

Exercise

Locate Areas of High Organic Food Preference

Section 4 Exercise 1

April 2, 2021

Locate Areas of High Organic Food Preference

Instructions

Use this guide and ArcGIS Online to reproduce the results of the exercise on your own.

Note: ArcGIS Online is a dynamic mapping system. The version that you will be using for this course may be slightly different from the screen shots you see in the course materials.

Time to complete

Approximately 75-90 minutes

Technical note

To take advantage of the web-based technologies available in ArcGIS Online, use the latest version of Google Chrome, Mozilla Firefox, Apple Safari, or Microsoft Edge. Other browsers may not display your maps and apps correctly.

Introduction

In this exercise, you will learn more about using geo apps for communities. In this case, you will analyze organic food spending and usage habits among adults in one area of California. You will first create a geo app from an existing map that has been shared with you. Then, you will author a web map in ArcGIS Online using layers from [ArcGIS Living Atlas of the World](https://bit.ly/2v5KydP) (<https://bit.ly/2v5KydP>) and Esri demographic data. You will publish that web map as a geo app using ArcGIS Web AppBuilder. Finally, you will explore how to create an app using ArcGIS Experience Builder.

As you work through the exercise, feel free to explore and customize your app as you see fit. As always, keep in mind the basic workflow of working with a web layer, using it in a web map, and then sharing as a web app.



Part I - Guided

The exercises in most of this course are split into two parts: Guided, which provides step-by-step instructions; and Do-It-Yourself, which allows you to explore further and build your own geo apps.

Step 1: Use a template to instantly create a web app

Ready to take the next step?



Make sure that you have completed step 1 of *Section 1 Exercise 1: Find Amenities in Denver, CO*. You'll need to use your provided course ArcGIS credentials to complete all the exercises in this course.

Note: Due to changes planned for the ArcGIS Online April 2021 update, the interface shown in screen shots may differ slightly from what you see on-screen.

First, you will create a web app using an ArcGIS Instant Apps template using the Express Setup option. You will start by searching for an existing web map. You can create apps from maps that you created as well as from maps that others have created and shared with you in ArcGIS Online.

Note: (Optional) After April 13, 2021, you are welcome to practice the new workflow by performing the following steps:

- Click the App Launcher button and choose Map Viewer.
- On the Contents toolbar on the left, click Open Map.
- In the Open Map pane, click the My Contents down arrow and choose ArcGIS Online.
- In the search field, type **organic food Encinitas owner:EsriTrainingSvc**.
- On the Households That Use Organic Foods Near Encinitas, CA web map, click the Open Map button.
- On the Contents toolbar on the left, click Save.
- On the Contents toolbar on the left, click Create App.
- In the pop-up window, click Instant Apps.
- In the Instant Apps gallery, choose Interactive Legend.
- In the Create App Interactive Legend window, in the Title field, type **Households That Use Organic Food Near Encinitas, CA**.
- Click the Configure App button.
- Proceed directly to Step 1n.

- a** Open a new private (or incognito) web browser tab or window.

We recommend that you open a private or incognito browser window whenever you need to work in ArcGIS Online to help prevent conflicts with your accounts.

- b** Browse to arcgis.com and sign in to ArcGIS Online using your course credentials.

Note: Step 1 of the Section 1 Exercise 1 PDF explains how to determine your ArcGIS credentials (user name and password) for this course. If you have trouble signing in, please go to the Help tab in the MOOC platform.

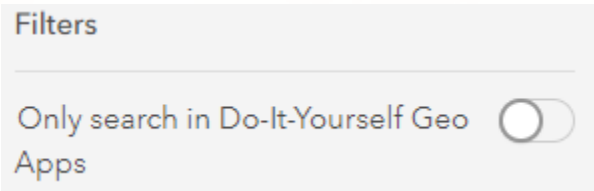
- c** In the upper right, click the Search button .

You will search ArcGIS Online for an existing web map. The web map is owned by EsriTrainingSvc, so you will use the owner field to narrow your search. Because the item is owned by someone outside of the Do-It-Yourself Geo Apps organization, you will need to disable the option to only search in this organization.

- d** In the search field, type **organic food Encinitas owner:EsriTrainingSvc**.

Note: EsriTrainingSvc is case sensitive.

- e On the left, turn off the Only Search In Do-It-Yourself Geo Apps option.



- f Click the name of the web map Households That Use Organic Food Near Encinitas, CA to view the item details.



This web map shows the number of households in the Encinitas, CA, area that have used organic food in the past 6 months. You will create an app from this map.

- g On the right, click Create Web App and choose Configurable Apps.

You will use one of the ArcGIS Instant Apps templates that supports Express Setup, the latest app configuration experience. Express Setup allows you to quickly build your app using a streamlined configuration process.

- h If necessary, In the Create A Web App window, under What Do You Want To Do, click the Use Instant Apps tab.

*Note: If you do not see the Use Instant Apps tab, in the search field, type **Express Setup** , and then press Enter.*

- i Select Interactive Legend.

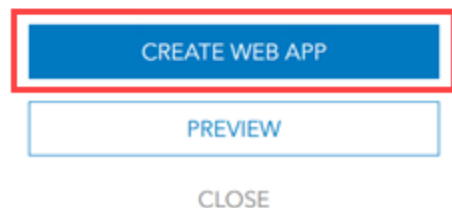
The Interactive Legend app allows users to click categories or ranges defined in the legend so that they can either explore the map holistically or focus on the categories that are most relevant to them.

- j Click Create Web App.



Interactive Legend

Modify the features represented on the map by interacting with elements on the legend.



The title and tags were carried over from the map. So that your map has a unique name, you will add your first and last names to the title.

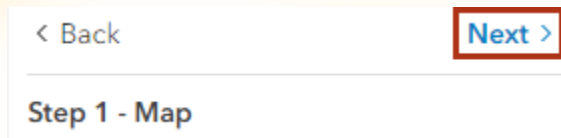
- k In the Title field, add an underscore and your first and last names to the end of the title.
- l In the Summary field, type an appropriate summary, such as **Geo app showing households that use organic food.**
- m Click Done.
- n In the Welcome To The New App Setup Page message, click Next to review the contents, and then click Got It.

You will use the Express Setup option. This option allows you to configure the most essential settings, getting you from map to published app as quickly and efficiently as possible. You can always configure the app beyond these essential settings by switching to the Full Setup option, which contains all of the available configuration options. You can learn more about Express Setup in this [blog](https://bit.ly/3gGkZDA) (<https://bit.ly/3gGkZDA>).

- o On the left, click Step 1. Map to expand the step.

The web map that you searched for, Households That Use Organic Food Near Encinitas, CA, is set as the map.

- p Click Next.



Clicking Next takes you to the second step, where you can provide the title of your app and enable an introduction panel that displays when the app first loads.

- q If you would like, change the title of your application and add an introduction panel.

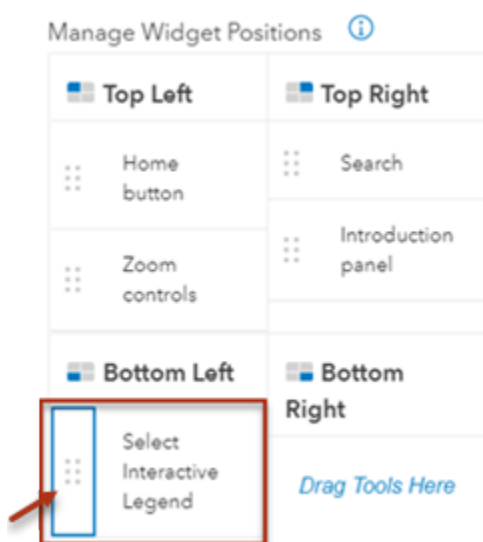
- r Click Next.

