



Minnesota Middle School Association

Serving middle level educators across the midwest

Web Mapping Using ArcGIS Online - An Introduction to ArcGIS

Download lesson from MMSA website: <http://www.mmsa.info/>

Overview: Students will learn how to navigate ArcGIS through a series of activities. Students will be introduced to ArcGIS mapping and how to plot points and measure distances. Students will apply their learning to wildfires in California. The city of New York Mills is the example used in this lesson, but any city may be used. This lesson is an introduction to ArcGIS as a geospatial technology tool and can be applied to the investigation of a variety of topics and areas of the world.

Minnesota Social Studies Standards:

(8th Grade)

Standard 1. People use geographic representations and geospatial technologies to acquire, process and report information within a spatial context.

8.3.1.1.2 Create and use various kinds of maps, including overlaying thematic maps, of places in the world; incorporate the “TODALSS” map basics, as well as points, lines and colored areas to display spatial information.

(9th Grade)

Standard 1. People use geographic representations and geospatial technologies to acquire, process and report information within a spatial context.

9.3.1.1.1 Create tables, graphs, charts, diagrams and various kinds of maps including symbol, dot and choropleth maps to depict the geographic implications of current world events or to solve geographic problems.

Objective: Students will be able to:

Navigate ArcGIS as a geospatial technology tool including:

- Zooming in/out
- Finding places
- Changing basemaps
- Measuring distances
- Labeling features
- Changing symbols
- Measuring areas
- Navigating layers

Materials needed:

Computer Internet access with projector

Computer Internet access for students

Handout: “Web Mapping Using ArcGIS Online” (optional: project the handout)

Power Point: “ArcGIS Online”

Time: 2-3 days

Grade: 8th and 9th

Web Mapping Using ArcGIS Online - An Introduction to ArcGIS

Procedure:

The teacher will model the first day's activities by demonstrating Exercise 1: See Your World. The teacher may continue to model the exercises based on students' level of technology and geospatial understanding. This lesson will require monitoring of students' progress due to their individual levels of understanding and skill. Students familiar with other geospatial technologies, such as Google Earth, will have greater success with this lesson and progress more quickly through the three exercises.

The three exercises are: Exercise 1: See Your World
 Exercise 2: Measure and Mark Your World
 Exercise 3: ArcGIS Online - Gallery

The teacher may present the power point as an overview to the exercises that students will be doing.

Assessment: Exercise 1: See Your World
 Exercise 2: Measure and Mark Your World
 Exercise 3: ArcGIS Online - Gallery

Lesson Resources

ArcGIS: <http://www.arcgis.com>

ArcGIS Online Gallery:

<http://www.arcgis.com/home/gallery.html#c=esri&t=maps&o=modified>

“Western Wildfires: California Wildfire Ravages Small Town of Weed” from NBC News

<http://www.nbcnews.com/storyline/western-wildfires/california-wildfire-ravages-small-town-weed-n204631>

ArcGIS Online Resources:

1. Story Map: visit to DC's National Mall: <http://storymaps.esri.com/stories/malltour/>
2. Urban Observatory app: <http://www.urbanobservatory.org/compare/>
3. Terrain profile: <http://esriurl.com/elevation>
4. [Heat Wave Risk of European Cities](#)
5. [The Linked Burdens of Obesity and Diabetes](#)
6. [Esri Demographic Atlas](#)
7. ArcGIS Online in education: <http://esriurl.com/mappingwithago>
<http://esriurl.com/agoskillbuilder>

Contact:

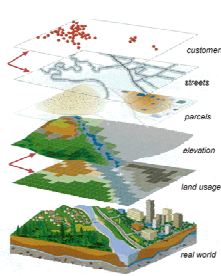
Ken Pekarek – GIS 4 Schools www.gis4schools.org
kenpekarek@comcast.net (651) 442-2573



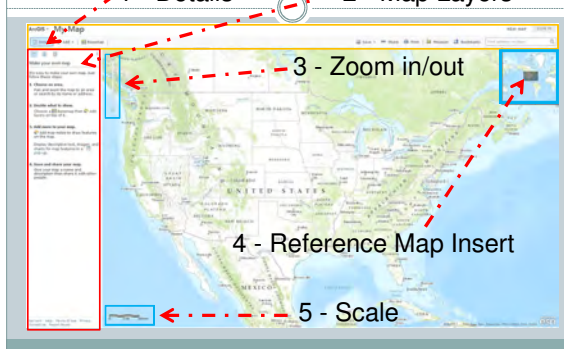
ArcGIS Online - Web Mapping

What is GIS?

