Covid-19 Schools lockdown learning package

With governmental advice and regulations surrounding COVID-19 changing daily, this instructional guide, designed for teachers and students alike, allows you to create your own ArcGIS Online map and dashboard using up-to-date global data. This guide will take approximately two lessons to complete.

This package includes:

- A Story Map – <u>Tracking Coronavirus Globally</u> – for an overview on its origin and spread, and the control measures countries have taken in response to the pandemic.
- Instructions on how to create a COVID-19 map and operational dashboard.

Looking at existing COVID-19 maps and dashboards

A number of informative and interactive maps have been released in light of the spread of COVID-19. Of the maps created so far, Johns Hopkins University's has been shared extensively. Johns Hopkins has been sourcing data from a range of global health authorities including the World Health Organisation (WHO) and the Centers for Disease Control and Prevention (CDC).

To view Johns Hopkins COVID-19 Map and Dashboard click <u>here</u>.

Finding your COVID-19 data

Regularly updated data is made available from a number of data sites and health authorities, the most notable being the World Health Organisation and the Johns Hopkins University.

In this instance, we sourced our data from a <u>link</u> provided by <u>Our World In Data</u>. This data has been collected by Johns Hopkins University and has been made available by the researchers.

1. Visit this <u>link</u> to take you to COVID-19 data.
2. At the top of the page, there are several folders. One is titled **csse_covid_19_daily_reports**. Click on this folder.

Ryan Lau update		Latest commit f6409a1 2 hours ago
..		
csse_covid_19_daily_reports	Automated upload	3 hours ago
csse_covid_19_time_series	update	2 hours ago
README.md	DP	21 days ago

3. Find the latest upload. Remember, as this data is coming from America, the upload date reads as MM/DD/YYYY. In this case, we have accessed data from the 22nd of March 2020.

03-20-2020.csv	Automated upload	2 days ago
03-21-2020.csv	Automated upload	yesterday
03-22-2020.csv	Automated upload	3 hours ago

4. Copy the data by holding the left mouse button down and highlighting all data. Double-check that all rows and columns are highlighted from top to bottom. To copy the data, **right-click** on a highlighted piece of data and select **Copy**. Alternatively, press **CTRL + C**.

	Province/State	Country/Region	Last Update	Confirmed	Deaths	Recovered	Latitude	Longitude
1	Province/State	Country/Region	Last Update	Confirmed	Deaths	Recovered	Latitude	Longitude
2	Hubei	China	2020-03-22T09:43:06	67800	3144	59433	30.9756	112.2707
3		Italy	2020-03-22T18:13:20	59138	5476	7024	41.8719	12.5674
4		Spain	2020-03-22T23:13:18	28768	1772	2575	40.4637	-3.7492
5		Germany	2020-03-22T23:43:02	24873	94	266	51.1657	10.4515
6		Iran	2020-03-22T14:13:06	21638	1685	7931	32.4279	53.6880
7	France	France	2020-03-22T23:43:02	16018	674	2200	46.2276	2.2137
8	New York	US	2020-03-22T22:13:32	15793	117	0	42.1657	-74.9481
9		Korea, South	2020-03-22T11:13:17	8897	104	2909	35.9078	127.7669
10		Switzerland	2020-03-22T23:13:18	7245	98	131	46.8182	8.2275
11	United Kingdom	United Kingdom	2020-03-22T22:43:03	5683	281	65	55.3781	-3.4360
12	Netherlands	Netherlands	2020-03-22T14:13:10	4204	179	2	52.1326	5.2913
13		Belgium	2020-03-22T14:13:06	3401	75	263	50.5039	4.4699
14		Austria	2020-03-22T23:43:02	3244	16	9	47.5162	14.5501
15		Norway	2020-03-22T23:13:18	2383	7	1	60.4720	8.4689

5. Open an Excel spreadsheet, and paste the data into the spreadsheet by pressing **right-click** and **Paste** or **CTRL + V**.

