Exercise 1: Exploring the Map Viewer

How can I print an exercise to PDF format?

Instructions
Use this guide and ArcGIS Online to explore a map displaying world demographics.

Note: ArcGIS Online is a dynamic mapping solution. The screenshot graphics that you see in course materials may differ slightly from the version of ArcGIS Online that you will use.

Introduction

In this exercise, you will explore the Map Viewer in ArcGIS Online. Feel free to experiment and try things out. Exercises later in this course will present more chances to apply what you learn.

There are questions throughout this exercise. These questions are intended to encourage you to think critically—and spatially.

What you will learn
As a result of this activity, you will accomplish the following tasks:

- Become familiar with the Map Viewer in ArcGIS Online, the solution used throughout this course.
- Examine locational information used to identify spatial data within a map.

Technical notes

1. You will make full use of web mapping services throughout this course.
2. Use the latest version of Google Chrome or Microsoft Edge. Other web browsers may not display your maps and apps correctly.

   For information on supported browsers, see ArcGIS Online Help: Supported browsers (https://esriurl.com/browsers).

Note: The exercises in this course include View Result links. Click these links to confirm that your results match what is expected.

Estimated completion time in minutes: Approximately 30 minutes

Expand all steps | Collapse all steps

- Step 1: Sign in to an ArcGIS Online organization

This course uses ArcGIS Online, a web-based GIS. Every registered student receives a username and password to access ArcGIS Online during the course. Collectively, your username and password are known as your course ArcGIS credentials. This step explains where to find your course ArcGIS credentials and how to sign in for the first time.

You may already have an ArcGIS Online organizational account of your own. For this course, we strongly advise you to use the provided student account. Using this account will ensure that you have the privileges and access needed to complete the exercises. Using your own account also limits our ability to offer support if you encounter technical issues.

ArcGIS Online offers two map viewers for viewing, using, and creating maps. In this course, you will use Map Viewer for the exercises because it offers full support for analysis capabilities. Map Viewer has been configured as the primary map viewer for your course ArcGIS credentials organization. To learn more about the functionality of the map viewers, see ArcGIS Online Help: Map Viewer web map compatibility (https://esriurl.com/mv).

a On the black navigation bar in the MOOC platform, click the Lessons tab to locate your credentials.

If you registered within the past few hours, your credentials may not be ready. If this is the case, you will see a message asking you to check back later.

Note: When you return to check whether your credentials are available, you will need to refresh the web page. We will do our best to provide your credentials within one business day after you register.

After you locate your ArcGIS credentials on the Lessons tab, you may sign in to ArcGIS Online for the first time.

b Open a new private or incognito web browser tab or window.

Use a private or incognito web browser window.

Each exercise will instruct you to open a new private or incognito web browser window and sign in to ArcGIS Online (or another website) with your course ArcGIS credentials. Using an incognito web browser window ensures that you access ArcGIS Online with the correct account.

Note: If you have trouble signing in or have questions about an exercise, try these steps:

1. Check the Common Questions on the Help tab.
2. Search in the Forum for other students with the same issue.
3. Use the Have A Question form at the bottom of the Help tab.

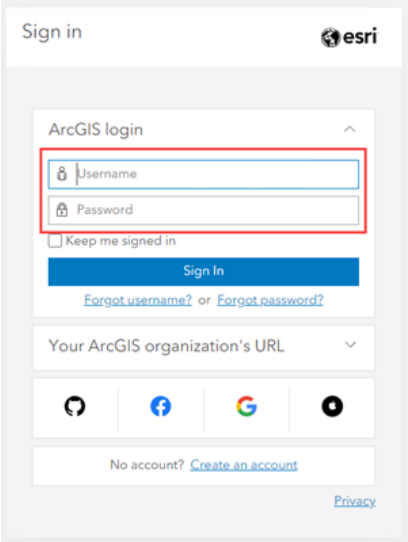
- Hint

  To learn how to enable private browsing, go to **https://esriurl.com/private**.

c In the address bar, type **www.arcgis.com** and press Enter.

d Click Sign In.

e Under ArcGIS Login, copy and paste or type your course ArcGIS username and password.



