This tutorial will teach you how to add data (features and data layers) to the Map Viewer. You will allow learn how to filter data and change the display of your data on your map.

Note: Before you work on this tutorial - you should complete the tutorial *Getting to know the (New) Map Viewer.* This resource goes over the different sections (Contents and Settings toolbars) of the Map Viewer and the tools that are available to you.

Time required: 30-40 minutes

Part A: Adding features to your map

The **Add Sketch** tools on the *Settings toolbar* will allow you to add features to your map like points, lines, polygons, and text. This is a great way to enhance your map by providing additional information to the reader. There are two ways to access the Add Sketch tools.1 - From the *Contents toolbar* – click on **Add** > **Sketch**. 2 - From the *Settings toobar* > **Add Sketch**. In this tutorial, you will use the second method, via the Settings toolbar.

Let's begin by drawing the **Mid-Atlantic Ridge** on your map using the **Add Sketch** tools. Use the image below as a guide.
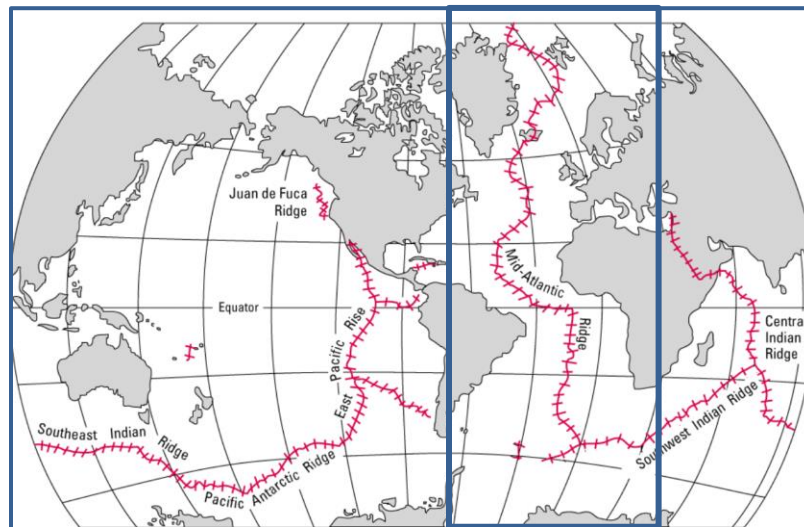

Image of the Mid-Ocean Ridges from USGS https://pubs.usgs.gov/gip/dynamic/baseball.html
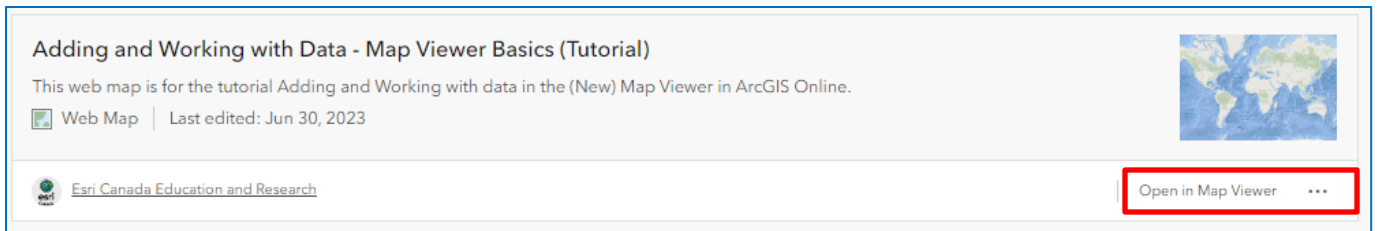
Let's get started!

1. **Sign into ArcGIS Online** at arcgis.com OR through your school account.

2. **Under the Home** tab, **search** for the "Adding and Working with Data arccanada" web map.

   Note: Make sure you deactivate the radio button that only searches in your school organization. We want to search all of ArcGIS Online.

   Filters

   Only search in Education and Research
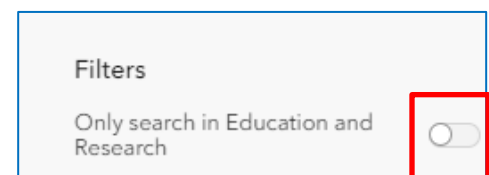
3. In the results window, click on **Open in Map Viewer** under the web map thumbnail.
   Note: If you see Open in Map Viewer Classic on your screen, click on the … and select Map Viewer.

Adding and Working with Data - Map Viewer Basics (Tutorial)

This web map is for the tutorial Adding and Working with data in the (New) Map Viewer in ArcGIS Online.

🖼 Web Map | Last edited: Jun 30, 2023

🌐 Esri Canada Education and Research   Open in Map Viewer   •••

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4. Zoom into the **Mid-Atlantic Ridge**.