	A	B	C	D	E	F	G	H	I
1	Province/State	Country/Region	Last Update	Confirmed	Deaths	Recovered	Latitude	Longitude	
2		Hubei	China	2020-03-22T09:43:06	67800	3144	59433	30.9756	112.2707
3			Italy	2020-03-22T18:13:20	59138	5476	7024	41.8719	12.5674
4			Spain	2020-03-22T23:13:18	28768	1772	2575	40.4637	-3.7492
5			Germany	2020-03-22T23:43:02	24873	94	266	51.1657	10.4515
6			Iran	2020-03-22T14:13:06	21638	1685	7931	32.4279	53.688
7		France	France	2020-03-22T23:43:02	16018	674	2200	46.2276	2.2137
8		New York	US	2020-03-22T22:13:32	15793	117	0	42.1657	-74.9481
9			Korea, South	2020-03-22T11:13:17	8897	104	2909	35.9078	127.7669

6. NOTE: Upon pasting your data in, the columns have not aligned correctly. Each column has moved across a column. This needs to be rectified. The simplest way to do this is to move the titles across the first row across to the right by one cell. Then delete Column A as it should now be blank.

	A	B	C	D	E	F	G	H	I
1	Province/State	Country/Region	Last Update	Confirmed	Deaths	Recovered	Latitude	Longitude	
2	Delete	Hubei	China	2020-03-22T09:43:06	67800	3144	59433	30.9756	112.2707
3	Column A		Italy	2020-03-22T18:13:20	59138	5476	7024	41.8719	12.5674
4	once you		Spain	2020-03-22T23:13:18	28768	1772	2575	40.4637	-3.7492
5	have		Germany	2020-03-22T23:43:02	24873	94	266	51.1657	10.4515
6	moved		Iran	2020-03-22T14:13:06	21638	1685	7931	32.4279	53.688
7	titles	France	France	2020-03-22T23:43:02	16018	674	2200	46.2276	2.2137
8	across.	New York	US	2020-03-22T22:13:32	15793	117	0	42.1657	-74.9481
9			Korea, South	2020-03-22T11:13:17	8897	104	2909	35.9078	127.7669

It should now look like this:

	A	B	C	D	E	F	G	H
1	Province/State	Country/Region	Last Update	Confirmed	Deaths	Recovered	Latitude	Longitude
2	Hubei	China	2020-03-22T09:43:06	67800	3144	59433	30.9756	112.2707
3		Italy	2020-03-22T18:13:20	59138	5476	7024	41.8719	12.5674
4		Spain	2020-03-22T23:13:18	28768	1772	2575	40.4637	-3.7492
5		Germany	2020-03-22T23:43:02	24873	94	266	51.1657	10.4515
6		Iran	2020-03-22T14:13:06	21638	1685	7931	32.4279	53.688
7	France	France	2020-03-22T23:43:02	16018	674	2200	46.2276	2.2137
8	New York	US	2020-03-22T22:13:32	15793	117	0	42.1657	-74.9481

7. In order to import your data into ArcGIS Online, you must remove spaces from the titles e.g. 'Last Update' needs to become 'Last_Update' and 'Province/State' needs to become 'Province_State'.

Province_State	Country_Region	Last_Update	Confirmed	Deaths	Recovered	Latitude	Longitude

8. Save your spreadsheet as a CSV file. Go to **File** > **Save as**. When creating a title for your data, avoid using hyphens. Change the file type to **CSV (Comma delimited) (*.csv)**.

COVID_19_data_CSV_file

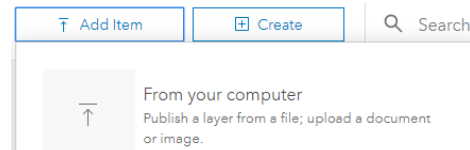CSV (Comma delimited) (*.csv) ▼ | 🖫 Save

10. Save the spreadsheet into a location of your choice.

Uploading your data to ArcGIS Online

You have found your data and prepared your spreadsheet. It is now time to import that data into ArcGIS Online.