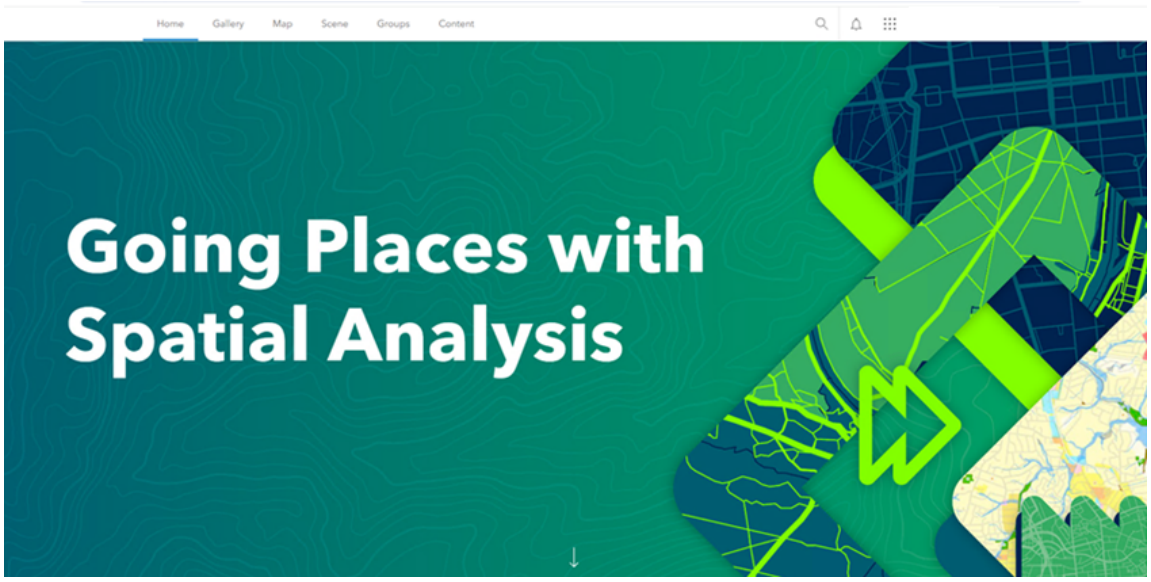
f Click Sign In.

The first time that you sign in, you will be asked to set a security question.

g Follow the on-screen instructions to set your security question.

Note: An automated email will be sent to the email address associated with the account. This email will state that your account was recently modified. No action is required.

After you set your security question, you will see the Home page for the MOOC organization.



ArcGIS Online is a dynamic mapping platform, so the organization's Home page may look slightly different than this graphic.

- **Step 2: Save a copy of a map**

In this step, you will open an ArcGIS Online world demographics map. Then, you will save a copy to your own ArcGIS account so that you can make permanent changes to the map.

a In the upper right, click the Search button .

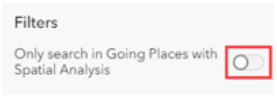
You will use keywords and an item field to find the web map. The map that you are searching for is owned by EsriTrainingSvc, so you will use the owner field to refine the search. When searching by owner in ArcGIS Online, both the owner field and the EsriTrainingSvc value are case sensitive.

b Type **geography matters owner:EsriTrainingSvc** and press Enter.

Note: As you are typing, below the search bar, you may see results for maps created by other students listed. You do not want to click any of these maps. You want to access the web map created by EsriTrainingSvc, so you need to type the full search term.

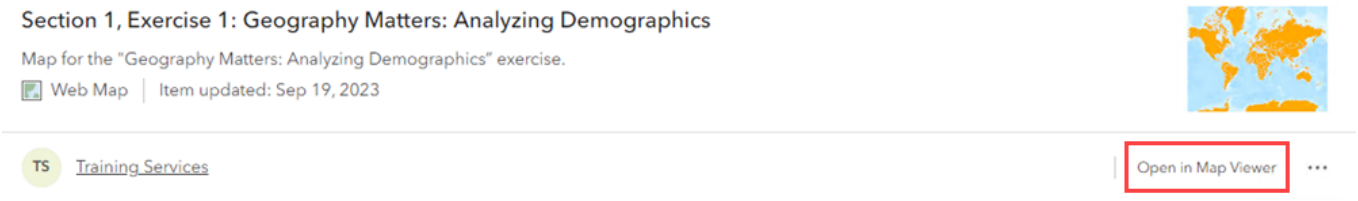
Your search does not initially return any results because the web map was created by someone who is not a member of your ArcGIS Online organization. You will turn off the option to only search within your organization.

c Under Filters, to the right of Only Search In Going Places With Spatial Analysis, click the toggle to turn the option off, as indicated in the following graphic.

