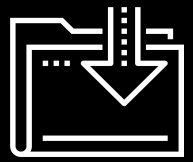
GeoJSON and Leaflet Plugins

Data Boot Camp

Lesson 15.2



Class Objectives

By the end of this lesson, you will be able to:

Use third-party Leaflet.js plugins to produce heat maps, marker clusters, and choropleth maps.

Research how to use additional third-party Leaflet.js plugins and JavaScript libraries.

Differentiate between maps and map elements for visualizing different datasets.

Create and deploy custom interactive dashboards.

Instructor Demonstration

GeoJSON

Questions?

Time to Code

Map the New York City (NYC) Neighborhoods

Suggested Time:

20 minutes

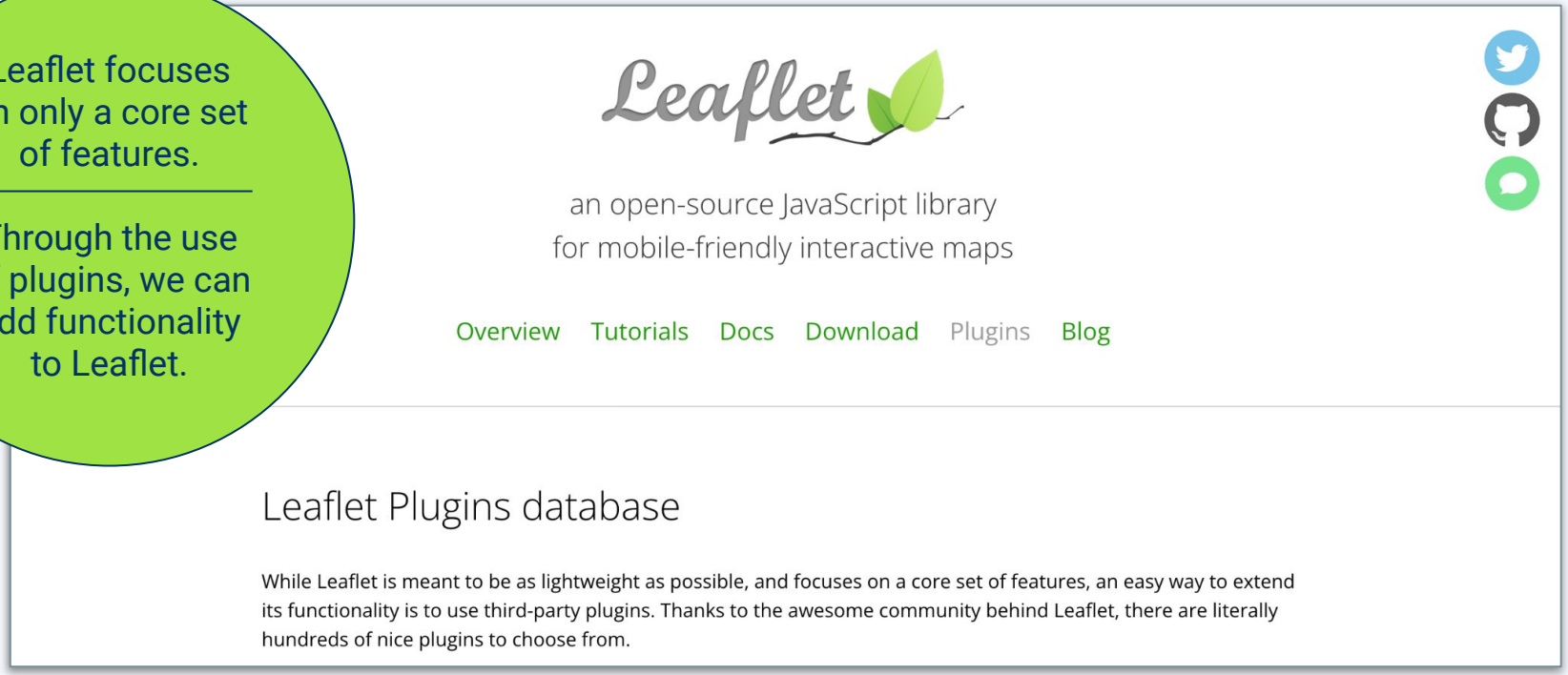
Intro to Plugins

Leaflet

Leaflet is designed to be a lightweight and fast library.