Clicking Next takes you to the third step, where you can configure the way in which users interact with the app.

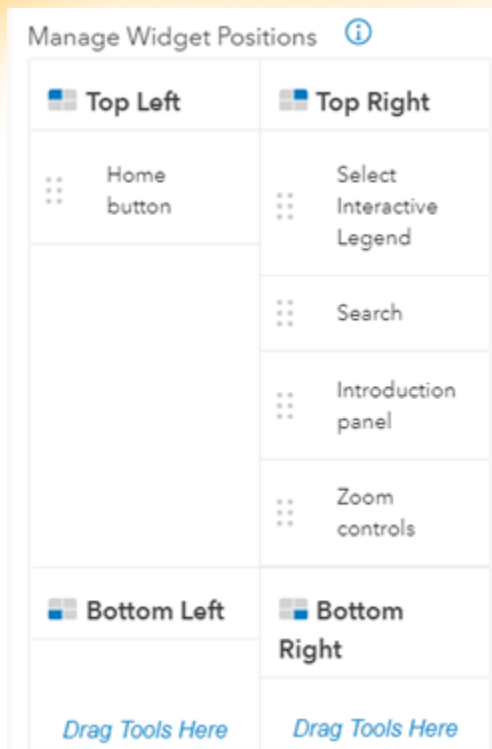
- s Feel free to explore these options, and then click Next.

This final step allows you to configure the theme and layout.

- t Under Manage Widget Positions, for the Select Interactive Legend widget, click the handle icon on the left side of the widget.



- u Drag the Select Interactive Legend widget beneath Top Right to change where the legend appears in the app.



- v After you have changed the settings in this step as desired, you will preview how your app will look on different devices. You can preview your app in a mobile layout and familiarize yourself with the mobile experience without having to actually open the app on a device. The Views option allows you to preview your app in Mobile view with both portrait and landscape orientations.
- w Below the preview of your app, click through the different Views options.



Any changes to the app configuration are automatically saved in the app's draft. You will notice the purple Draft badge at the bottom of the page. You will now publish the app.

- x At the bottom left, click Publish, and then click Confirm.

After publishing your app, you are provided with options for sharing the app.

You will also notice that, at the bottom of the page, there is now a green Published badge.

- y In the Share dialog box, leave the default options and click Launch to open your app.

Your app opens in a new web browser tab.


- z In the legend on the right, click different combinations of categories to see how the map updates.

In this step, you started with an existing map and quickly created a geo app using the Interactive Legend template with the Express Setup option.

Step 2: Add data to a web map

In this step, you will create and add data to a web map. You will then use this web map to create a geo app with ArcGIS Web AppBuilder. You will be performing analysis, so you will use Map Viewer Classic instead of Map Viewer. Support for ArcGIS Online spatial analysis tools will be added in a future release of Map Viewer. You can see when features will be added to Map Viewer on this [road map](https://bit.ly/2YI7cfE) (<https://bit.ly/2YI7cfE>).

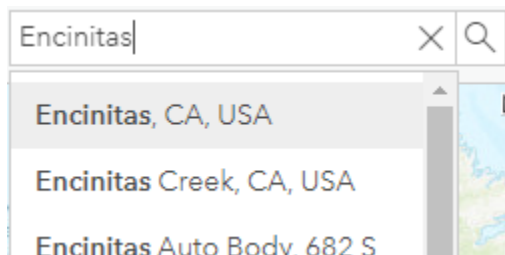
You will close your app and open a map.

- a In your web browser, close the tab with your Interactive Legend app and return to the app configuration.
- b In the Share dialog box, click Close.
- c At the top right of the page, click the App Launcher button .
- d From the gallery of apps displayed, click Map Viewer Classic.

Note: If you do not see Map Viewer Classic, close the App Launcher. At the top left of the page, click the Menu button, and then click Map.

If a web map that you were working on outside of this exercise loads, save that map, and then click New Map.

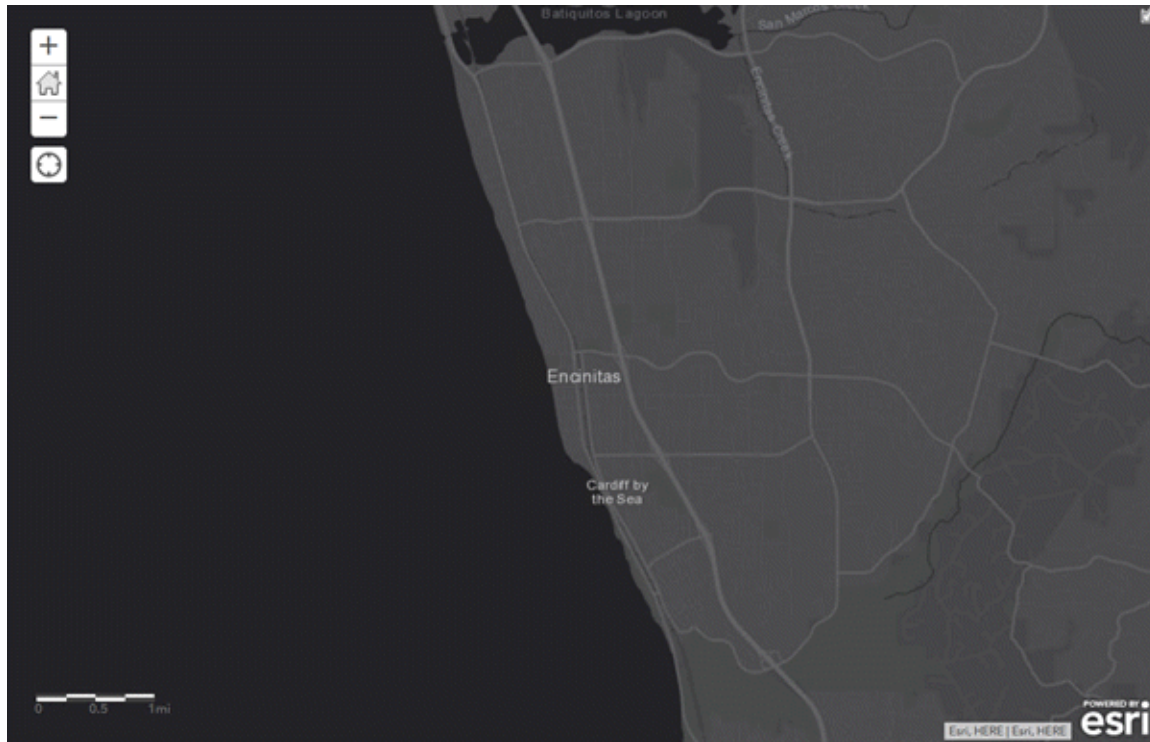
- e In the Find Address Or Place search field at the top right, start typing **Encinitas, CA**, and from the drop-down list, choose the Encinitas, CA, USA result.



- f Close the Search Result pop-up window.
- g Do not pan or zoom the map from here.

Now you will change the default basemap. The topographic basemap is a good general-purpose map to orient a map user, but a more basic basemap with less detail will highlight the operational layer that you will be placing over it.