- A geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.
- A GIS helps you answer questions and solve problems
- ArcGIS Online is an easy to use GIS that we will use today.



ArcGIS Online: Appearance



1 - Details

2 - Map Layers

3 - Zoom in/out


4 - Reference Map Insert

5 - Scale

ArcGIS Online Basemaps

Appropriate applications for different basemaps:

- **Reference**
 - Business locations
 - Mountain peaks (for hikers)
 - Nearby landmarks for tourism
- **Thematic**
 - Obesity rates by state
 - Ecological footprints by country
 - Housing values by neighborhood



Overview

EXERCISE 1: See Your World

Follow instructions on your handout

- 1. Open ArcGIS Online:** Go to <http://www.arcgis.com>, and click "Map"
- 2. New Map:** Grab, hold, and move the map.
- 3. Zooming in/out:** See numbers in the Scale Bar change.
- 4. Finding Places:** Use the **Search** box to find your city.
- 5. Changing Basemaps:** Look at each of the different basemaps

Overview

EXERCISE 2: Measure and Mark Your World

Follow instructions on your handout

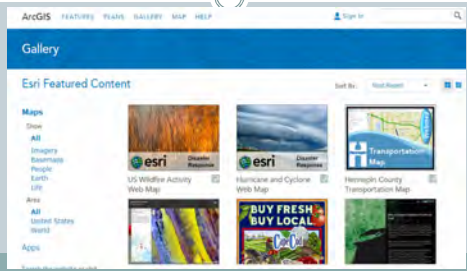
- 1. Measuring Distances:** The Measure tool has three options: Area, Length and Location. Zoom out to the world. Click "Measure" and choose "Ruler"
- 2. Measuring Features:** West coast of USA to England
- 3. Adding Labels:** "Modify Map" and "Add Map Notes"
- 4. Changing Symbols:** Zoom to your city and Select **Imagery with Labels** Basemap.
- 5. Measuring Areas:** Zoom back home and use the "Add Features" palette to add an "Area" for the school grounds.

Overview

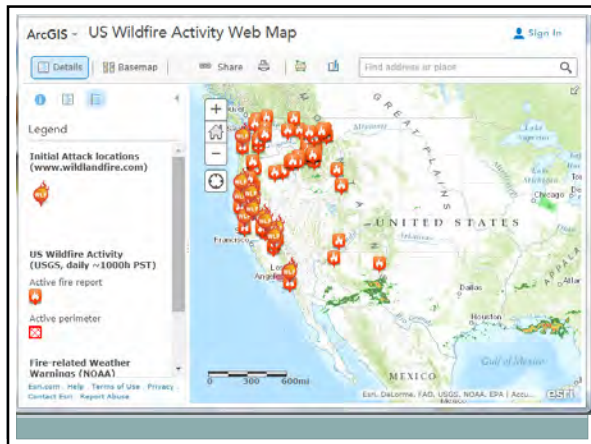
EXERCISE 3: ArcGIS Online GALLERY

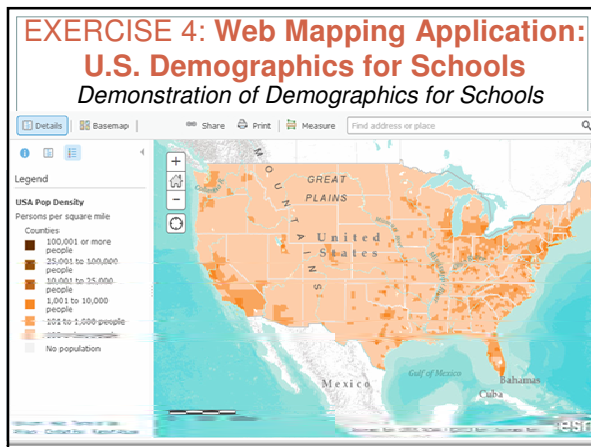
<http://www.arcgis.com/home/gallery.html#c=esri&t=maps&o=modified>