Leaflet focuses on only a core set of features.

Through the use of plugins, we can add functionality to Leaflet.



A plugin is a third-party library that integrates with Leaflet to add one or more features. We can create heat maps, map our data as a function of time, and much more.

Time to Code

Create a Heat Map of Water Hydrants in Western Australia

Suggested Time:

15 minutes

Questions?

Activity: Map Rodent Clusters

In this activity, you'll visualize reports of rodent sightings in New York City (NYC).

Suggested Time:

30 minutes

Activity: Map Rodent Clusters

Instructions	Use the starter files `index.html`, `static/js/logic.js`, and `static/css/style.css` provided in the Unsolved folder.
	Check out the data for all 311 (police non-emergency) service requests in NYC.
	Build a query URL for the data that only returns rodent complaints from 2016. **Note:** To start, limit the data that's returned to 100 data points.
	After you successfully plot your rodent data, incorporate the Leaflet.markercluster plugin. **Note:** Cluster plugins can help to declutter a map that has tons of data on it.
Bonus	If you finish plotting the rodent-sighting data on the map, use the 311 service requests data to plot a similar graph for a different type of data.
Hint	You can increase the data limit to 10,000 after you get the cluster plugin working. But, be aware that plotting 10,000 normal markers on a map might slow down your computer a lot.

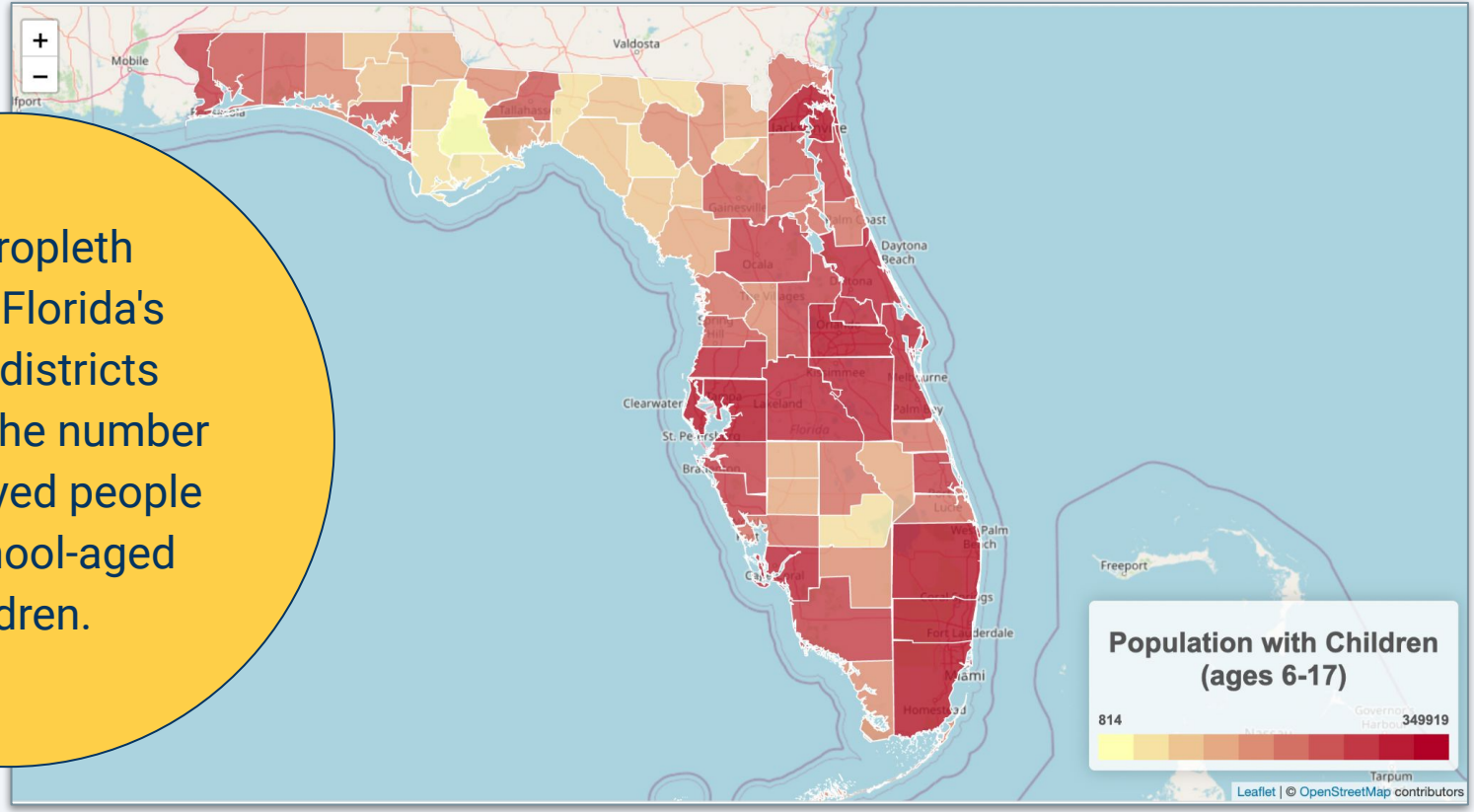
Time's Up! Let's Review.