- h At the top left, click the Basemap button and choose Dark Gray Canvas.



It is a good idea to save your map periodically to avoid losing any work.

- i Click Save, and then click Save As.
- j Type an appropriate title, tags that will help users find your web map, and a descriptive summary.

Save Map

Title: Organic Food Consumption Habits_JohnStudent

Tags: Encinitas x organic food x
Add tag(s)

Summary: Map showing levels of organic food consumption near Enci

Save in folder: john.student.geoapps1

SAVE MAP

CANCEL

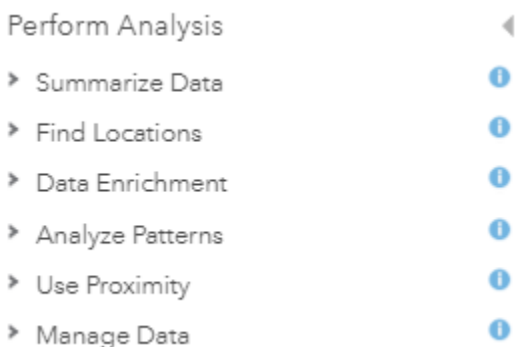
k Click Save Map.

Step 3: Enrich the map with demographic data

You now have a blank web map and are ready to begin adding data to it. You will use the Enrich Layer tool to add data. The ArcGIS Online Enrich Layer tool lets you add a wide variety of information about people and places either to your existing data locations or to locations from ArcGIS Online and ArcGIS Living Atlas of the World (which you can access from the tool). Because you do not already have data locations, you will search for a layer in Living Atlas.

a At the top left, click the Analysis button.

Note: If you do not see the Analysis button, confirm that you are signed in to ArcGIS Online using your credentials for this course.



b On the left, expand Data Enrichment, and then click Enrich Layer.

- c On the Enrich Layer pane, under Choose Layer To Enrich With New Data, click the down arrow and choose Choose Analysis Layer.

This option allows you to add a new layer to the map from ArcGIS Online or Living Atlas Analysis Layers.

- d At the top left, click the My Content button and choose Living Atlas Analysis Layers.

ArcGIS Living Atlas of the World is a collection of authoritative geographic information available in ArcGIS Online. Some of the layers in Living Atlas are published by Esri, whereas others are submitted by ArcGIS users. Anyone can nominate a layer for Living Atlas, but Esri evaluates every layer to ensure its quality.

- e In the search field, type **United States BlockGroup Boundaries** and press Enter.

- f Locate the United States BlockGroup Boundaries 2020 result.



A block group is a geographical unit used by the U.S. Census to break up states into smaller areas to present or analyze data. Block groups are statistical divisions of census tracts and contain between 600 and 3,000 people.

- g At the bottom right of the United States BlockGroup Boundaries 2020 layer, click Select.

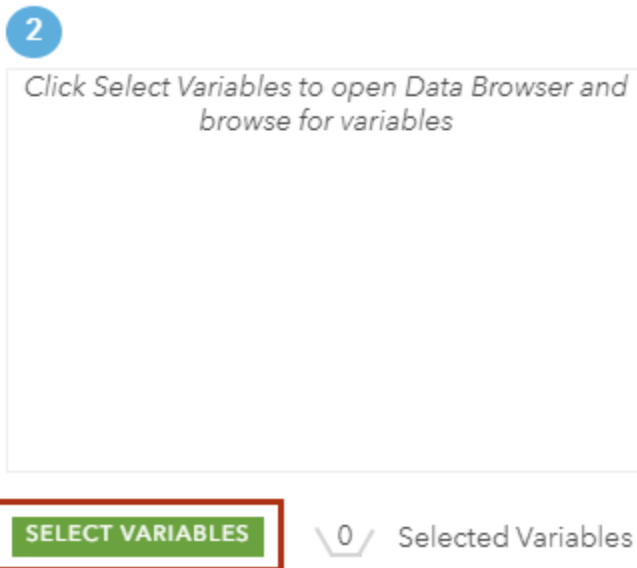
Layers, like the census layer you just searched for, contain the basic geographic data that you work with to create web maps and geo apps in ArcGIS Online. There are three main types of layers:

- Feature (points, lines, or polygons)
- Tile/vector tile (georeferenced images)
- Image/raster (georeferenced images with data associated to every pixel)

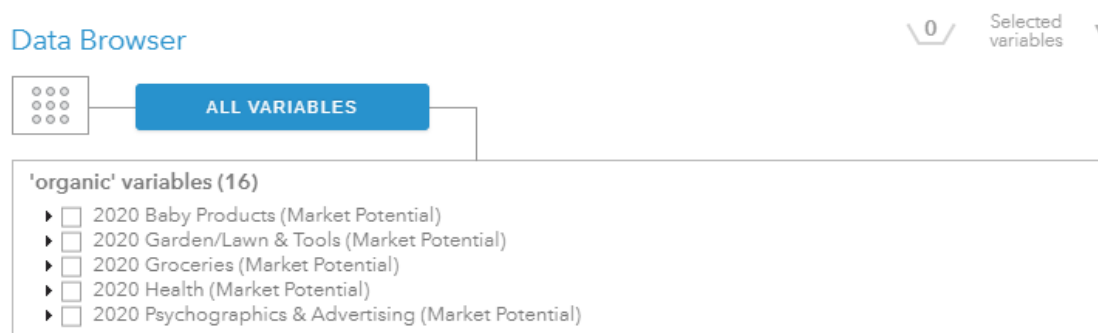
If you do not have your own data, or if you are looking for other layers to include in your web maps, apps, or analysis, consider searching Living Atlas. If you or your organization has data that you think would be valuable to other web mappers and app creators, consider nominating this data for Living Atlas. You can learn more in the Do-It-Yourself portion of this exercise.

Next, you want to locate data to geoenrich the Census BlockGroup areas layer, adding information about organic food spending habits among adults.

- h In the Enrich Layer pane, click the Select Variables button.



- i In the Data Browser that opens, in the upper-right corner, set the location drop-down list to United States, if necessary.
- j In the search field, type **organic**, and press Enter or click the magnifying glass icon.



- k Next to the Psychographics & Advertising (Market Potential) dataset, click the triangle to expand it.
- l Check the box next to all of the layers in the dataset that are *not* Index layers.

'organic' variables (16)

- ▶ ☐ 2020 Baby Products (Market Potential)
- ▶ ☐ 2020 Garden/Lawn & Tools (Market Potential)
- ▶ ☐ 2020 Groceries (Market Potential)
- ▶ ☐ 2020 Health (Market Potential)
- ▲ ☒ 2020 Psychographics & Advertising (Market Potential)
 - ☆ ☒ ⓘ 2020 Rarely eat organic foods
 - ☆ ☐ ⓘ 2020 Rarely eat organic foods: Index
 - ☆ ☒ ⓘ 2020 Occasionally eat organic foods
 - ☆ ☐ ⓘ 2020 Occasionally eat organic foods: Index
 - ☆ ☒ ⓘ 2020 Frequently eat organic foods
 - ☆ ☐ ⓘ 2020 Frequently eat organic foods: Index
 - ☆ ☒ ⓘ 2020 Eat organic foods regularly
 - ☆ ☐ ⓘ 2020 Eat organic foods regularly: Index

Index layers show a comparison to the U.S. average for a variable, where 100 matches the average, values more than 100 are above average, and values less than 100 are below average. You want the nonindexed variables, which are the raw numbers of people in an area that are described by that variable.