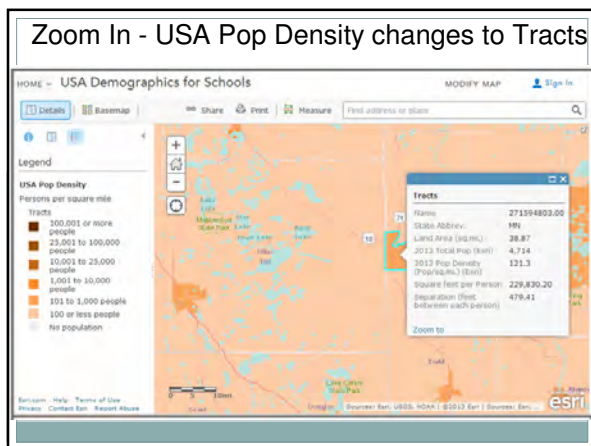
Follow instructions on your handout



The screenshot shows the ArcGIS Online Gallery interface. At the top, there is a navigation bar with 'ArcGIS', 'FEATURES', 'TEAMS', 'GALLERY', 'MAPS', and 'HELP'. Below this is a search bar and a 'Sign In' button. The main content area is titled 'Esrri Featured Content' and displays a grid of featured items. On the left, there is a sidebar with filters for 'Maps', 'Imagery', 'Basemaps', 'People', 'Earth', 'LIFE', 'Area', and 'Apps'. The featured content includes items like 'esri Disaster Resilience', 'esri Hurricane and Cyclone', 'Hennepin County Transportation Map', 'US Wildlife Activity Web Map', and 'BUY FRESH BUY LOCAL'.