Break

Create a Choropleth Map

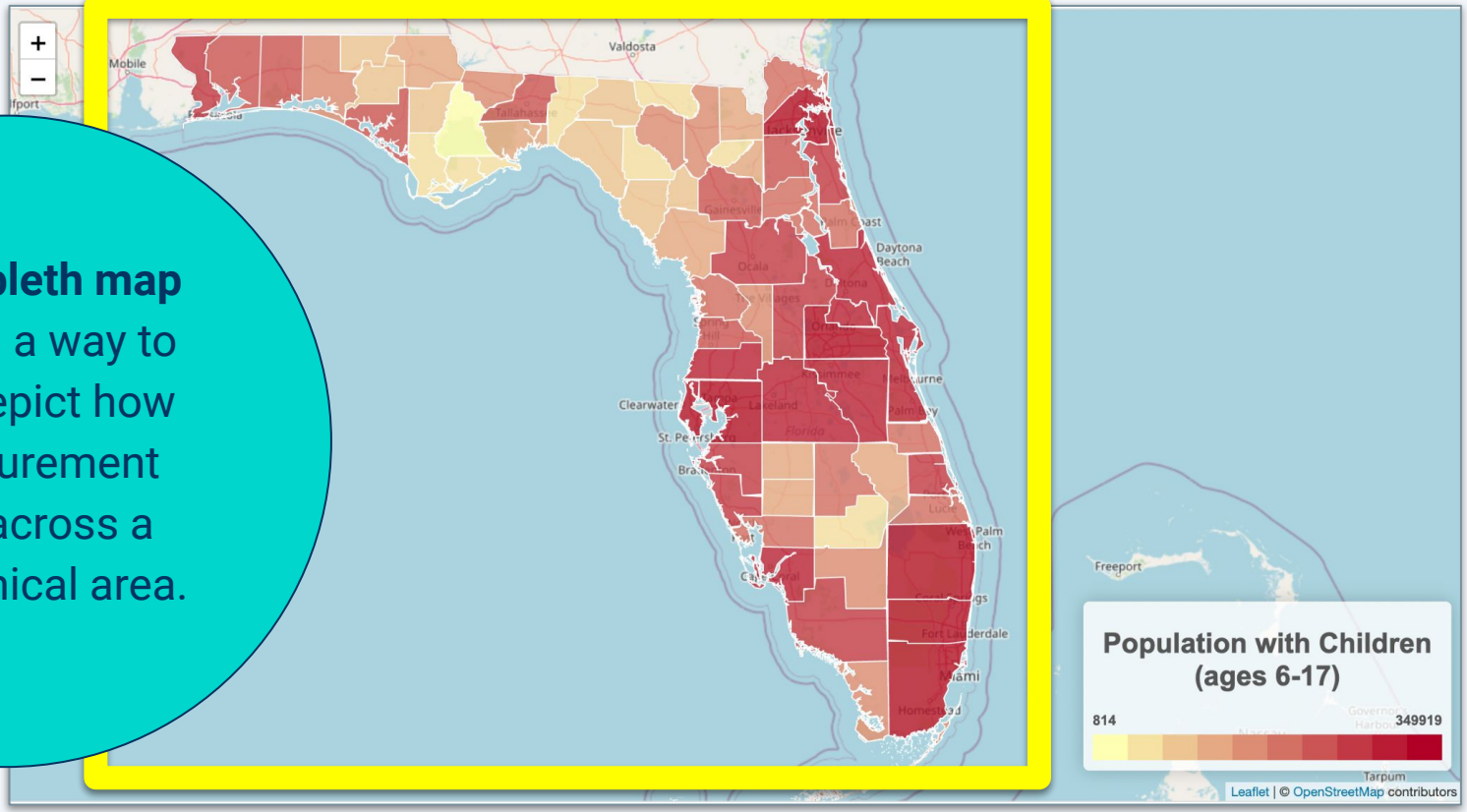
Create a Choropleth Map

A choropleth map of Florida's school districts showing the number of employed people with school-aged children.