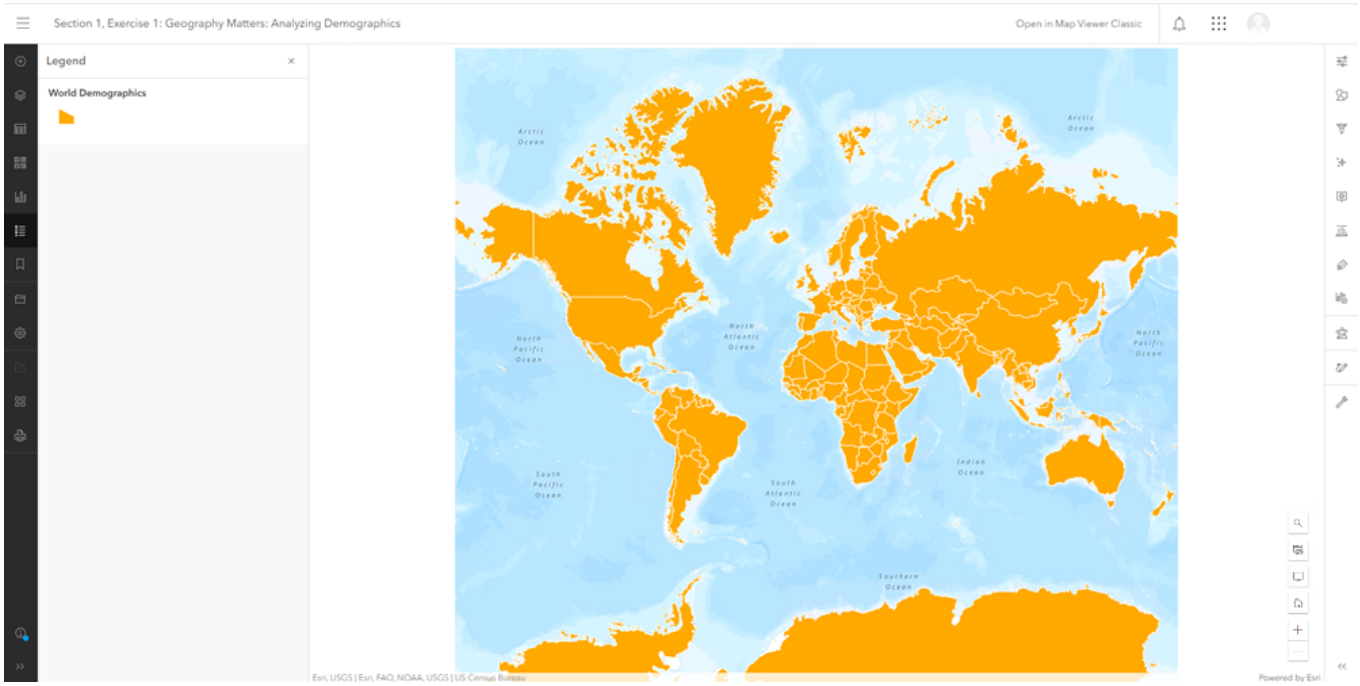


The search results now return the Section 1, Exercise 1: Geography Matters: Analyzing Demographics web map and the World Demographics feature layer. Both items will be used in this exercise to explore the Map Viewer and in the next exercise to analyze demographics.

d For the Section 1, Exercise 1: Geography Matters: Analyzing Demographics web map owned by Training Services, from the bottom right, click Open in Map Viewer.



A map of the world displays. For this exercise, you will save a working copy of the map.

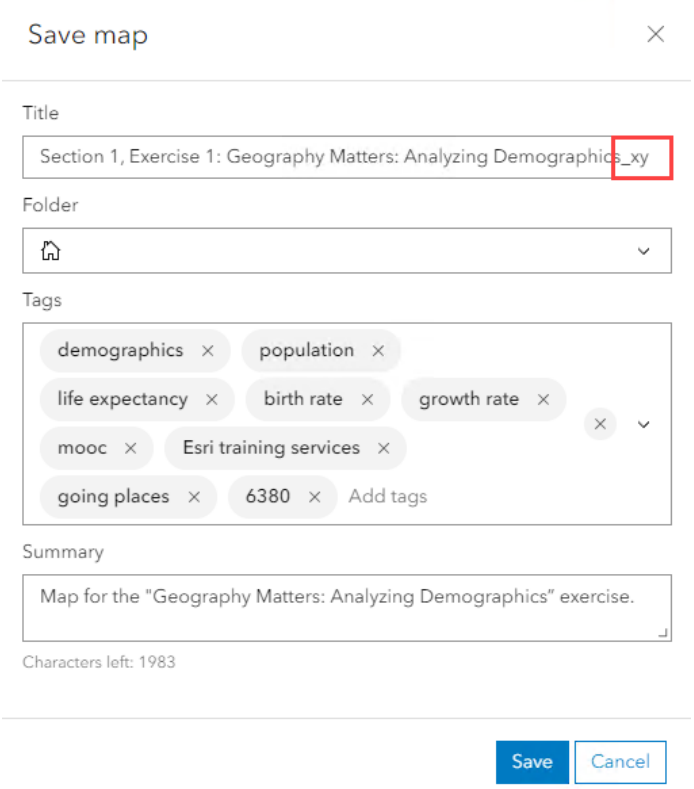


*Step 2d***: Save a copy of a map.*

e On the left toolbar, click Save and Open and choose Save As.