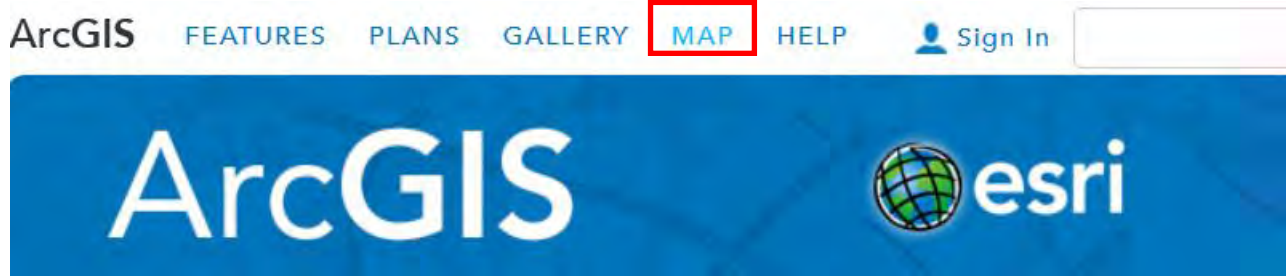




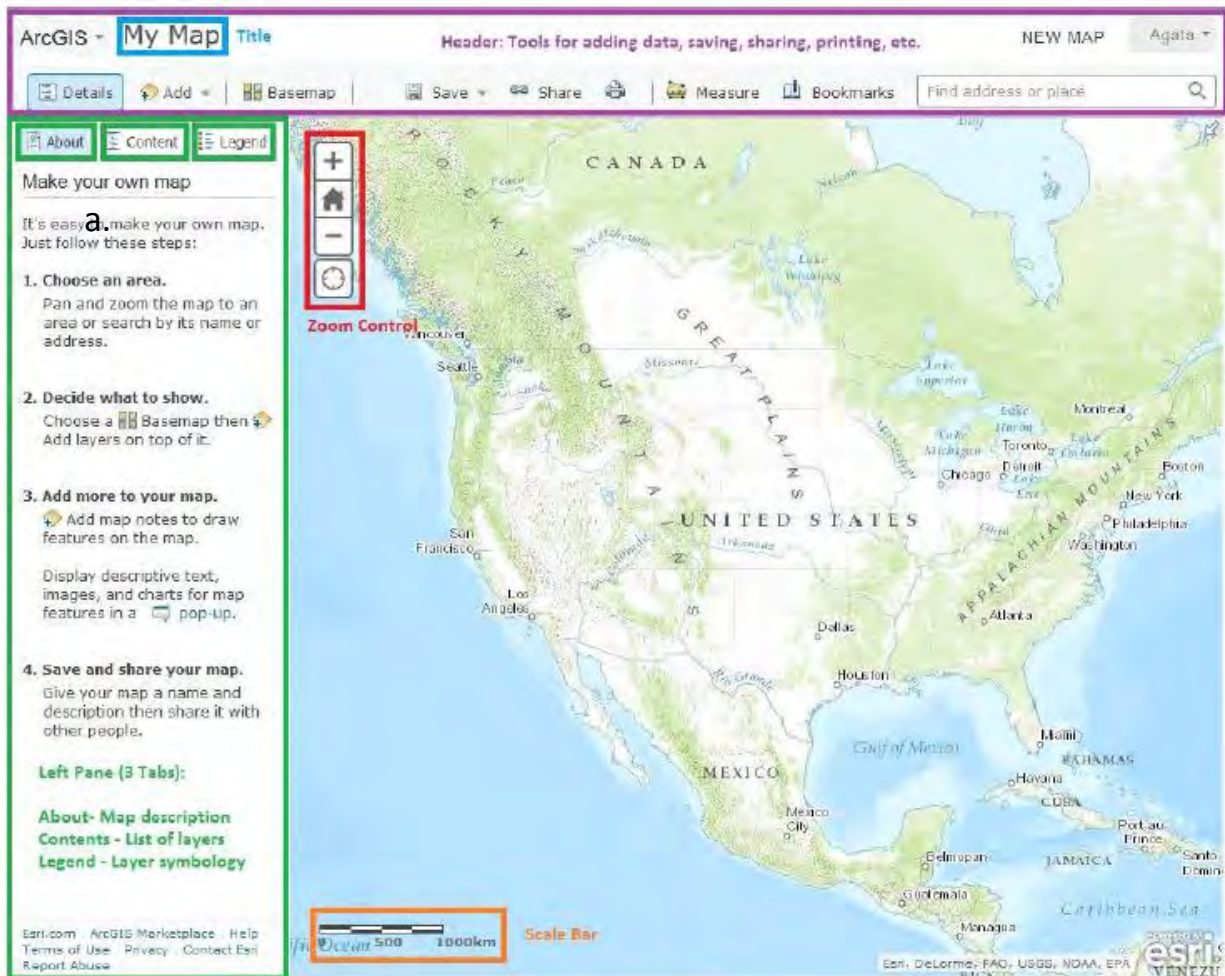
Web Mapping Using ArcGIS Online

Exercise 1: See Your World

1. **Open ArcGIS Online:** Go to <http://www.arcgis.com>, and click "Map"