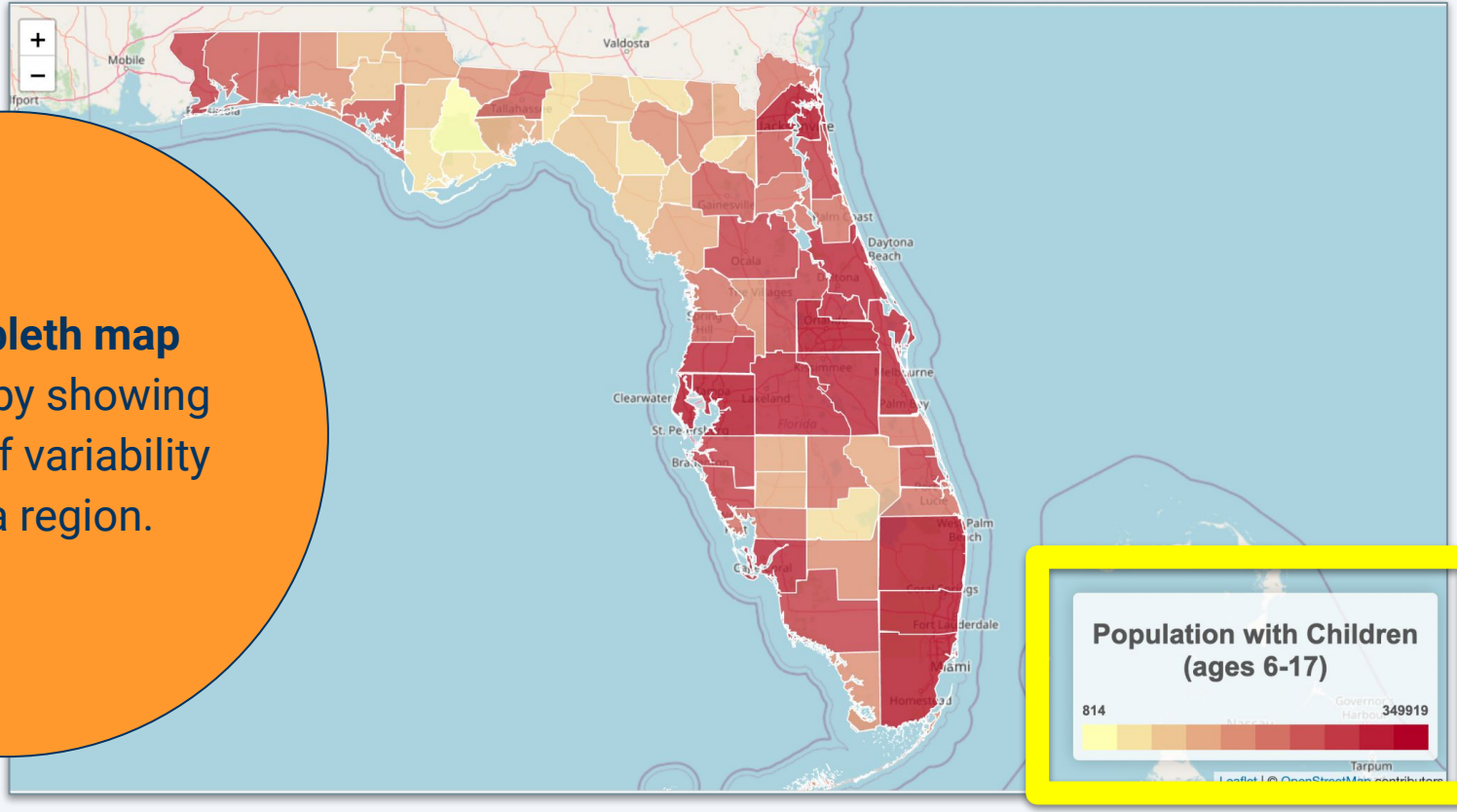
Choropleth Map

A **choropleth map** provides a way to easily depict how a measurement varies across a geographical area.



Choropleth Map