- m At the top right of the Data Browser, for Selected Variables, verify that the number is 4.
- n At the bottom right, click Back.

Data Browser

4 Selected variables ▼

ALL VARIABLES

'organic' variables (16)

- ▶ ☐ 2020 Baby Products (Market Potential)
- ▶ ☐ 2020 Garden/Lawn & Tools (Market Potential)
- ▶ ☐ 2020 Groceries (Market Potential)
- ▶ ☐ 2020 Health (Market Potential)
- ▲ ☒ 2020 Psychographics & Advertising (Market Potential)
 - ☆ ☒ ⓘ 2020 Rarely eat organic foods
 - ☆ ☐ ⓘ 2020 Rarely eat organic foods: Index
 - ☆ ☒ ⓘ 2020 Occasionally eat organic foods
 - ☆ ☐ ⓘ 2020 Occasionally eat organic foods: Index
 - ☆ ☒ ⓘ 2020 Frequently eat organic foods
 - ☆ ☐ ⓘ 2020 Frequently eat organic foods: Index
 - ☆ ☒ ⓘ 2020 Eat organic foods regularly
 - ☆ ☐ ⓘ 2020 Eat organic foods regularly: Index

BACK

APPLY

CANCEL

Note: Be sure to click Back in the Data Browser, not in your web browser. If you accidentally click Apply or close the Data Browser, just click the Select Variables button again.

- o In the Data Browser search field, type **adult population** and press Enter or click the magnifying glass icon.
- p Expand Tapestry Market Segmentation (Adults) and select the Base For Tapestry Segmentation Adult Population layer for the most recent available year.

'adult population' variables (70)

- ▢ 2010 Group Quarters Population (U.S. Census)
- ▣ 2020 Tapestry Market Segmentation (Adults)
- ☆ ☒ ⓘ 2020 Base for Tapestry Segmentation Adult Population (Esri)

You should now see five selected variables in the top-right corner of the Data Browser.

5 Selected Variables ▼

- q Click Apply.

In ArcGIS Online, you have access to global demographic, spending, lifestyle, and business datasets. In this exercise, you are using Esri demographic data from the United States to enrich the Living Atlas Census layer.

- r At the bottom of the Enrich Layer pane, change Result Layer Name to **Organic Food Consumption Habits_<your name>**.
- s Make sure that the Use Current Map Extent box is checked.

Note: Checking this box ensures that the analysis is performed only on the areas within the current map extent.

4 Result layer name

Organic Food Consumption Habits_JohnStu

Save result in john.student.geoapps1 ▼

☒ Use current map extent [Show credits](#)

RUN ANALYSIS


- t** Click Run Analysis.

Note: Processing time for the analysis can be affected by a few factors, including the number of features in the current extent and internet traffic. If your analysis does not complete after several minutes, try saving the map and refreshing the page, or exit ArcGIS Online and try again later.

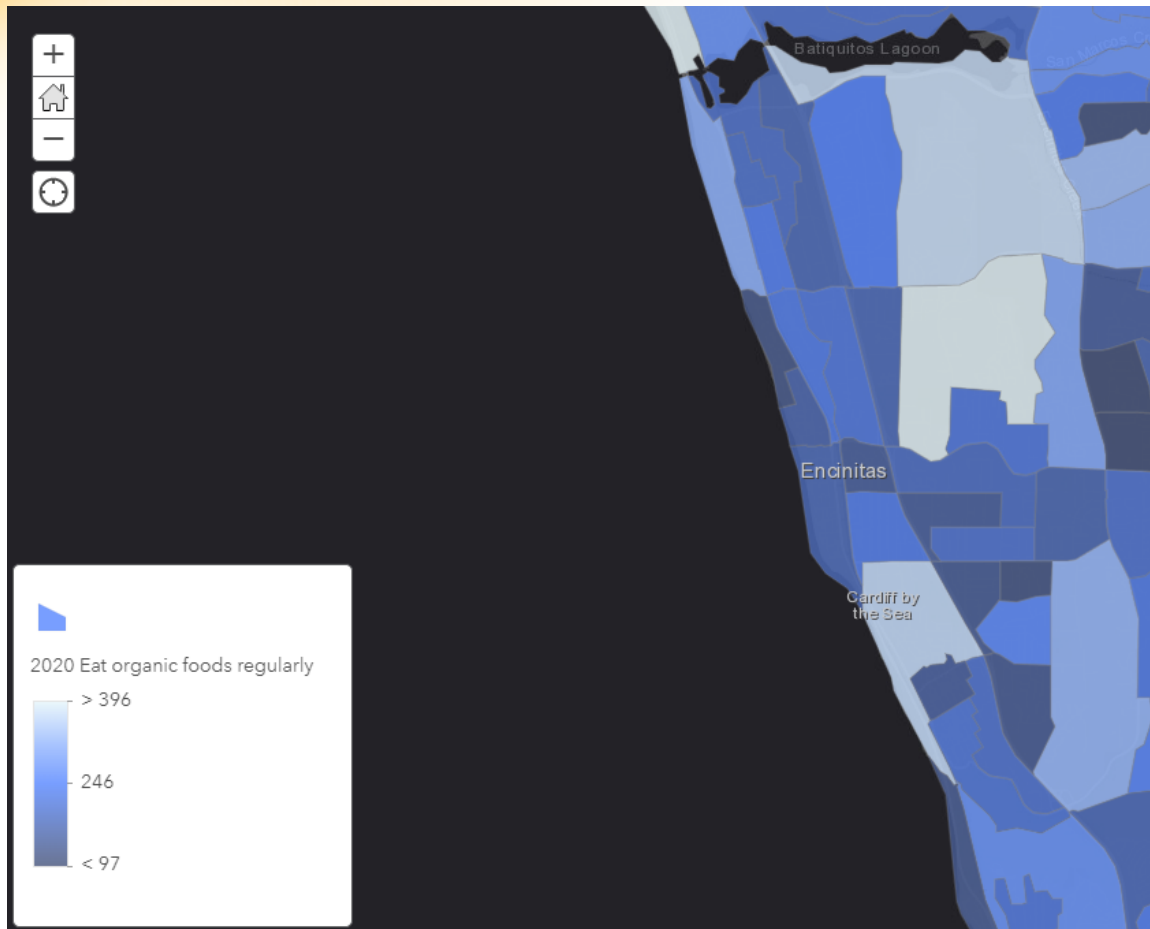
After your results layer finishes loading, you will see that the Census Block Group areas are all the same color. This is the default symbology. Symbology means representing your layer features with marks of the best size, color, shape, and pattern to convey the feature characteristics at a given map scale.

Step 4: Change the symbolization

Next, you will make the map easier to analyze by updating the symbol style so that each block group is rendered according to how many people regularly consume organic foods.

- a** In the Contents pane, point to the Organic Food Consumption Habits layer and click the Change Style button .
- b** Under Choose An Attribute To Show, choose Eat Organic Foods Regularly from the drop-down list.

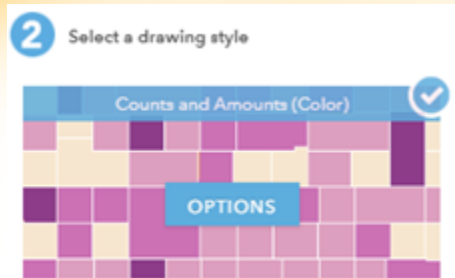
The map will update with the new symbolization. Your map and legend might vary, depending on the map extent, which is affected by your screen size.