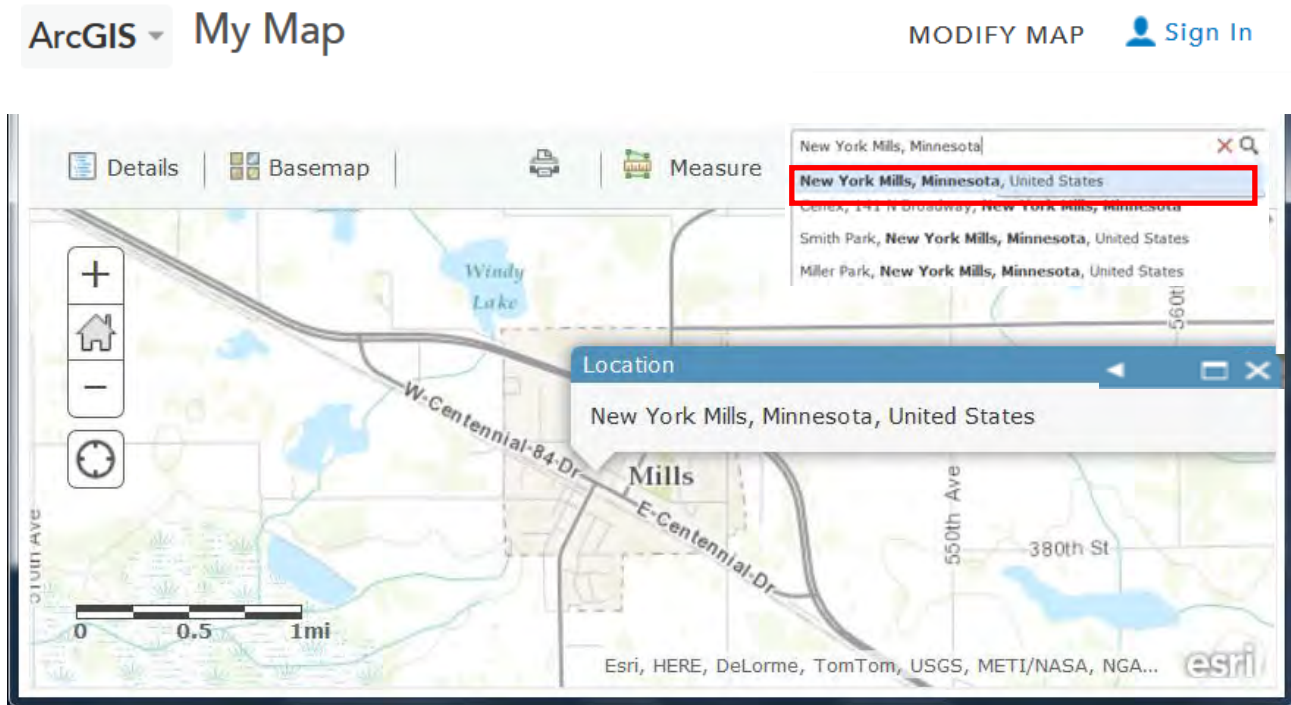


2. **New Map:** When you initially open a new map, the left panel gives a quick four-step walkthrough on how to make your own map. We'll cover all that and more in this lesson. **Grab, hold, and move the map** to pan and see the rest of the world.



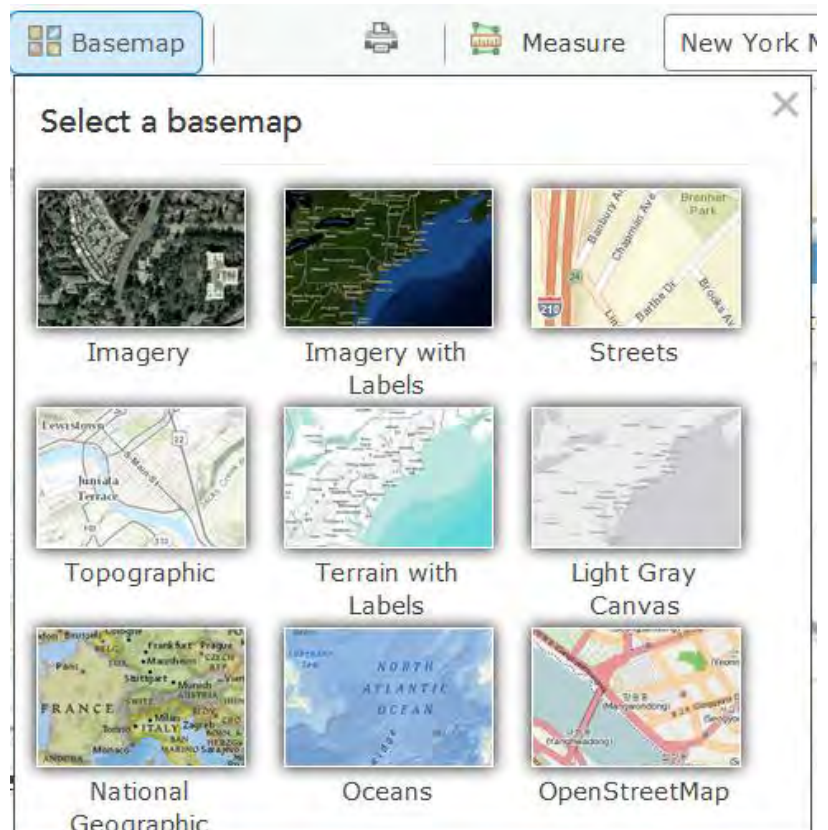
3. **Zooming in/out:** Test zooming in and out, use the map's **zoom bar**, the mouse's **scroll-wheel**, **double-click**, and **"shift+click drag"**. **Zoom out** to the world and then all the way in to your home. Notice what happens when you zoom in and out. See how the numbers in the Scale Bar change.

- Finding Places:** Use the **Search** box in the top right to find your city. Type: **New York Mills, Minnesota**. A menu of choices appears. Click on **New York Mills, Minnesota United States** and it will zoom in and open a marker on the city. Click **X** to close.