You will add your initials to distinguish your web map from others.

f In the Save Map dialog box, for Title, add **<_your initials>** to the end of the current title, as indicated in the following graphic.



g Click Save.

A copy of the map will be saved to your My Content collection.

Note: ArcGIS Online does not automatically save maps; therefore, you should periodically save your map as you are working.

Next, you will share the map. You can share it with everyone, with specific groups of colleagues, or with no one at all.

Note: In this course, you are encouraged to share your maps with everyone. This way, all course participants—as well as any colleagues, teachers, and friends—will be able to view your map.

h On the left toolbar, click the Share Map button .

i In the Share dialog box, check the Everyone (Public) box.

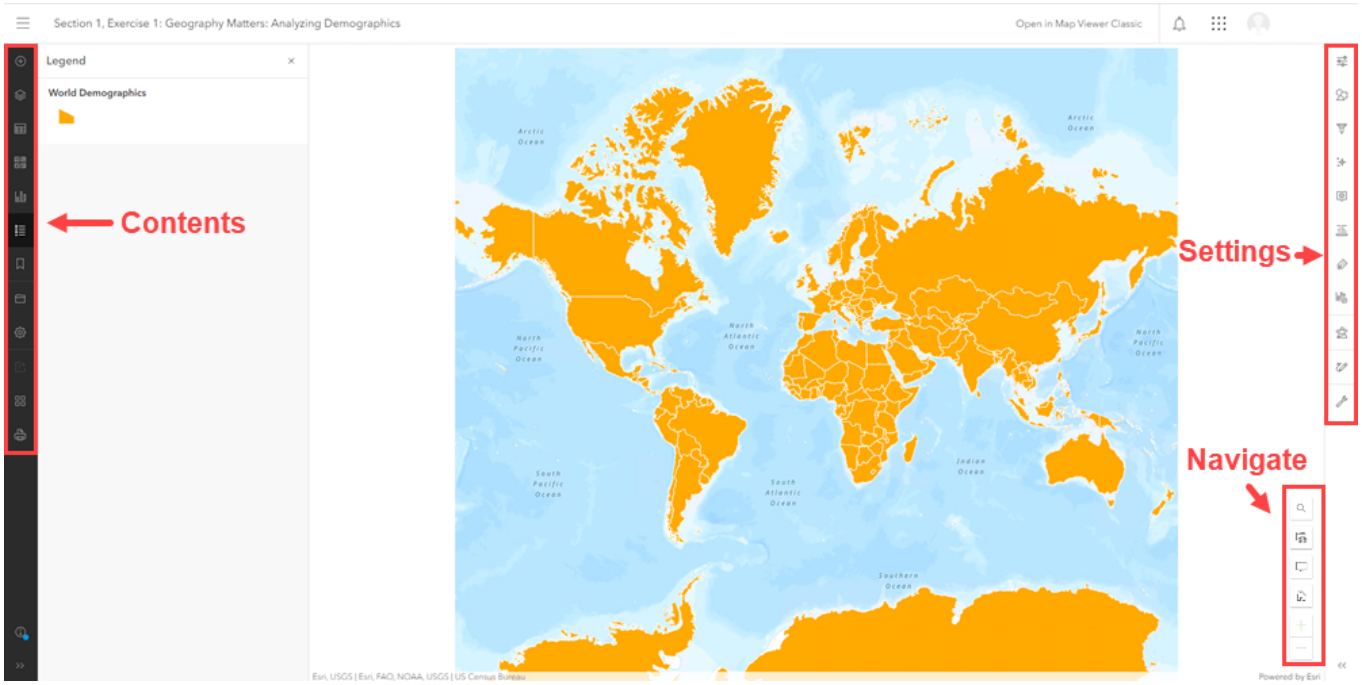
j Click Save.

In this step, you saved a copy of the web map and then shared it publicly. Next, you will explore the map and the Map Viewer interface.

- Step 3: Explore the ArcGIS Online Map Viewer

The ArcGIS Online Map Viewer displays the map in the center. In this map, the World Demographics layer (https://esriurl.com/layer) is visualized and listed in the Legend pane.