Now you can see that the block groups have varying numbers of people who consume organic foods. Lighter shades of blue indicate more people, whereas darker shades indicate fewer people.

It's difficult to derive meaning from pure population totals in an area, so you are going to normalize the information. Normalization allows you to show percentages for the different variables, not just raw numbers, which are less meaningful. You will divide the number of people who eat organic foods regularly by the total adult population to get a percentage.

- c Under Counts And Amounts (Color), click Options.




- d For Divided By, choose Tapestry Adult Pop Base.

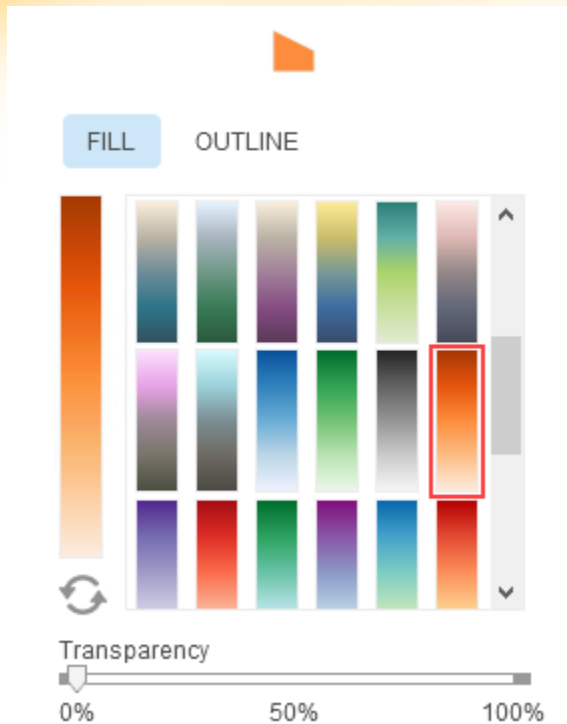
2020 Eat organic foods regularly

Divided By:	2020 Tapestry Adult Pop Base	▼
Theme	High to Low	▼

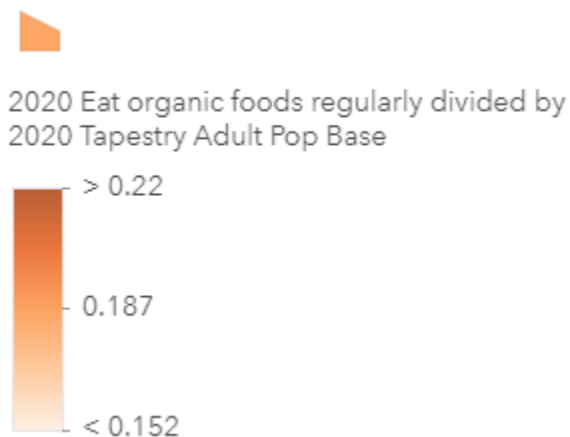
You also want to change the colors being used to render the polygons. You want areas with a greater percentage of adults regularly consuming organic foods to have a darker color, rather than lighter, because darker colors are more typically used to show higher numbers. You will change the symbolization of the layer to show this.

- e In the Change Style pane, on the right side, click Symbols.
- f On the Fill tab, scroll down and select a color ramp that you think would be good for display.
- g If necessary, click the Invert Color Ramp button  so that the darkest shades appear toward the top, representing the highest values.

You do not need to add transparency. Because you are using a plain basemap, there are no basemap features or labels that would appear beneath the layer.



h In the Symbols window, click OK.




You can see in the legend that the highest percentages of people who regularly eat organic foods, more than 22 percent, are shown in the darkest colors.

i At the bottom of the Change Style pane, click OK, and then click Done.

You have changed the symbology to show the percentage of people who regularly eat organic foods. Next, you will configure the pop-up windows.

Step 5: Configure information pop-ups

You now have a more informative map display, but you can configure the information pop-up windows to help the users learn even more. When clicked, these pop-up windows give users more details about a feature or area.

- a In the Contents pane, click your layer.
- b Below your layer, click the More Options  button and choose Configure Pop-up.
- c In the Configure Pop-up pane on the left, change Pop-up Title to **Organic Food Consumption Habits Breakdown**.
- d Below Pop-up Contents, click the Display down arrow and choose No Attribute Information.

Pop-up Contents

Display: No attribute information ▼

No attribute information will display

Instead of listing the attributes as text, you will add a column chart to your pop-up window to show the data for a selected block group.

- e Below Pop-up Media, click Add and choose Column Chart.

Configure Column Chart

Specify the title, caption and fields to chart.

Title:

Column Chart 1

Caption

Chart Fields

<input type="checkbox"/> Field Alias	Field Name
<input type="checkbox"/> POP2018	{POPULATION}
<input type="checkbox"/> SQMI	{SQMI}
<input type="checkbox"/> Shape__Area	{Shape__Area}
<input type="checkbox"/> Shape__Length	{Shape__Length}

Normalize by: None

OK

CANCEL

- f In the Configure Column Chart window, delete any text in the Title field and type **Organic Food Consumption Habits Breakdown**.
- g Under Chart Fields, select the four fields dealing with organic food consumption (Rarely, Occasionally, Frequently, Regularly).
- h As you did with the symbols, set the normalization variable to the Tapestry Adult Pop Base.

Chart Fields

<input type="checkbox"/> Field Alias	Field Name
<input checked="" type="checkbox"/> organic foods	{MFR20073a_B}
<input checked="" type="checkbox"/> 2020 Frequently eat organic foods	{MP28074a_B}
<input checked="" type="checkbox"/> 2020 Eat organic foods regularly	{MP28075a_B}

Normalize by: 2020 Tapestry Adult Pop

i Click OK to close the dialog box, and then click OK to save your changes and close the Configure Pop-up pane.

j In the map, click a block group, and point to the chart columns.

You should see something similar to the following graphic. A value of 0.24 means 24 percent of the population in the selected block group eats organic food regularly.



Your web map is effective for visually and statistically conveying the levels of organic food consumption in the Encinitas area. Next, you will build a web app so that you can share this information with the public.

Step 6: Use Web AppBuilder to build a web app

You are ready to share the map information with a geo app.

- a At the top of the map, click Save and choose Save.

Note: If you do not save the map, the newly added layer will not be available in the geo app.

Next, you will create an app using Web AppBuilder. First, you will share your web map to the app template.

- b Click Share.

You will not use any of the sharing boxes in the Share dialog box. The dialog box is for either sharing the map with people, such as your organization or the public, or sharing with an app. You only need to share the map with the app template now, not with people.

- c Click Create A Web App.

You will see a gallery of instant apps that you can sort by the categories on the left. The other app types are shown on the other tabs. You used an ArcGIS Instant Apps template earlier in this exercise and in other sections of this course. You also used ArcGIS Dashboards in Section 3. So, for this step, you will create a custom app using ArcGIS Web AppBuilder.

Web AppBuilder provides a foundation for building web apps that can run on any device. Web AppBuilder allows you to build focused software programs, like the Instant Apps templates. It also incorporates a library of tools, called widgets, that do not require you to write any code.

- d In the Create A New Web App dialog box, click the Web AppBuilder tab.

The title and tags were carried over from the map.

- e Type an appropriate summary, such as **Geo app showing levels of organic food consumption**.

To create a new app with Web AppBuilder, enter a title, tags and summary.

