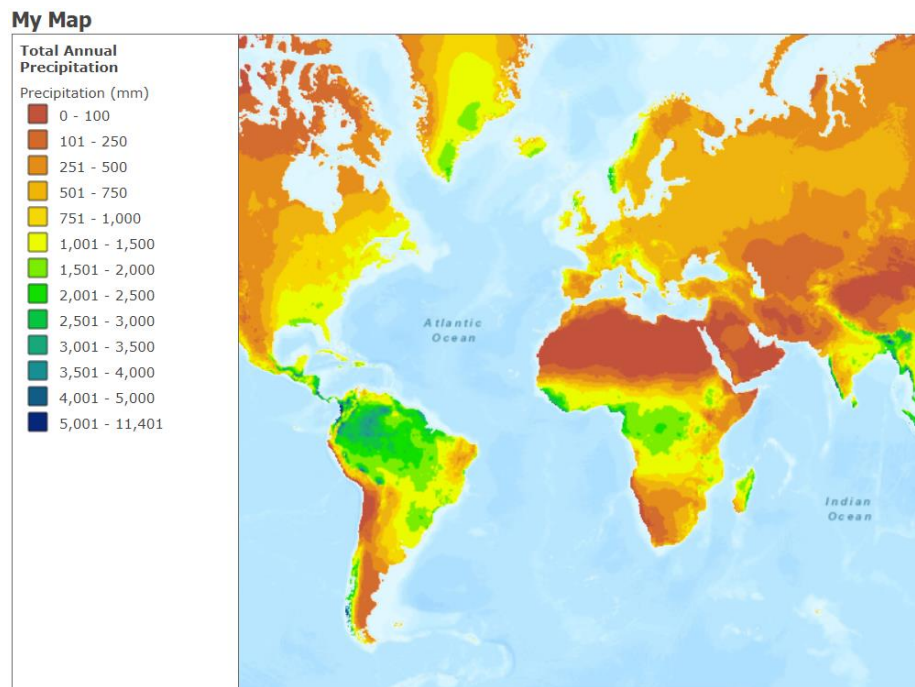

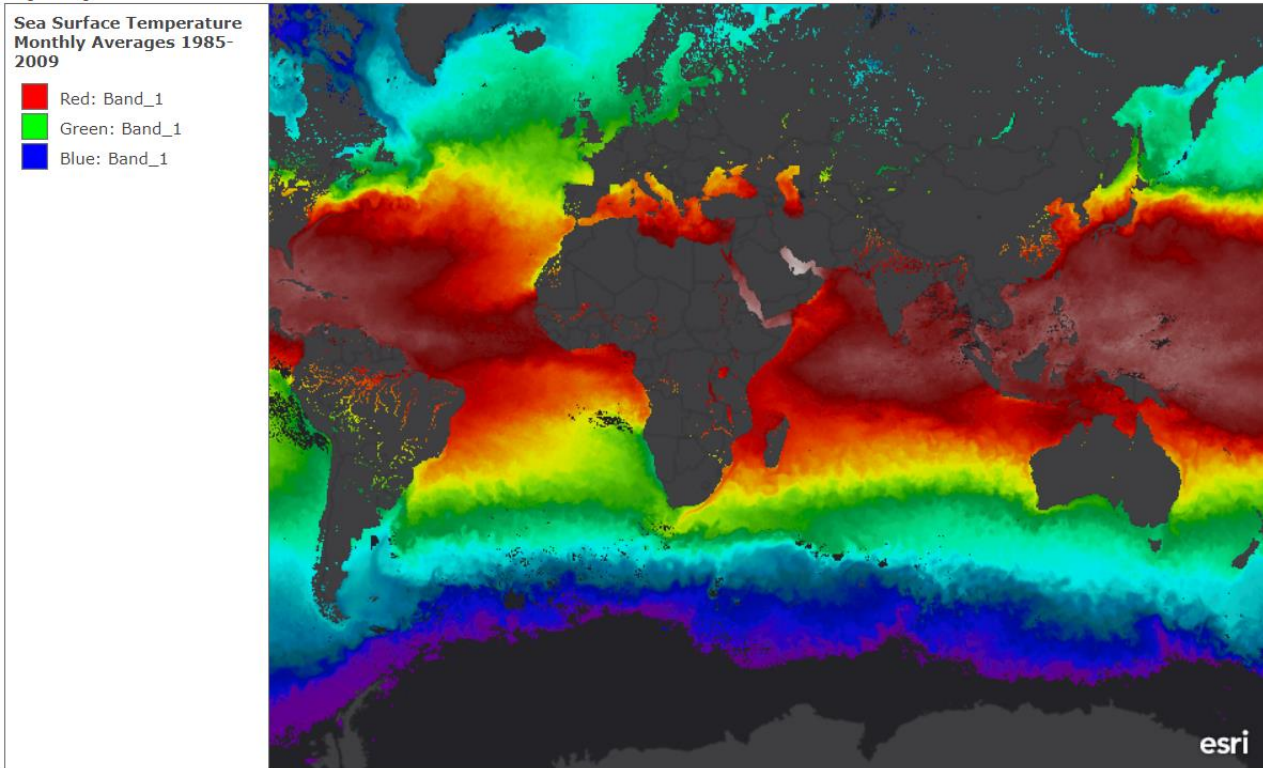*Figure 4: Total Annual Precipitation. Sourced from ArcGIS Online.*

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Figure 5: Sea Surface temperature. Sourced from ArcGIS Online.

Summary

As teachers know, there are a variety of sources and stimuli available online and by accessing data sites like those mentioned previously in this document. However, when teachers are required to design their own assessment tasks – particularly short response, extended response and combined response exams – that require the use of sources, it can be difficult at times to find a source or data layer that directly meets your goals and exam designs. This is when creating your own, using ArcGIS Online, can be useful as you are able to produce exactly what you need.

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

Speak to Esri Australia's Education Program Manager:

Australian schools can seek additional support or speak to our Education Program Manager by emailing education@esriaustralia.com.au.