There are toolbars on each side of the map, as well as navigation tools. The left toolbar is considered the Contents toolbar, and it contains functionality to manage and view the content within the map. The right toolbar is the Settings toolbar, and it contains functionality to apply configurations and settings for the layers represented in the map. In the bottom right corner, there are navigation tools to move around the map by panning, zooming, and searching.



At the bottom of each toolbar, there is an expand button to display the names of the buttons. This can be helpful as you are becoming familiar with all of the functionality available in Map Viewer. They can be collapsed at anytime to extend the view of the map you are working with.

a On the Contents toolbar, click the Expand button » to visualize the buttons.

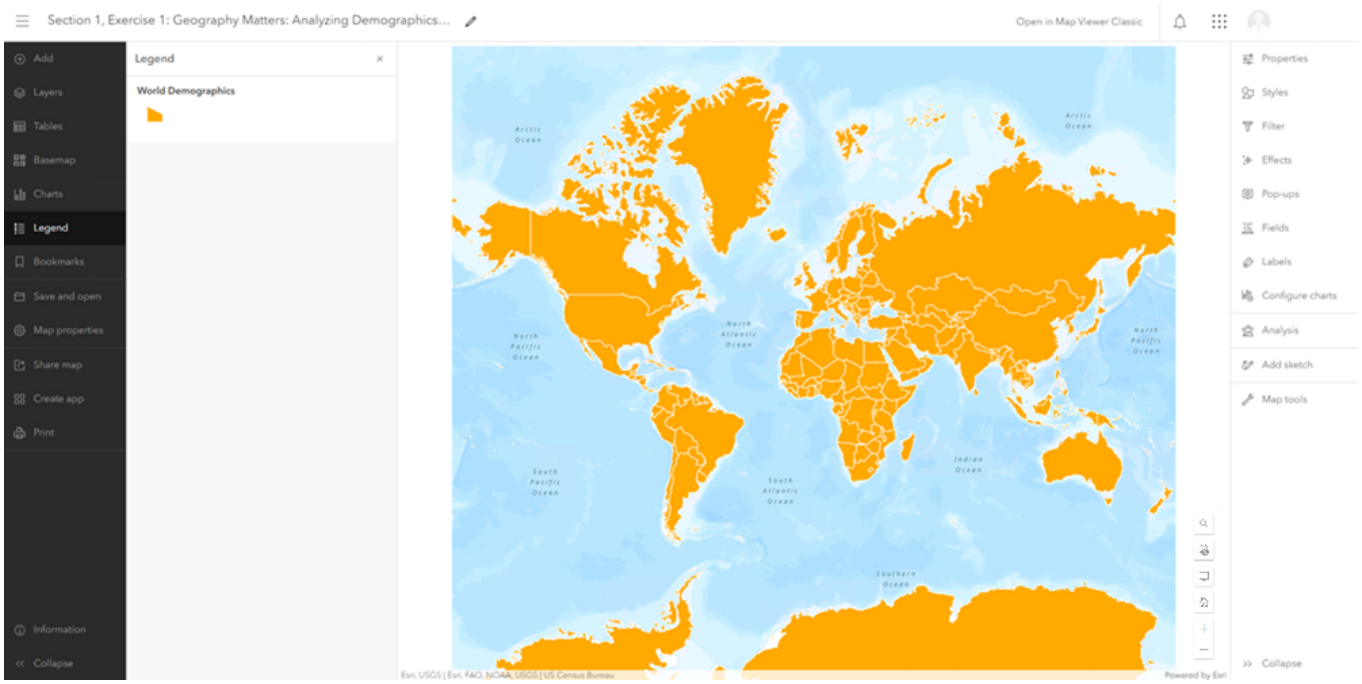
- Hint

  The Contents toolbar is the left toolbar.

b On the Settings toolbar, click the Expand button « to visualize the buttons.

- Hint

  The Settings toolbar is the right toolbar.



*Step 3b***: Explore the ArcGIS Online Map Viewer.*

To the right of the Contents toolbar, in the Legend pane, the World Demographics layer is listed and displayed in the map.

c On the Contents toolbar, click Layers to open the Layer pane.

d On the Layers pane, click the World Demographics layer.

Now the layer is unselected.

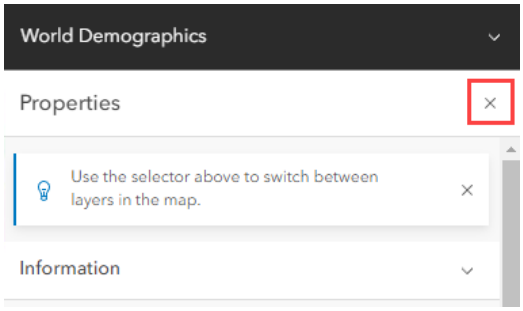
e Click the World Demographic layer again to select the layer.