1. Sign into ArcGIS Online using your login details.
2. Go to **Content** and select **Add Item** at the top of the page.
3. Select **From your computer**.

⬆ Add Item | ⊞ Create | 🔍 Search

⬆ From your computer
Publish a layer from a file; upload a document or image.

esri Australia

4. Browse for your CSV data file. Enter a title and tags.

Title:

COVID_19_data_CSV_file

Categories:

+ Assign Category ⌄

Tags:

Add tags

5. Keep the checkbox ticked for **Publish this file as a hosted layer**.

☑ Publish this file as a hosted layer. (Adds a hosted layer item with the same name.)

6. Choose to Locate feature by **Coordinates**.

Locate features by:

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

7. Review the field types and location fields. Ensure that under **Field Name and Location Field** Latitude and Longitude match up. If not, click on the location field to change it (See image below).

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

Field Name	Field Type	Location Fields
Recovered	Integer	Not used
Latitude	Double	Latitude
Longitude	Double	Longitude

Time Zone: (UTC) Coordinated Universal Time ▼ ⑦

8. **Add Item**.

Add Item | Cancel

9. A new page, with information about the **hosted feature layer** for your data, will appear. Select **Open in Map Viewer**.

Open in Map Viewer ⌄

10. Your data will appear after a moment on the map

Styling your data

Now it is time to select what data you want to display on your map and style it to your requirements.

1. When your data is imported into ArcGIS, a **Change Style** panel appears.
   a. If this does not appear, go to the **Details** tab, select **Content** and hover over your data layer.
   b. Select the **Change style** icon .
2. **Choose an attribute to show** from the drop-down box. In this case, we will choose to show 'Confirmed' cases of COVID-19.

esri Australia

3. Under **Select a drawing style**, select **Counts and Amounts (Size)** and then press **Options**.

Change Style
COVID-19 data CSV file

1 Choose an attribute to show

Confirmed

Add attribute

2 Select a drawing style

Counts and Amounts (Size)

OPTIONS
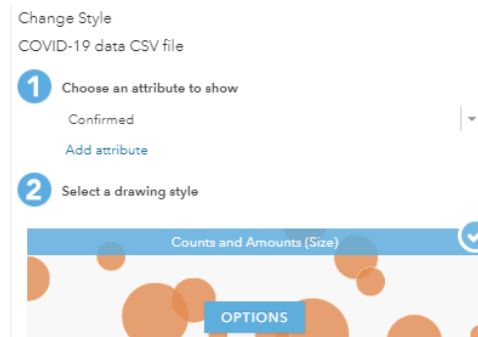
4. Click the checkbox to enable **Classify Data**.

5. Choose **Natural Breaks** with **5** classes.

6. Click on **Symbols** or **Legend** to change the symbol image or the colour.
   a. You can have a different colour for each class size if desired.

7. Make the symbols slightly transparent so that you can see country names underneath each symbol on the map.

8. Press **OK**.

9. Press **DONE**.

Confirmed

Divided By: None

67,800

Symbols

Legend

28,768

8,897
3,401
712

$\bar{x}$

0

Size

Min 8 px   Max 50 px

☑ Classify Data

Using Natural Breaks

With 5 classes

Round classes: Select an option

☐ Draw features with out of range or no value.
☐ Rotate symbols (degrees)