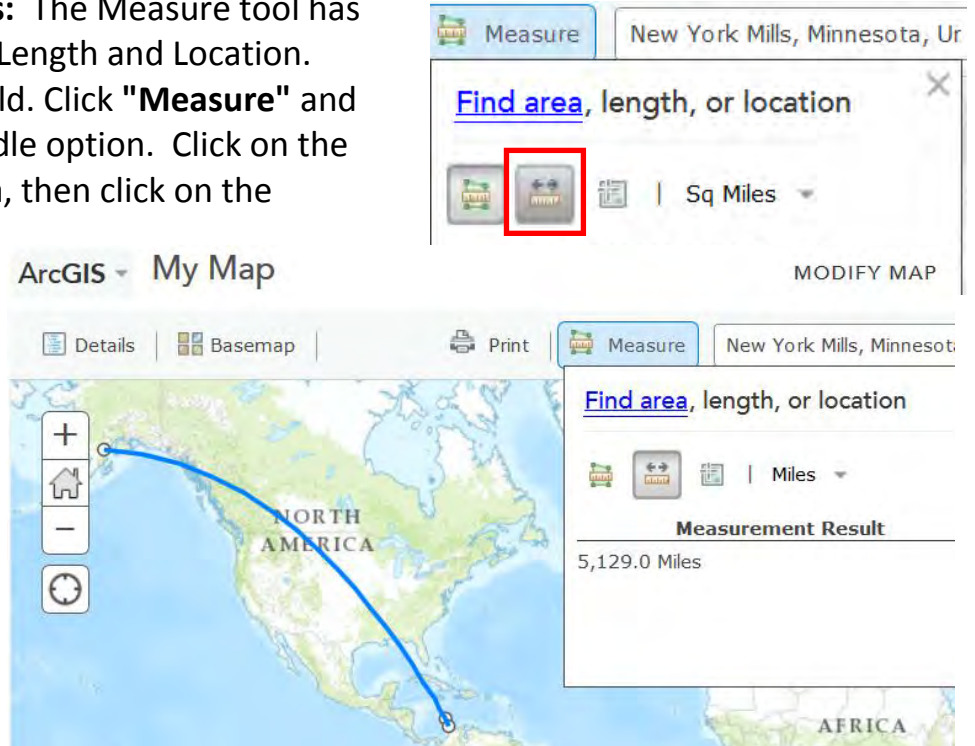
- Changing Basemaps:** Click the **Basemap** button and look at each of the nine basemaps. Select **Imagery with Labels** and zoom all the way out to see more of Minnesota. Try **Streets and National Geographic**. These are the most common Basemaps. Notice what happens in each as you zoom in and out.

Note: Topographic is ArcGIS Online's default Basemap.

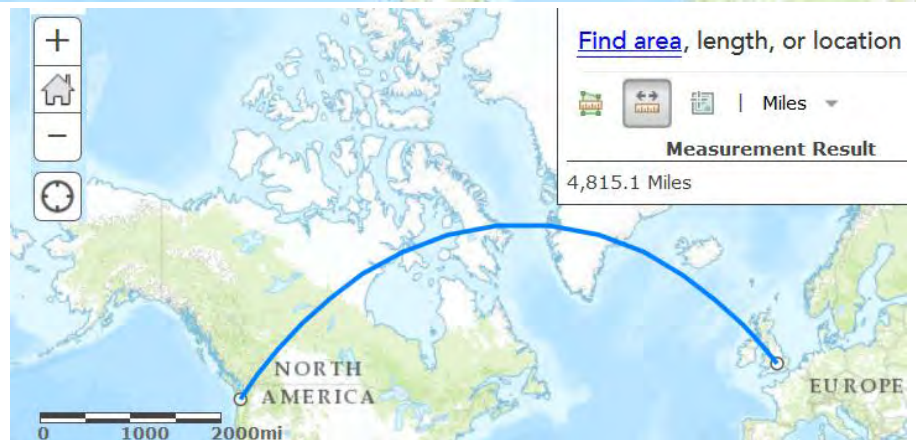


EXERCISE 2: Measure and Mark Your World

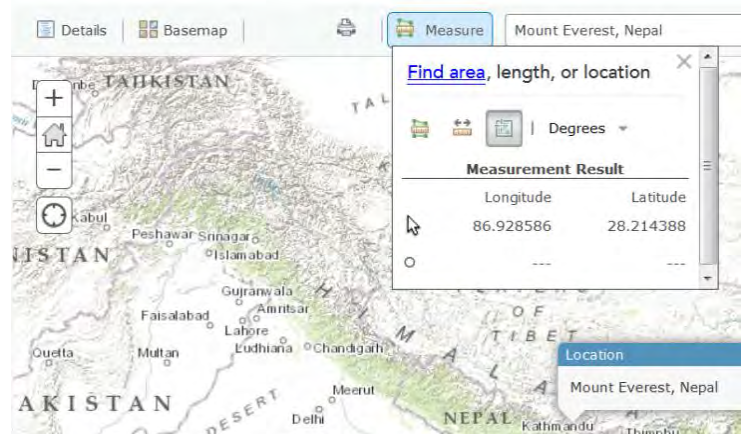
1. **Measuring Distances:** The Measure tool has three options: Area, Length and Location. Zoom out to the world. Click "**Measure**" and choose "**Ruler**", middle option. Click on the south coast of Alaska, then click on the northern tip of South America. Double clicking will end the measure tool.