A **choropleth map** does this by showing the level of variability within a region.



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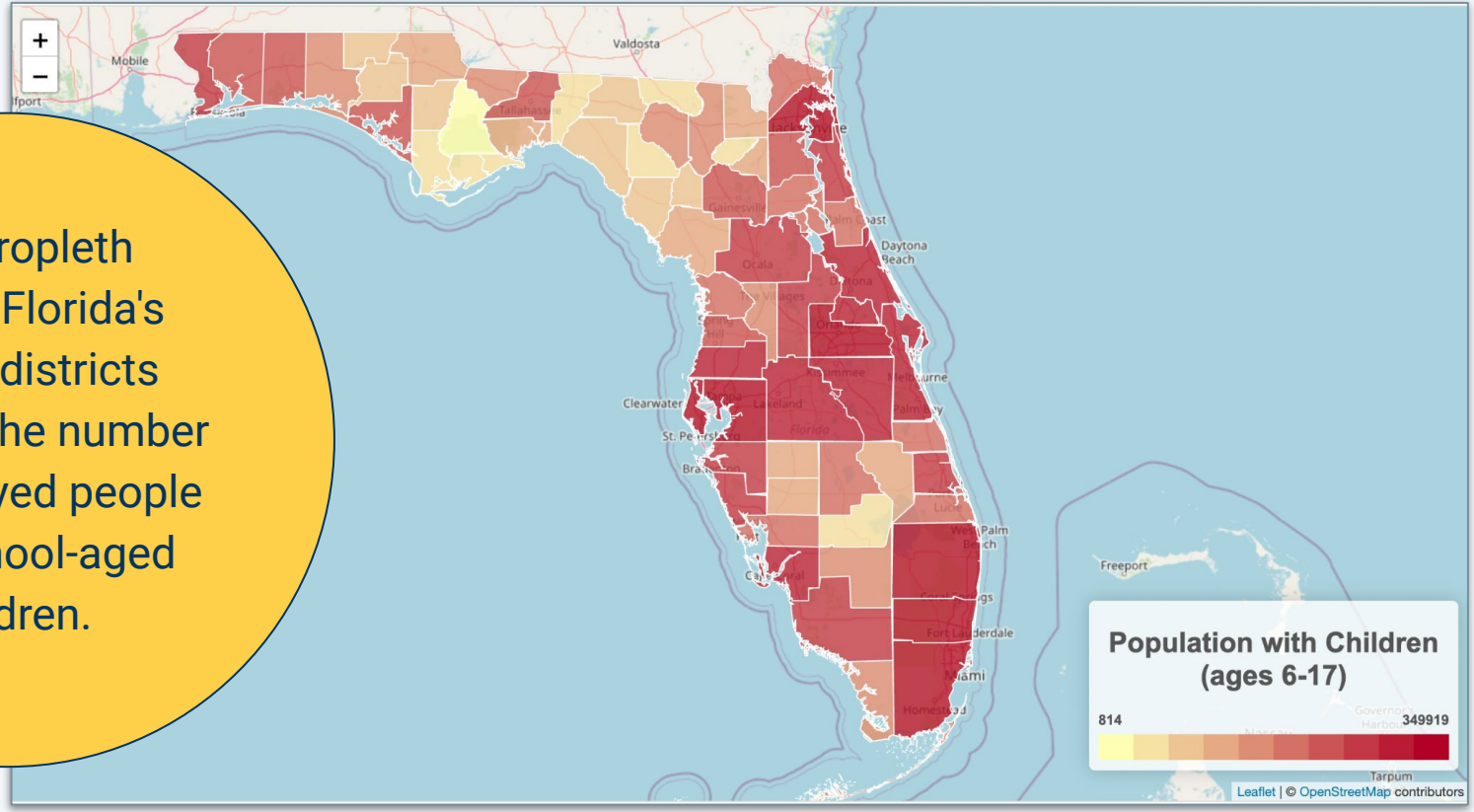
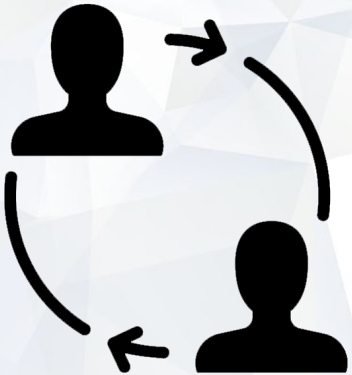