Transparency

Overall

OK   CANCEL
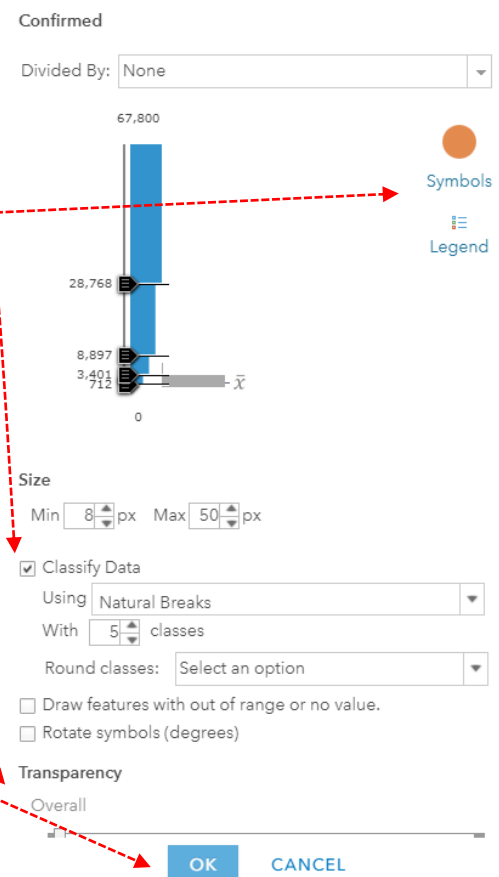
10. Go to **Basemap** and select **Dark Gray Canvas** or **Light Gray Canvas**. This may be a more appropriate option than an **Imagery** or **Topographic** basemap as they canvas options draw attention to your data.
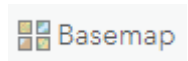
Your map should now look like this:
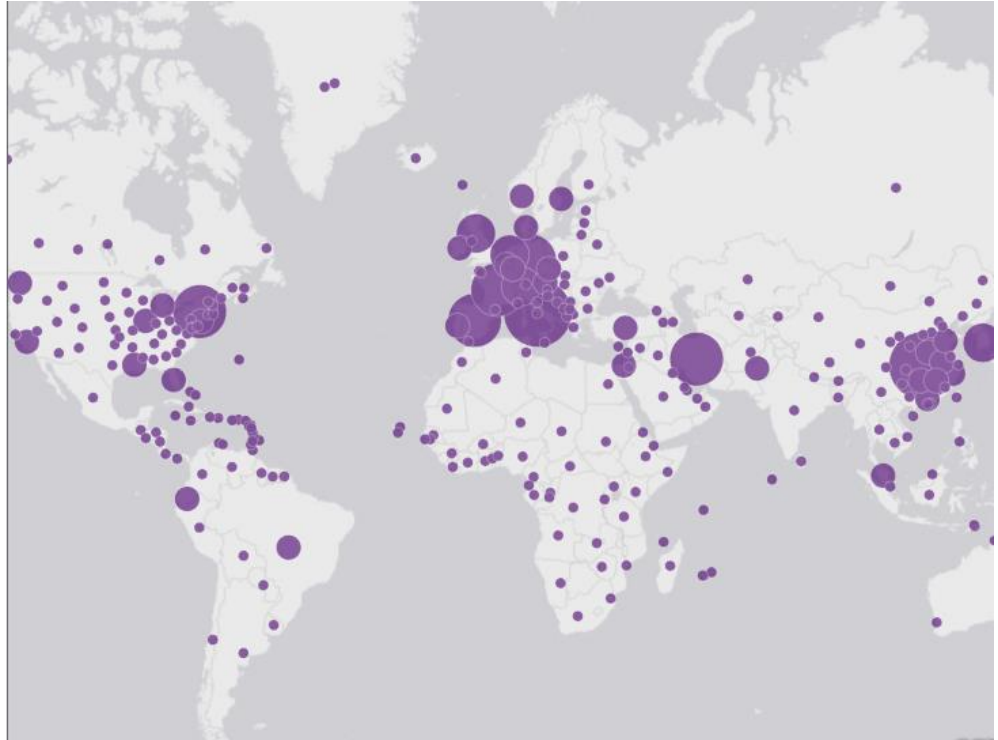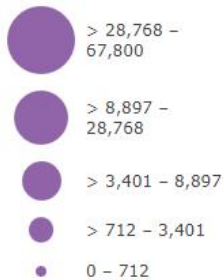
11. Remember to **Save** your map.

esri Australia
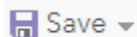
Creating a Dashboard for your map

You are nearly finished. Now you will add a Dashboard to your map so that those that view your map can quickly obtain important information like COVID-19 Deaths, countries affected or hardest-hit countries.