Title:

Tags: [Add tags](#)

Summary: (Optional)

Save in folder:

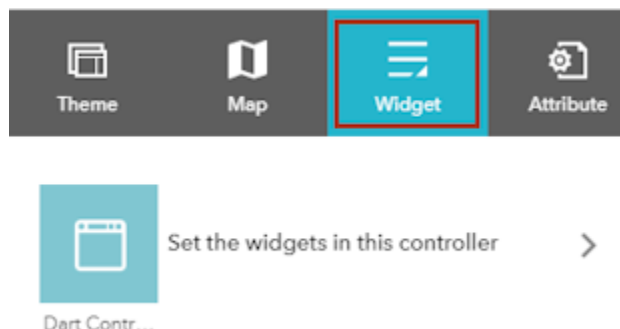
- f Verify that the folder to save in is correct, and at the bottom, click Get Started.

You will see the web app configuration page, with the options on the left side and the map preview on the right side.

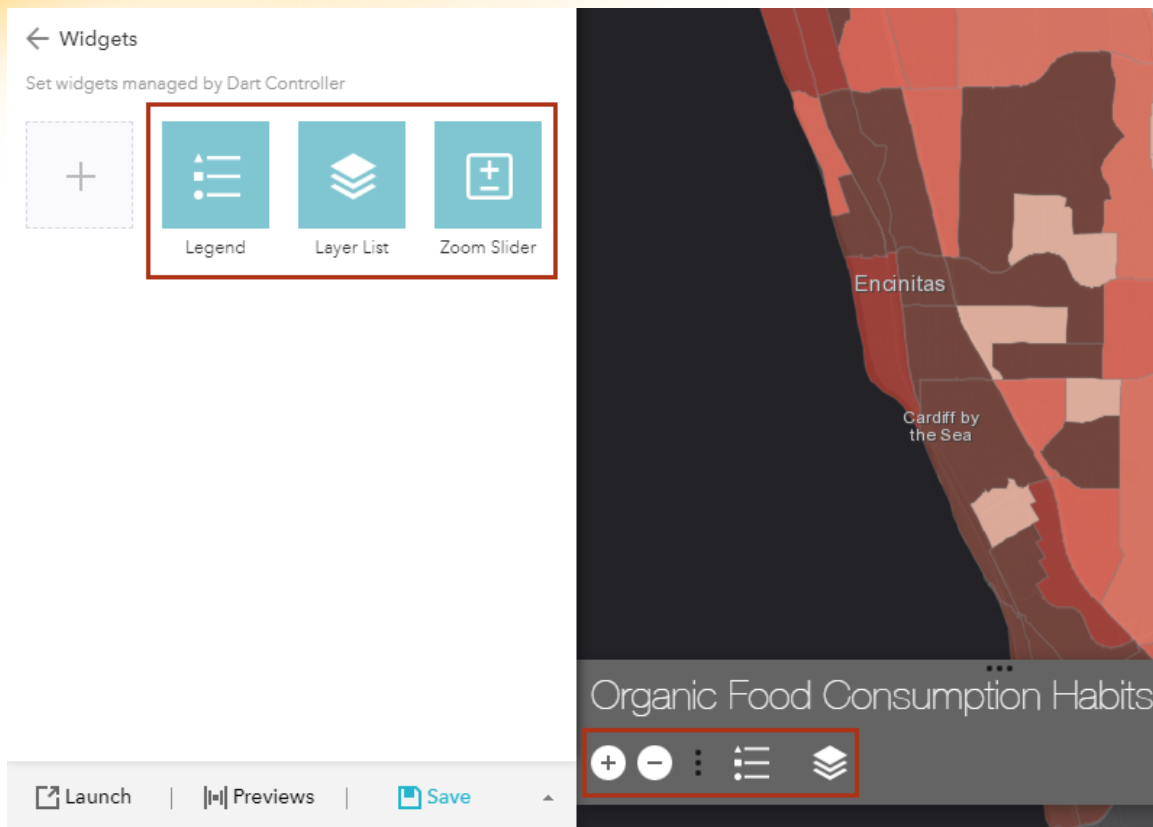
Step 7: Configure the app

Next, you will configure the app. You will try one possible configuration for the app in this exercise, but feel free to explore the different tools in Web AppBuilder. Use the [documentation](https://bit.ly/2MuMLI0) (https://bit.ly/2MuMLI0), or just experiment.

- a On the left, on the Theme tab, click Dart Theme.
- b Below the themes, choose a style.
- c Click the Widget tab, and then click Set The Widgets In This Controller.

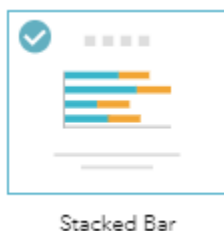


The widgets in the left pane (Legend, Layer List, and Zoom Slider) correspond to the widgets that appear by default at the bottom of the app in the control bar.



To learn more about widgets, you will add one more: an Infographic widget.

- d In the left pane, click the plus sign to add a widget.
- e In the Choose Widget dialog box, click Infographic, and then click OK.
- f In the Choose A Template dialog box, click Stacked Bar, and then click OK.



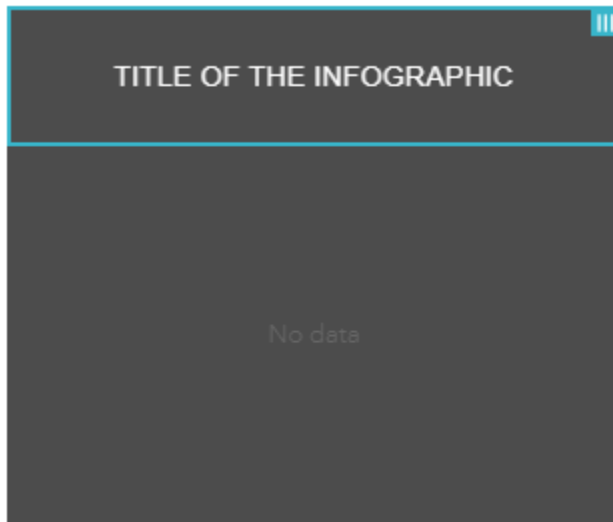
- g Click the Organic Food Consumption Habits layer to select it as the data source, and then click OK.
- h At the top of the Configure Infographic dialog box, leave the name as Infographic.

- i Below the data source, verify that the Use Selection box is checked.
- j Below that, click the third icon, for Description, to turn it off.

☒ Use selection ☐ Filter by extent

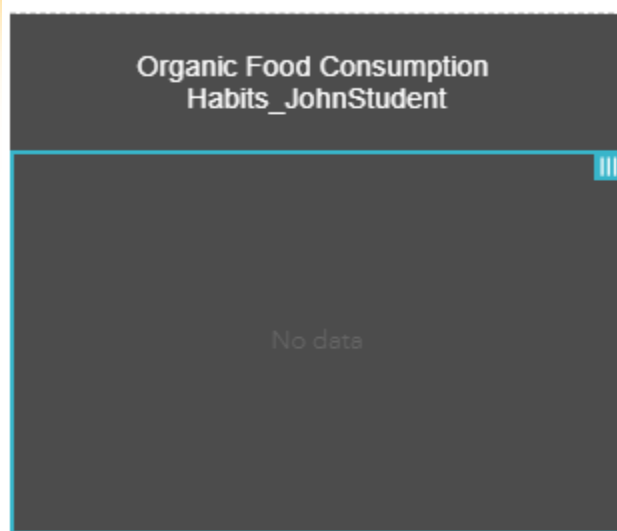


- k In the preview, click the title element.