- Hint

  On the Layers pane, selected layers can be identified by the blue vertical line to the left of the layer name.

When selecting the layer, the layer's properties opens to the right of the map in the Properties pane. The Properties pane contains information specific to the layer and access to display configuration settings.

f Close the World Demographics Properties, as indicated in the following graphic.



The Layers pane indicates that there is only one layer represented in the web map, World Demographics. However, there is also a basemap (https://esriurl.com/ChooseBasemap). All web maps have a basemap.

g On the Contents toolbar, click Basemap.

What is the current basemap in the map?

- Answer

Topographic

h On the Basemap pane, choose a different basemap, and then experiment with several selections, such as Imagery or OpenStreetMap.

i When you are finished exploring the different basemap options, change the basemap back to Topographic.

j Close the Basemap pane.

In this step, you explored the Contents and Settings toolbars, the Layers pane, and practiced changing the basemap. Next, you will begin explore creating a new layer in the map.

- Step 4: Create a sketch layer

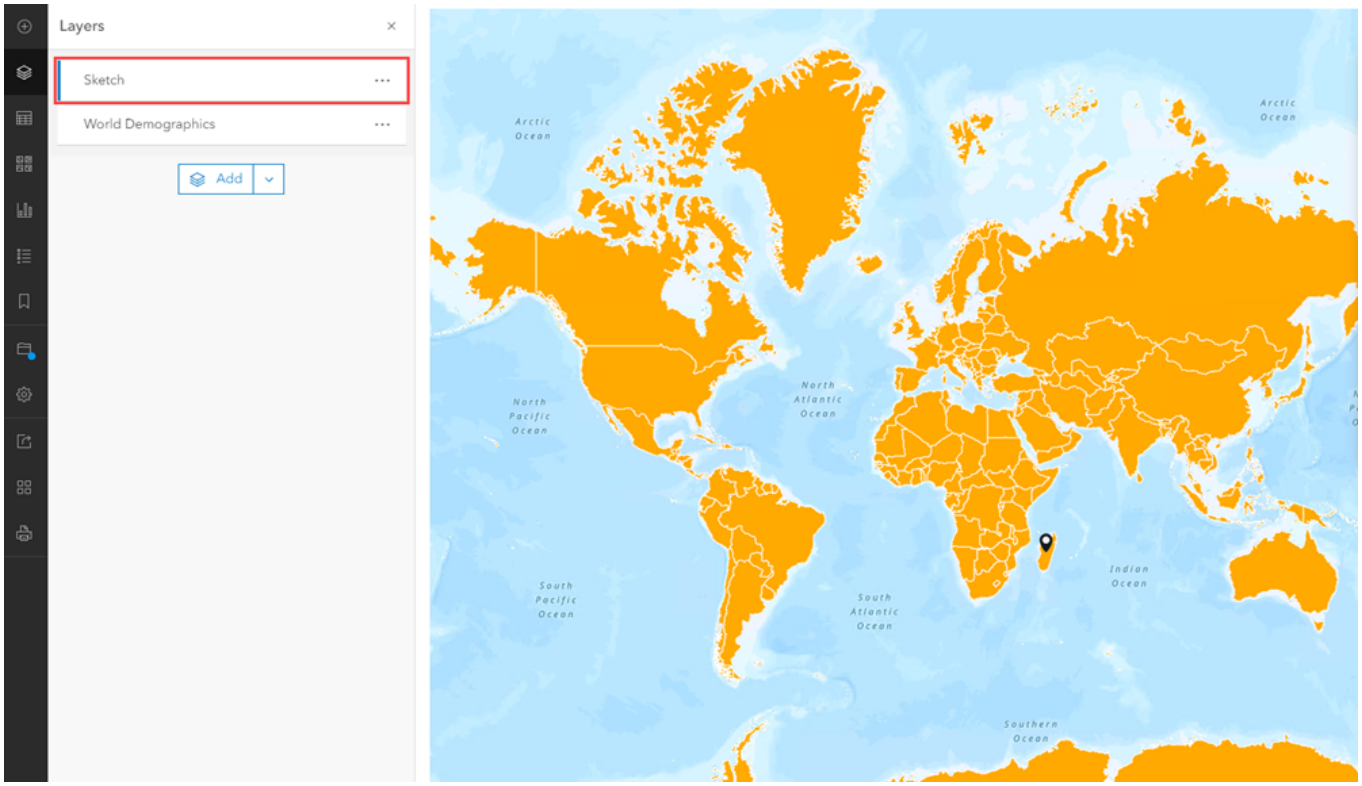
In some situations, it maybe helpful to quickly add descriptive information or features to your map. This can be done by creating a sketch layer.

a On the Settings toolbar, click Add Sketch.

b In the map, click any country to add a vector point stamp.

c On the Contents toolbar, click Layers.

d On the Layers pane, note the new Sketch layer, as indicated in the following graphic.



