

FIND THIS WEBSITE AT bit.ly/shad-mapping-2023

Before starting this section, make sure you've completed all tasks in the [Preparation](#) page and completed [Lesson 1: Intro to GIS](#).

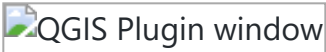
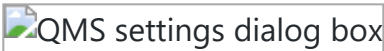
Lesson 2: Mapping our data

In this lesson, you will build on the skills gained during [lesson 1], to create a map that shows the outcome of our outdoor spaces assessment.

Task 0: Download our data set

- Download our `outdoor-space-data.csv` file (as a zip file) using [this link](#). This file is hosted on our [workshop GitHub repository](#).
- Download the data into the same working directory as the first exercise.
- **UNZIP THE FILE.** This is very important--otherwise, weird things are going to happen for you.

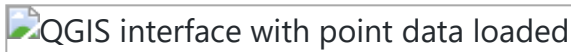
Task 1: Open a new project, add a plugin and a web base map

- Open a new project. Set the project CRS to `EPSG 3857: WGS84 - Pseudo Mercator projection`
- In this next step, we want to add a web map as a base map upon which to show our data. To do this, we need to install a plugin from the built-in plugin manager
 - As an open-source project QGIS has a lot of community-contributed Plugins that extend its functionality. Over time, many of these plugins find their way into the core software.
- Install the QuickMapServices plugin:
 - In the top menu bar, click on `Plugins > Manage and Install Plugins`.
 - In the Plugins dialogue box, search for and install the **QuickMapServices** plugin.
 -  QGIS Plugin window
 - To allow us to add additional web layers, on the top menu, click `Web > QuickMapServices > Settings`. Go to the **More Services** tab and click **Get contributed pack**. Close the window.
 -  QMS settings dialog box
 - While the Plugin window is open, also install the **qgis2web** plugin.
 - Once the plugins are installed, close the plugins window.
- Add a web base map to your data frame:
 - In the top menu bar, click on `Web > QuickMapServices`.
 - Explore and add a base map of your liking. Choose a web map for your base map (e.g. check out the OSM, Stamen, and CartoDB maps)

- Be sure to right-click and `Remove Layer` for any layer you don't want to use.

Task 2: Add our data file, turn it into a spatial layer

- In the top menu, click on `Layer > Add Layer > Add Delimited Text Layer...`
- Browse to the `outdoor-space-data.csv` file, select and Open it.
- Enter the following information:
 - **File Format:** CSV
 - **Geometry Definition:** X field : Longitude ; Y field : Latitude .
 - **Geometry CRS:** EPSG:4326 - WGS 84
- Click **Add**. When prompted about a transformation, just click OK.
- Our survey points should now show on the map in the expected locations (i.e. McMaster University).



Task 3: Stylize symbols to communicate the suitability score and size of the plot

- Ensure that the `outdoor-space-data` layer is above your web map in the **Layer panel**.
- Right click the `outdoor-space-data` layer and select `Properties`. Click on the `Symbolology` tab
- In the top dropdown menu, change to `Graduated`
- In the **Value** dropdown, select a measure of interest (i.e. Suitability Score)
- In the **Symbol** area, click the current symbol to change it.
 - In the symbol dialogue box, click the more options icon beside the **Size** setting.
 - Select `Edit`. In the Expression box, enter `"Num Seats" / 40` -- this will scale the size of the marker to the number of seats that are available at the location.
 - Click OK
- Select a Color ramp from the dropdown menu. Be thoughtful with your colour selection: think about what kind of message/sentiment do your selected colours convey. Is it aligned with what you're communicating in your map?
- Click `Classify` and observe that 5 classes are created. Click **Apply** to see the changes on the map.
- Click OK on the Properties box.
- In the `Layer Rednering` box, edit the transparency of this layer so that the webmap beneath shows a bit.
- Click OK to exit the layer properties dialog box.

Task 4: Add other layers (if desired)

- If you would like to augment your map with other data, add Hamilton Open Data layers and style them appropriately.

Task 5: Compose your map

- Zoom the main data frame to the approximate desired extents for your map.
- Click on the **New Print Layout** button to open the map creation window.
 - Give your map a name when the dialog box comes up.
- In the map composer, add the critical elements of a map:
 - Click the **Add new map** button and then draw a box to specify your map's extent on the page. This will draw the contents of your data frame onto the map.
 - Use the **Move Item Content* button to change the extent and zoom. Click "Update Preview" in the "Main Properties" box to regenerate preview.
- With the map content selected, go to **Item Properties** and add a frame (if desired), a grid, or both.
- See [this video](#) for some examples of how to style the map.

Task 6: Annotate the map

- Use **Add New Labels** button to add any desired labels (Use "Item Properties" tab to control font size, colour, background)
- Use the **Add North Arrow** button to add a North arrow
 - With the north arrow selected, scale it to the right size
 - Go to > **Item Properties** to select symbol different than the default.
- Use the **Add Label** button to add a title. Include the creator name and creation date
- Use the "Add legend" button to insert a legend, if desired.
 - With the legend selected, click the "Item Properties" tab, rename and rearrange the legend items
- Use the **Add Scale Bar** tool to insert a scale bar
 - Drag the bar to the desired location and size. Edit other details in the **Items Properties** box, if desired.
 - Set units to Meters, and Label to "m" (if not already done for your)
 - Select desired number of segments,

Task 7: Export the map to an image file

- In the map composer, use either the **Export as image** or **Export as PDF** buttons to export the map in the desired format to a desired directory.

Task 8: Save your project

- Save your project and close the map composer window. Keep your project open in the main QGIS interface.

Are you ready for your final challenge? Head to the [next lesson](#) to learn how to create and publish a webmap using QGIS and GitHub!