2. **Measure Feature:** Click on West coast of USA and Double Click on England. This is like a flight from Seattle to London. (Extra credit: What's a "great circle"?)



3. **Location Feature:** Change the measure tool from the ruler to the location tool (*looks like a little globe*). Click it, wander the map, then zoom in and find the coordinates for **your home**, **Mt. Everest**, and the **White House**. You can use the search option to find Mt. Everest. Close the Measure window.



4. **Adding Labels:** Click "**Modify Map.**" Click the "**Add**" button, choose "**Add Map Notes,**" and use the "**Map Notes**" template by clicking "**Create.**" Drop a pushpin on Mt. Everest and name it "**Mt. Everest.**"

Add Map Notes

Name:

Template:

Use Map Notes to create basic shapes in a variety of applications.

CREATE

Points

Title: Mt. Everest

Description:

Image URL: http://

Image Link URL: http://

DELETE **CHANGE SYMBOL** **CLOSE**



5. **Changing Symbols:** Zoom back to your city. Select **Imagery with Labels** Basemap. Click the Add button and select Map Notes. Select Pushpin and give it a title: New York Mills. This time, click "**Change Symbol,**" and scroll down the symbol choices, in "**Basic**" and the other palettes. Select a **flag** and then click **Done.** *Note: the **flag** can be moved!*

Add Features

Map Notes 1 - Points

Stickpin Pushpin Cross

Points

Title: New York Mills

Description:

Image URL: http://

Image Link URL: http://

DELETE **CHANGE SYMBOL** **CLOSE**

Change Symbol

Preview:

Basic

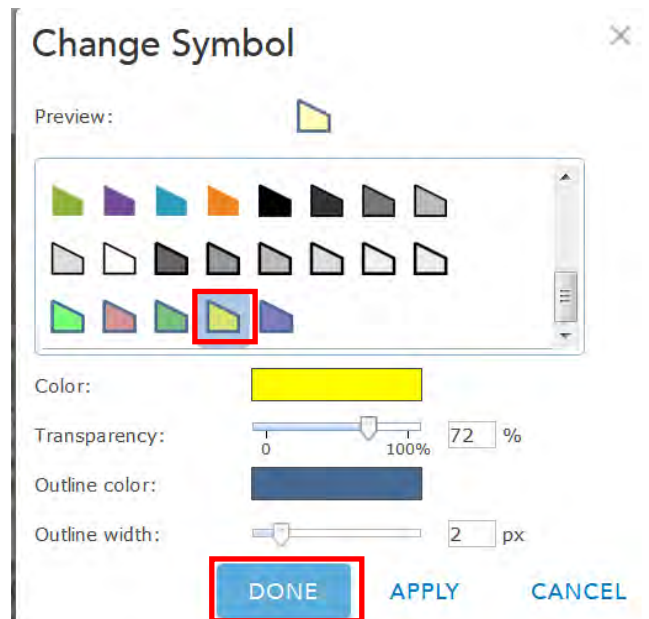
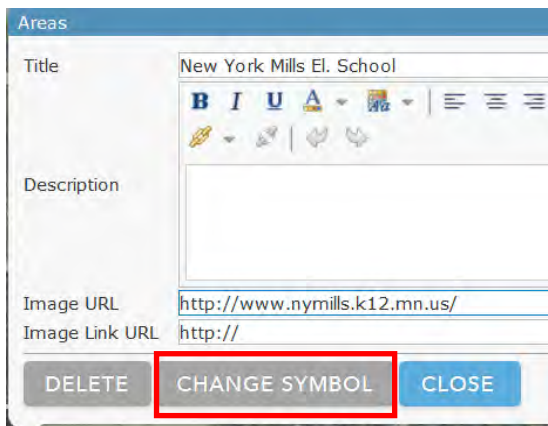
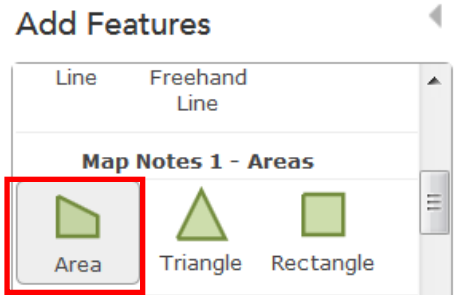
Add an Image