5. Go to the *Setting toolbar* and click on **Add Sketch** and **draw the Mid-Atlantic Ridge** on your map using the **Line tool** ∿ . You many need to select **…** to see the Sketch tool.
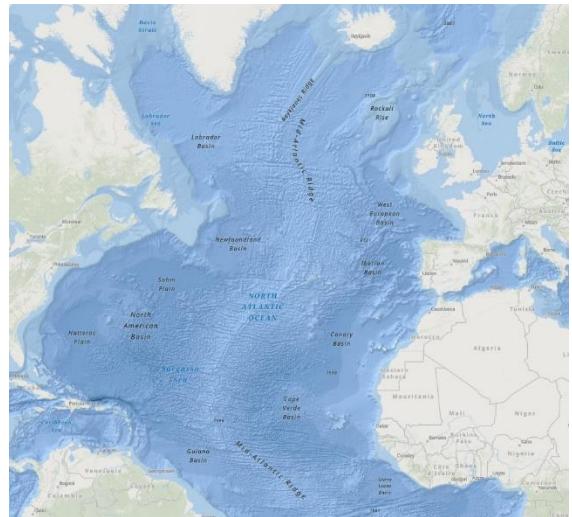
   a. When the tool is selected, click on your map to create your line. Keep clicking or hold the mouse button down and double click to finish the line.

   b. **Editing features** - If you want to edit a line segment, click on the **Select** button and select the line you want to edit on your map. You will see nodes around the line. Select the node that you want to edit and then drag it to a new location to reshape the geometry.

   c. **Delete features** - If you want to delete a line, select the line you want and then click the garbage icon 1 feature 🗑 in the *Sketch* window. If want to delete a group of features, click on the **Select by rectangle** button and draw a rectangle around the features that you want deleted. Then click on the garbage icon to delete them.

   a. Change the **pattern** of your line by selecting **Stroke** in the *Line tool* window options.

   b. You can use keyboard shortcuts to help you draw sketch features, such as lines (https://bit.ly/3wXLpvZ) or polygons (https://bit.ly/3v7daQz) when using the **Add Sketch** tools. The following table lists and describes the available shortcuts:

| Shortcut	Description
Ctrl	Press while drawing to disable snapping. Snapping provides visual guides that help you draw at right angles and draw straight lines, and allows you to place features directly on the edges and vertices of other sketch features.
Enter	Complete drawing.
Z	Undo the last vertex.
R	Redo the last vertex.
Esc	Cancel drawing.

When you have added the Mid-Atlantic Ridge, next you will add a point that represents Iceland.

6. Go to **Add Sketch** and select the **Stamp** button to add a point representing Iceland. There are several options to complete this task:

   c. First select your **Pin** (Symbols section) before you add the *Stamp* to the map. Once you have selected the pin, go to your map and click on Iceland.

   d. Now you will enable a pop-up. They allow you to include information and images to this point. Click on **Pop-up** and then **Enable pop-ups**

   e. Click on **Title** and add an appropriate title.

   f. Click on **Text** and add information about the importance of Iceland in the world of plate tectonics.

   g. If you want to add an image, click **Add Contents** and add your image **URL**. Include additional content in the *Options* section, like a **Title**, **Caption**, **Alternative text** (a short description of an image for people who use screen readers to access websites, apps, and other software) and a link. Click **Done** with you are ready.

7. Close the windows that are opened (both in Settings and Contents toolbars) by clicking the X located on the top right corner.

8. Activate 👁 the **Earth Tectonic Plates** layer.

9. **Hide** 👁 the **Sketch** layer.

10. Click **Save** > **Save As**. Add a title and tags (keywords) to your map.
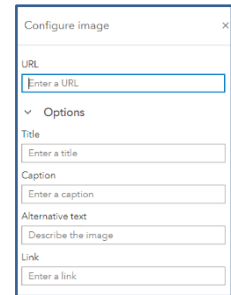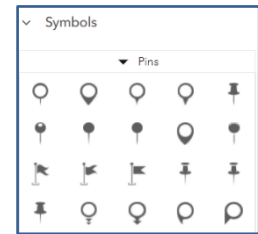
Part B: Adding Layers

ArcGIS Online allows you to create maps by adding layers created and shared by others, as well as your own layers. Let's find out how to search and add a layer to your map.

Search and Add ArcGIS Online data

1. Go to **Layers** (Contents toolbar) and select **Add layer**.

2. Click on the drop down **My Content** and select **ArcGIS Online**.

3. Type in "**ocean depth**" in the **Search bar** and hit **Enter**.

4. Add the layer **GEBCO Depth Zones 2021** by **esri_oceans**.

5. Click on **Legend** and explore the areas where the ocean is **over 6000 metres**.

6. **Hide** 👁 the **GEBCO Depth Zones 2021** layer.
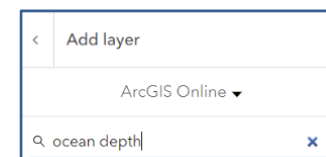
Add layers from a URL

ArcGIS Online allows you to add data from a URL in different formats – like CSV, GeoJSON, and KML to name a few.