Partner Activity: Create a Choropleth Map

In this activity, you and a partner will create a choropleth map that depicts the number of employed people with school-aged children in Florida school districts.

Suggested Time:

30 minutes

Step 1: Explore the Data

01 Get all the data with D3 and log it to the console.

02 In Google Chrome, open index.html, open DevTools, and then go to the Console tab.

03 Explore the data by using the console. Find where the data stores the estimated employed population with school-aged children (`DP03_16E`) for each feature.

Note that the amount of data is large, so it might take up to 30 seconds for it to load.

Step 2: Download the Plugin

01

Download `choropleth.js` from the `leaflet-choropleth` repository and place it in your `js` folder.

02

In your `index.html` file, uncomment the following line:

```
<script type="text/javascript" src="static/js/choropleth.js"></script>
```

Step 3: Add Popups

01 Using the leaflet-choropleth documentation as a guide, create a new choropleth layer.

02 Change the `valueProperty` to the property that you want to base the map on.

03 Define an `onEachFeature` method that binds a popup containing the value of the feature to the layer. Display the school district and the estimated population count.

04 Though it's not required, you may wish to include additional data to display in this popup by exploring the metadata. For example, `DP03_75E` contains data about the estimated total income and benefits for families.

Step 4: Add a Legend

Consult the leaflet-choropleth examples to help you in creating a legend.
Be sure to include following:

01 Use `L.control` to add a control (and to choose its position).

02 Use `L.DomUtil.create('div', 'info legend')` to create a `<div>` with the `info` and `legend` classes

03 Loop through the colors and values of your choropleth data, and then add them with `div.innerHTML`

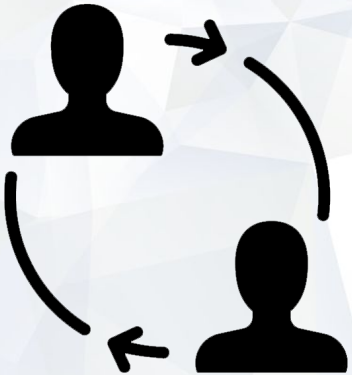
04 Return `div` when done

Hints

As you examine the GeoJSON data, look for `DP03_16E`, the code which indicates the estimated employed population with children aged 6–17.

Check out the colorbrewer2 website, which supplies color schemes (in hex values) that you can use to customize a choropleth map.

Time's Up! Let's Review.



Group Activity: Create a Map of Your Own

In this activity, you will work with a small group to create a maps of your own without using starter information. You will find a dataset, map it, and then use a new plugin to visualize the data in an interesting way.

Suggested Time:

30 minutes

Presentations

15 minutes