Now there are two different layers that represent two different datasets within the map; the world demographic data and the sketch feature you created.

e To the left of the Sketch pane, click Text .

f On the Sketch pane, complete the information as follows.

- For Content, type **AOI** for Area of Interest.
- For Size, increase to 25.
- For Color, change to a dark blue, such as hex color #06309e.
- For Halo, click the toggle to enable.

g Click to add the text next to the vector point you added in an earlier step.

*Step 4g***: Create a sketch layer.*

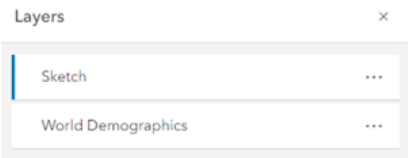
h On the Layers pane, select the Sketch layer and drag it below the World Demographics layer.

i Review the change in the map.

*Step 4i***: Create a sketch layer.*

Layers provide the ability to manipulate how data is displayed in the map, such as the order in which the data is displayed. Because the World Demographics layer is listed first in the Layers pane, its data will be the first layer represented in the map, followed the Sketch layer. Depending on where you created your sketch features in the map, they could be partially or completely covered by the World Demographics layer. At the end of this step, you will delete the Sketch layer as it is no longer needed for the exercise.

j On the Layers pane, reverse the order of the layers so the Sketch layer is listed first.



*Step 4j***: Create a sketch layer.*

k If necessary, on the Layers pane, select the Sketch layer.

l To the right of the Sketch pane, click Sketch .

m Continue exploring creating additional sketch features.

n When finished, to the left of the Sketch pane, click Select by Rectangle .

o Draw a rectangle encompassing all the sketch features.

p On the Sketch pane, click Delete.

q Close the Sketch pane.

r On the Layers pane, for the Sketch layer, click Options ••• and choose Remove to delete the layer.

In this step, you created a sketch layer with numerous sketch features that can be used to quickly add additional information to your map.

- Step 5: Examine locational information

In this step, you will examine locational information. Each point, line, polygon, and pixel on the map is attached to locational information—a latitude and longitude coordinate.

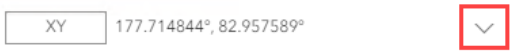
a On the Settings toolbar, click Map Tools and choose Location .

*Step 5a***: Examine locational information.*

b Move your pointer around the map to see how the latitude and longitude details for locations change in the Location pop-up window.

For coordinates in the latitude-longitude system (https://esriurl.com/latlon), the x represents longitude and the y represents latitude. On the globe, the x-axis is the equator, and the y-axis is the prime meridian. Negative x-values, therefore, represent locations in the western hemisphere, while negative y-values represent locations in the southern hemisphere.

c To the right of the XY coordinates, click the down arrow for additional functionality, as indicated in the following graphic.



d Click Add conversion, and choose DMS for the coordinates to read in degrees-minutes-seconds (https://links.esri.com/DMS).

e Move your pointer around the map to compare longitude, latitude (x,y) and degrees-minutes-seconds.

Note that locational information could also be street addresses or any spatial data created with geocoding (https://esriurl.com/geocoding) or by mapping a specific location.

f On the Location toolbar, click Capture Mode .

g Click any location on the map to capture the location's coordinates.

You can also input coordinates to find the location on the map.

h On the Location toolbar, click Input Coordinate .

i For Input Coordinate, type **-117.1825, 34.0556** and press Enter to find Redlands, California, USA.

Next, you will measure areas and distances with the Measurement tool.

j On the Settings toolbar, click Map Tools and choose Measurement .

k On the Measurement toolbar, click the Measure Area button .

l Click a location on the map to start drawing a polygon, click to add any additional vertices, and then double-click the last point to finish the polygon.

The Measurement Result indicates the number of square miles included in the identified area.

Note: You can change the unit of measurement by clicking drop-down and choosing a different unit of measurement.

m Click New Measurement to close the pop-up.

n On the Measurement toolbar, click the Distance button .

o Click the map to place a starting point, and then double-click to place another point and complete the line.

The Measurement Result indicates the distance between the points.

Note: You can change the unit of measurement by clicking the drop-down and choosing a different unit of measurement.

p On the Measurement toolbar, click the Clear Measurement button .