You can click and drag the borders of any element to resize or reorder the borders.

- l On the right, change the text of the title to **Organic Food Consumption Habits_<your name>**.
- m On the left, click in the middle of the preview to set the chart settings.



- n On the right, on the Data tab, change Display Mode to Display Attribute Values As Charts.
- o For Value Fields, check the four categories of organic food consumption.

Chart settings

Data Display Marks

Display mode: Display attribute values as char

Operation: Sum

Null value: ☒ Calculated as zero
☐ Ignored

Value fields:

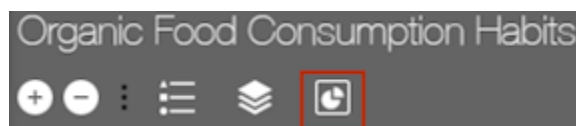
- ☐ Shape__Length
- ☐ ENRICH_FID
- ☐ Population to polygo...
- ☐ Apportionment confi...
- ☐ Has data
- ☒ 2020 Rarely eat orga...
- ☒ 2020 Occasionally ea...
- ☒ 2020 Frequently eat ...
- ☒ 2020 Eat organic foo...
- ☐ 2020 Tapestry Adult ...

Sort by: ☒ Label ☐ Value

The Display and Marks tabs contain additional settings that you could change. But, for now, you will view the widget in your app.

p At the bottom right, click OK.

Your Infographic widget now appears in the control bar.



q In the control bar, click the Infographic button to test the widget.

To view all of the Infographic content, you may need to increase the size of the widget by dragging the handle at the bottom right.

r In the Infographic pop-up window, point to each category on the bar chart.

You will see the total number of people in each organic food consumption category. The infographic is similar to the chart you configured in the map pop-up windows, which are still available in the web app. However, the infographic operates differently—it shows the category sums from across all areas.

As you saw from the variety of widget types, as well as the variety of Infographic widget types, you can configure widgets to display numerous attributes or statistics to help your app users.

- s Close any open pop-up windows, and at the bottom left, click Save.

Step 8: Preview the app

You can preview the appearance of your app on different devices.

- a Next to the Save button, click Previews.
- b Select different devices to explore the previews. Notice the QR code, which you can use to preview how the app will look on a mobile device.

The Previews button has changed into a back button labeled Configure, which will close the Previews and return to the configuration page.

- c Click Configure.
- d When you are ready, click Launch to view the published app in your browser.
- e After you examine the app, close the browser tab to return to the app configuration tab.

There are many more highly customizable widgets that you could add to your app to extend its GIS functionality. You can explore these widgets now or in a new geo app in the Do-It-Yourself part of this exercise.

Accessibility support in Web AppBuilder has been added to make apps accessible to all users, including users with disabilities. You can learn more about the widgets and themes that support accessibility [here](https://bit.ly/2W1u42c) (<https://bit.ly/2W1u42c>).

Step 9: Explore app creation with Experience Builder

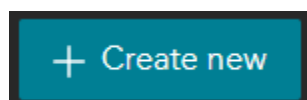
You just built a geo app with Web AppBuilder. In this next step, you will explore how you can build geo apps with another builder, Experience Builder. Experience Builder is built on modern technology that allows you to quickly transform your data into compelling mapcentric or nonmapcentric web apps and web pages. With Experience Builder, you have complete control over the design process.

In this step, you will configure a widget, but you will not build a complete web app. Feel free to go beyond what is covered in the instructions and explore the different options in Experience Builder. Use the [documentation](https://bit.ly/3gJdGeE) (https://bit.ly/3gJdGeE), or just experiment.

- a At the top left, click the Home down arrow and choose Content.
- b Click Create and choose Experience Builder.

ArcGIS Experience Builder opens in a new web browser tab. Keep the Content tab open; you will use it later on.

- c At the top right, click Create New.

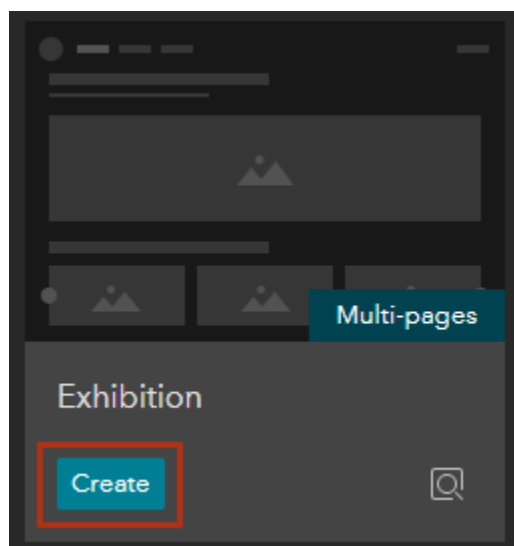


To start, you will choose a template. Templates have preset layouts and themes. In addition to single-page apps, you can build multipage apps with ArcGIS Experience Builder. You will explore a multipage template.

- d Scroll down until you see the Exhibition template.

Exhibition is one of the two multipage templates that are available.

- e Under Exhibition, click Create.

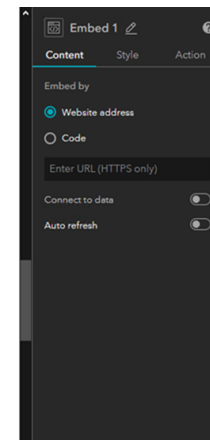
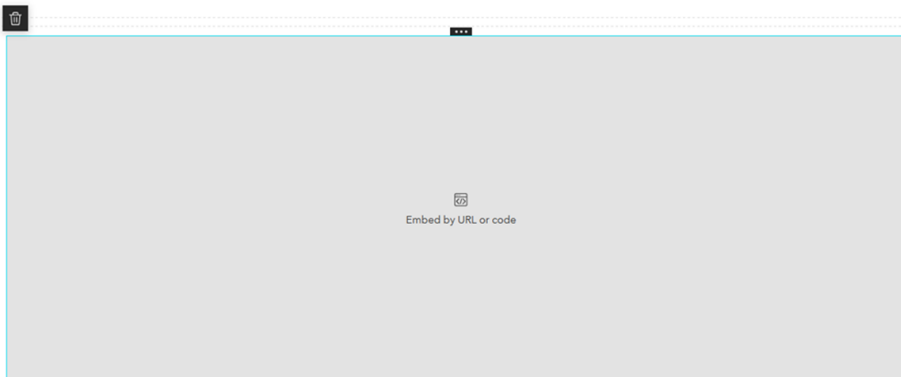


Note: An informational tour describing how to navigate Experience Builder is displayed the first time you use it. You can click Start Tour to learn more or click Skip to dismiss the information.

You will start by configuring an Embed widget (<https://bit.ly/2O8AWGq>) that is part of the template. The Embed widget allows you to embed website content using a URL or code.

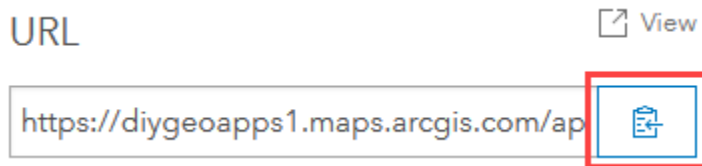
- f In the center canvas, scroll down until you see the Embed widget.
- g Click the Embed widget to select it.