You will add GeoJSON earthquake data from United States Geological Survey (USGS) to your map. GeoJSON is an open standard geospatial data interchange format that represents simple geographic features and their nonspatial attributes.

7. Go to the **USGS website** https://on.doi.gov/3i9qbmA to find the URL for the earthquakes that occurred in the last 30 days in GeoJSON format.

8. Once you are on the website, explore until you find "**Past 30 days**" and click on the link "**All earthquakes**". A new tab will open on your browser. **Copy the URL**.

9. Go back to the **Map Viewer** screen.

10. Go to **Add.** Under **Browse layers**, select **Add layer from URL. Paste the link from USGS** in the space provided. In the *Add Layer* window, click **Add to map**.
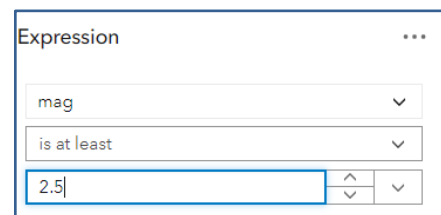
Note: When adding layers to your map, you may have to change the position they are in, so that you can view all the layers at one time.

Q Browse layers
⊕ Add layer from URL
⬚ Create Sketch layer
⊠ Add media layer
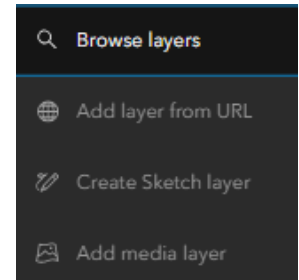
Part C: Filtering Data

The Filter tool allows you to create a subset of your data based on an expression. You will filter the USGS earthquake data to show **earthquakes that had a magnitude of at least 2.5**.

1. Go to the *Settings toolbar* and select **Filter** to create your expression.

   a. Click on **+ Add expression**.

   b. Change the first option with the drop down to **"mag."**

   c. Leave **"is at least"** in the second drop down

   d. **Type 2.5** in the third drop down.

   e. Click **Save**.

Expression	⋯
mag	⌄
is at least	⌄
2.5	⌃⌄ ⌄

Note: If you want to delete a filter, go back to the **Filter** window and click on **Remove filter** 🗑 and click **Save**.

2. Change the layer name to "**Earthquakes at least magnitude of 2.5 in the last 30 days (date)**."

Part D: Changing the Display of your Data

The **Styles** tool allows you to display data on your map in many ways. Data can be displayed based on an attribute (field), an expression, or as a single symbol.

Change the style of the data on your map to display by earthquake magnitude.

1. Click on **Styles** in the *Settings* toolbar.

2. You can change the colour of the symbol that represents each earthquake. Click on **Style options**.

3. Click on the **pencil** next to **Symbol style** to open your options.

4. Select your colour or go to **Custom color** to pick something else.

5. Click **Done** to display the data based on the magnitude of the earthquake.
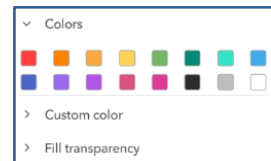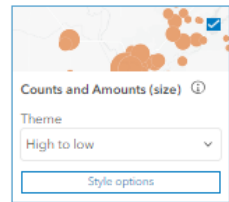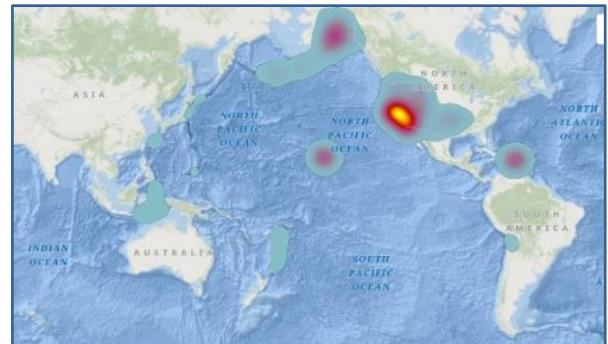
Heat Maps

Heat maps use the points in a layer to calculate and display the relative density of points on the map as smoothly varying sets of colors ranging from cool (low density of points) to hot (many points). This is an option in the Styles tool.

6. Go back to **Styles** and choose **Heat Map**.

7. Click **Done** to make the changes to your map.

8. **Save** your map.
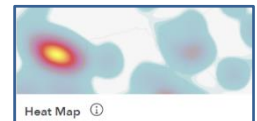
You have now completed the *Adding and Working with Data in the Map Viewer* tutorial.