In this step, you explored locational information; exploring map coordinates and recording measurements using the Map Tools.

- Step 6: Inspect the map metadata

Every web map is composed of data layers from one or more web services. Data could be served by national mapping organizations, such as the U.S. Geological Survey or the UK Ordnance Survey; from an international agency, such as the World Health Organization; or from a city government, university, or private company.

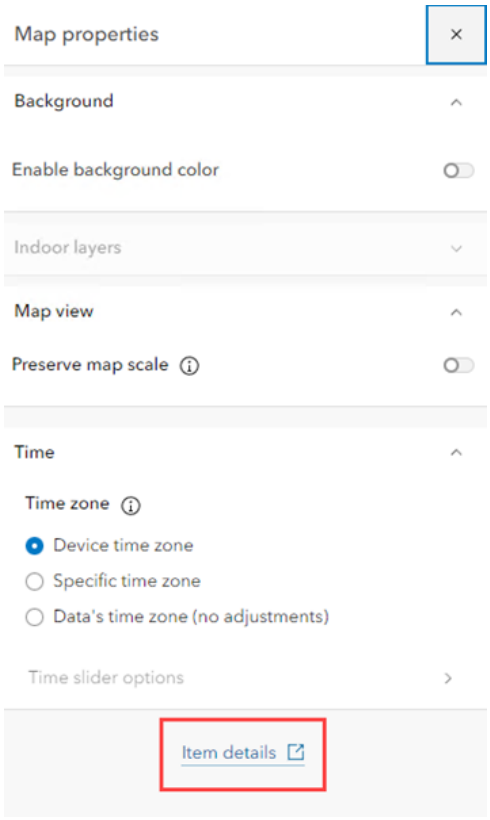
Because of the migration of GIS to the web, anyone can serve mapping data. Therefore, it is more important than ever to assess data quality. Questions that you should consider include which organization created the data, why the data was created, how often the data is updated, do you have permissions to use the data, and at which scale the data was created.

When you are better informed about the quality of the data that you are using, you can make smarter choices about whether and how to use the data.

Information about the map is contained within the metadata.

In this step, you will access metadata in ArcGIS Online to find out who created the demographics data that you are using.

a On the Contents toolbar, click Map Properties, and click Item Details, as indicated in the following graphic.



A new browser tab should open displaying the item details for the map. The item details provides a landing page to review information about the web map. For example, this is where metadata, populated by the author of the map, can be found.

Recall that this map was copied and saved from an existing map. To find more information about the original web map, you will again search for the map in ArcGIS Online.

b At the top of the page, right click Content and choose Open Link In New Tab.

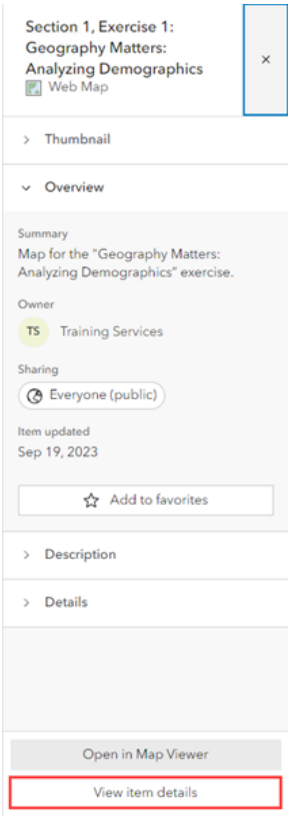
c In the new browser tab, click the Search button at the top of the page, as indicated in the following graphic.

d In the search, type **geography matters owner:EsriTrainingSvc** and press Enter.

e Under Filters, to the right of Only Search In Going Places With Spatial Analysis, click the toggle to turn the option off.

f Click the Section, 1 Exercise 1: Geography Matters: Analyzing Demographics web map owned by Training Services.

g On the left pane, click View Full Item Details, as indicated in the following graphic.



? Where does the data come from?

- Answer

The U.S. Census Bureau International Database (https://www.census.gov/programs-surveys/international-programs/about/idb.html) created the data.

h Return to the browser tab of your map's item details page.

i Update the item details by referencing the information you found in the original map item details page, such as the Description and Credits (Attribution).

- Hint

You can edit item details by clicking Edit next to each item.

j Return to the browser tab of the Map Viewer.

k If you are continuing on to the next exercise, leave the browser window open.

In this exercise, you used your MOOC credentials to login to ArcGIS Online. Using the ArcGIS Online Map Viewer, you explored locational information and created a sketch layer. You also inspected the metadata for the existing World Demographic layer represented in the map.

Published in the United States of America.