Double click to edit text

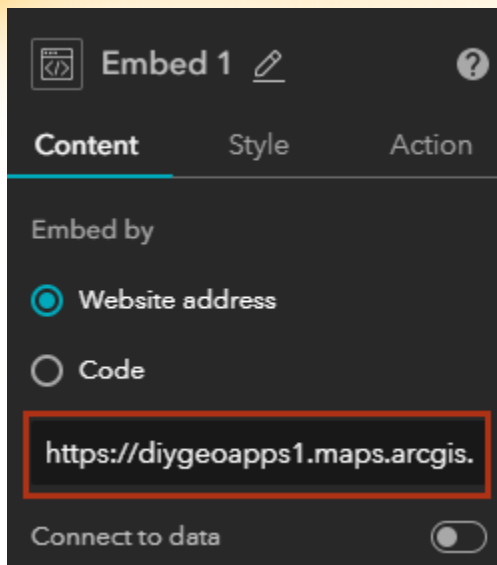


You will embed one of the apps you created earlier in this exercise.

- h In your web browser, click the Content tab.
- i Click the name of one of the web apps you created earlier in the lesson (Organic Food Consumption Habits or Households That Use Organic Food Near Encinitas, CA).
- j On the item page, scroll down until you find the URL, and then click the Copy button.



- k In your web browser, return to your ArcGIS Experience Builder tab.
- l On the right, on the Embed 1 pane, in the Enter URL box, paste the URL you copied, and then press Enter.



The widget on the canvas will update to show your app. Next, you will preview the changes you made. But, before you can preview your app, you need to save it.

- m At the upper right, click the Save button.



- n At the upper right, click the Preview button.



In your web browser, a new tab opens with a preview of your geo app.

- o On the first page, find the app you embedded and explore how you can interact with it.

Now that you have seen what an Embed widget looks like, you will look at an example of another widget.

- p Scroll to the top of the page, and then click Page 4.

This page has a [Bookmark widget](https://bit.ly/2W485ro) (<https://bit.ly/2W485ro>). The Bookmark widget stores a collection of spatial bookmarks, or extents, for a selected map.

- q On the Bookmark widget, click the Play button.

Bookmark-1

Ne malis tollit scriptorem sit, mundi verear
patrioque etper. Possim temporibus ex vim,
vim option facilis iracundiate. Ne malis tollit
scriptorem sit, mundi verear patrioque etper.
Possim temporibus ex vim.



1/5



This widget has the autoplay option enabled, so the map automatically navigates between the bookmarks after a predetermined interval. Curious about how this widget was configured? You can always go back to the ArcGIS Experience Builder and see its configuration.

r Optionally, experiment with other widgets in Experience Builder.

s After you are done, close your browser.

This concludes the Guided portion of the exercise. Recall that the exercises begin with a step-by-step part, followed by a second, Do-It-Yourself part. Continue to Part II to apply what you've learned, follow your own interests, and explore. Links to Learning Resource are included at the end of this document.

Part II - Do-It-Yourself

The Do-It-Yourself part contains additional goals to show off your new skills. These goals are optional, but they allow you to apply what you learned in Part I to build your own geo app, just with less guidance. Jump in and get creative! Resources and samples to help you are listed in the Learning Resources section at the end.

Even if you choose not to complete a Do-It-Yourself project, we ask you that you read through this section so that you can find and learn from your fellow students' work.

Create a geo app

In the Guided part of this exercise, you created three geo apps. You created a geo app that had an interactive legend using a template and an existing web map. Next, you created and styled a web map, and then used ArcGIS Web AppBuilder to make a geo app that explained the market potential for organic products. For the data, you used a U.S. Census block groups layer from Living Atlas and Esri demographic data. Finally, you explored how to create a

custom web app that works with any device using ArcGIS Experience Builder. In this Do-It-Yourself part, you can do either or both of the following two options.

Option 1. Talk to your organization about contributing to ArcGIS Living Atlas of the World

If your organization has an ArcGIS Online subscription, you can make data available to your fellow MOOC students and the greater ArcGIS Online community. Submitting your data to Living Atlas would add it to the most comprehensive collection of authoritative, ready-to-use, global geographic information ever assembled. Click [here](https://bit.ly/2MyxFB5) (<https://bit.ly/2MyxFB5>) to learn how to contribute.

Option 2. Add on to your geo app, or create a new one

Explore the data layers in Living Atlas, Esri demographic data, or your own data. You can configure a geo app in ArcGIS Online with an [ArcGIS Instant Apps template](https://bit.ly/2VYhSPC) (<https://bit.ly/2VYhSPC>), [ArcGIS Web AppBuilder](https://bit.ly/2vMjWNF) (<https://bit.ly/2vMjWNF>), or [ArcGIS Experience Builder](https://bit.ly/3gJdGeE) (<https://bit.ly/3gJdGeE>). You used all of these options in Part I.

Alternatively, if you have JavaScript development skills, or feel like challenging yourself, you can use [ArcGIS Web AppBuilder \(Developer Edition\)](https://bit.ly/1x37vtq) (<https://bit.ly/1x37vtq>). In the developer edition, you can build your own custom widgets and themes, as well as take advantage of the work being done by the [Web AppBuilder community](https://bit.ly/2jdfu1M) (<https://bit.ly/2jdfu1M>). Full documentation on how to get started is available [here](https://bit.ly/1Hq2jnG) (<https://bit.ly/1Hq2jnG>). This approach is more challenging if you don't have a background in development, but pushing your limits is great for learning.

Note: You must have a web server set up to publish apps using ArcGIS Web AppBuilder (Developer Edition).

Share your work with the class

Whether you chose to create an app or opted to start a conversation with your organization about contributing to the Living Atlas dataset, please share your work with the class. Create a forum post with the link to your app or a description of your conversation and what you learned.

Here are the steps you need to complete to share your work:

1. If you created an app, share it with Everyone (Public).
2. After sharing, test the app in a new incognito browser window, one that you are not already signed in to.
3. Create a new forum post to share what you did with students and instructors.
 - If you created an app, add the link in the body of the post. The link can be a shortened link from the Share dialog box, or the full URL, copied from the web browser when viewing the app.
 - If you spoke with your organization about Living Atlas, describe what happened and what you learned.
4. Give the post a meaningful title, and add the hashtag **#DIYSection4**. This hashtag will help everyone find your work.

Whether your app or other work is high quality, especially unique or creative, or just shows that you have learned a lot in this class, be sure to share it with us.

Also, please remember to share work from the Do-It-Yourself parts of the exercises, but do not share work from the Guided parts.

Finding the work of other students

Now that you have shared your Do-It-Yourself work in the forum, please find and review the work of other students.

1. In the forums, search by the hashtag **#DIYSection4**.
2. Read other student posts and open their geo apps, if available.
3. Give any helpful feedback or ask questions by replying to the forum post.

Learning Resources

You are done! Great job. Hopefully you used the skills that you learned in the Guided part to learn more in the Do-It-Yourself part. You will now be ready to build geo apps that benefit your community.

Here are some more resources to help you continue learning:

Web AppBuilder page (<https://bit.ly/2Pdya22>)

What's new in Living Atlas (<https://bit.ly/2EV7FMW>)

Web course: Creating Web Applications Using Templates and ArcGIS Web AppBuilder
(<https://bit.ly/2OJr4Bq>)

Join the DIY Geo Apps course LinkedIn group (<https://bit.ly/2MmlvMF>)