1. Have your newly created COVID-19 map open in ArcGIS Online.
2. Select **Share**. Share
3. Select **Create a Web App**. CREATE A WEB APP
4. Select **Operations Dashboard** and fill out the required fields. Press **Done**.

Create a New Web App

| Configurable Apps | Web AppBuilder | Operations Dashboard |

To create a new app with Operations Dashboard, enter a title, tags, and summary.

Title: COVID-19 cases 22-Mar-2020

Tags: COVID-19 ✕ disease ✕ pandemic ✕ data ✕
Add tags

Summary: (Optional) Enter a summary

Categories: + Assign Category ∨

Save in folder: jlovejoy_GIS_For_Schools

5. Personalise your dashboard by selecting the **+** sign drop-down menu. + ▽
6. Begin by adding a **Map Legend**. ≡ Map Legend
7. Style your legend by adding a title, description, text colour or background colour. Think about the other colours and basemap of your map.
8. Then select **Done**.

Appearance

Title   ✎ Edit

Description   ✎ Edit

Text Color   ■

Background Color   □

9. You can change the size of the Legend Pane by dragging the border to a desired size.

10. Add more to your dashboard by selecting the **+** sign drop-down menu. Start by adding a Pie Chart (showing Deaths), Details (showing how each country has been affected), and a Header for your dashboard.

11. You can drag your panels into different places by hovering over the panel. A little blue box will appear in the top left corner. By hovering over this blue box you can drag the panel, edit the contents of the panel, duplicate the panel or delete it.

12. At this stage, it is completely up to you about how you want your Dashboard to appear.

13. Remember to **Save** as you go.

Once finished, it will look similar to this:
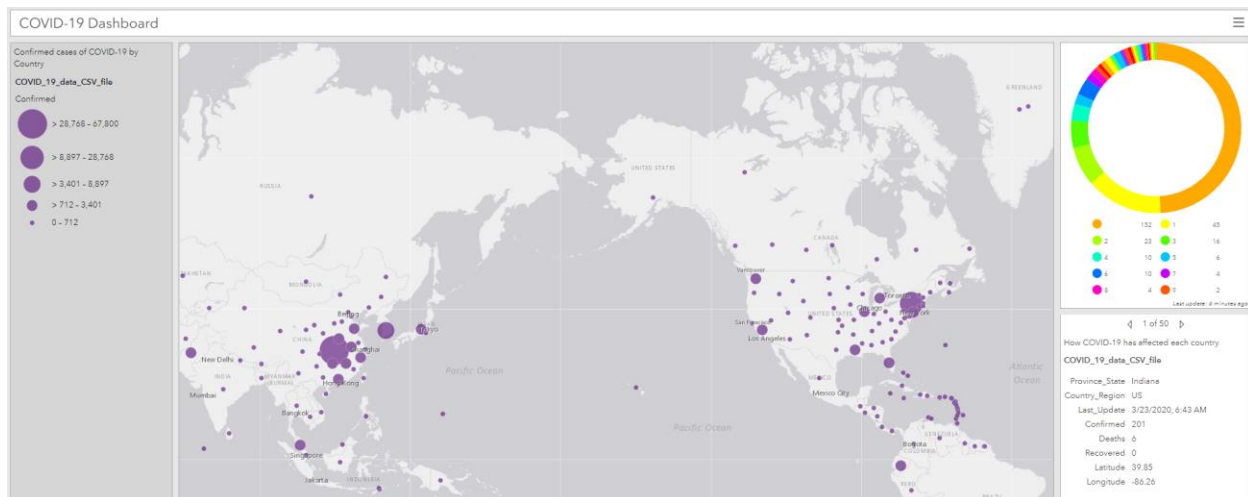
Congratulations

Well done! You have sourced your own data, correctly formatted a CSV spreadsheet, imported and styled the data appropriately on ArcGIS Online, and created an Operations Dashboard.

To learn more about COVID-19 you can visit our Story Map – Tracking Coronavirus Globally – for an overview on its origin and spread, and the control measures countries have taken in response to the pandemic.