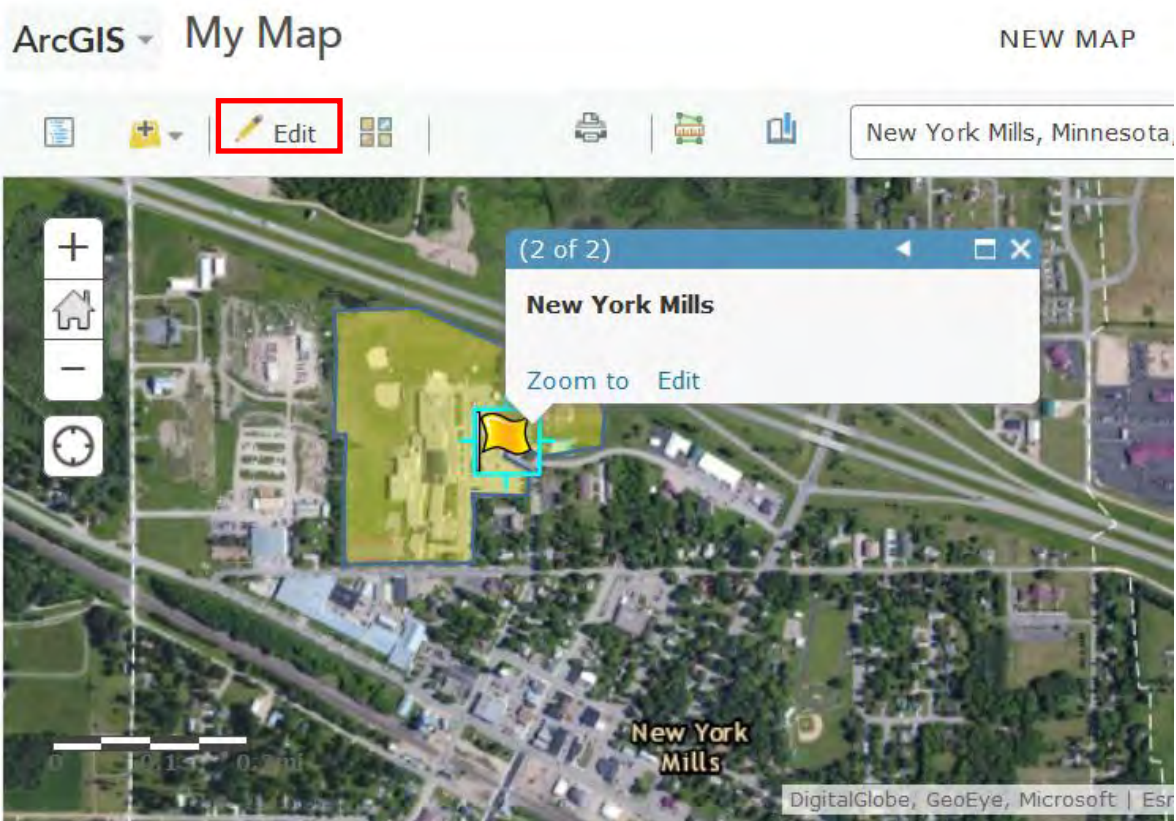
Symbol size: px

DONE **APPLY** **CANCEL**



6. **Measuring Areas:** Zoom back home and use the "Add Features" palette to add an "Area" for the school grounds. Click on **CHANGE SYMBOL** and select **yellow with a blue outline**. Change the Transparency to **72%**. This will let the air photo show through. Click **Done** when you are finished. You are back at the Map. To close the Editing click the **Edit** button.





7. **Save your map:** Click on the “Prt/Scr” button on a desktop or click “Ctrl, Prt/Scr” buttons at the same time on a Laptop. This will copy the screen to the Windows clipboard. To save the image, open **Paint** program. To edit, **paste** the image or Right Click on the Mouse and **Paste**. Students can add a title or clip off unwanted portions. To save the image, select file format as a **JPG** and Name the file: **Your name_map title**. Your teacher will tell you how to print the file or to send it to her.
8. **Display Legend and Map Notes:** Click on Details and Layers to see how Map Notes are added to the Legend area as layers. When you are done close **ArcGIS Online**.



EXERCISE 3: ArcGIS Online - Gallery

<http://www.arcgis.com/home/gallery.html#c=esri&t=maps&o=modified>

1. Click on the web link above to jump to **ArcGIS GALLERY** to see a sampling of maps in the GALLERY or open **ArcGIS Online** and select **Gallery**.

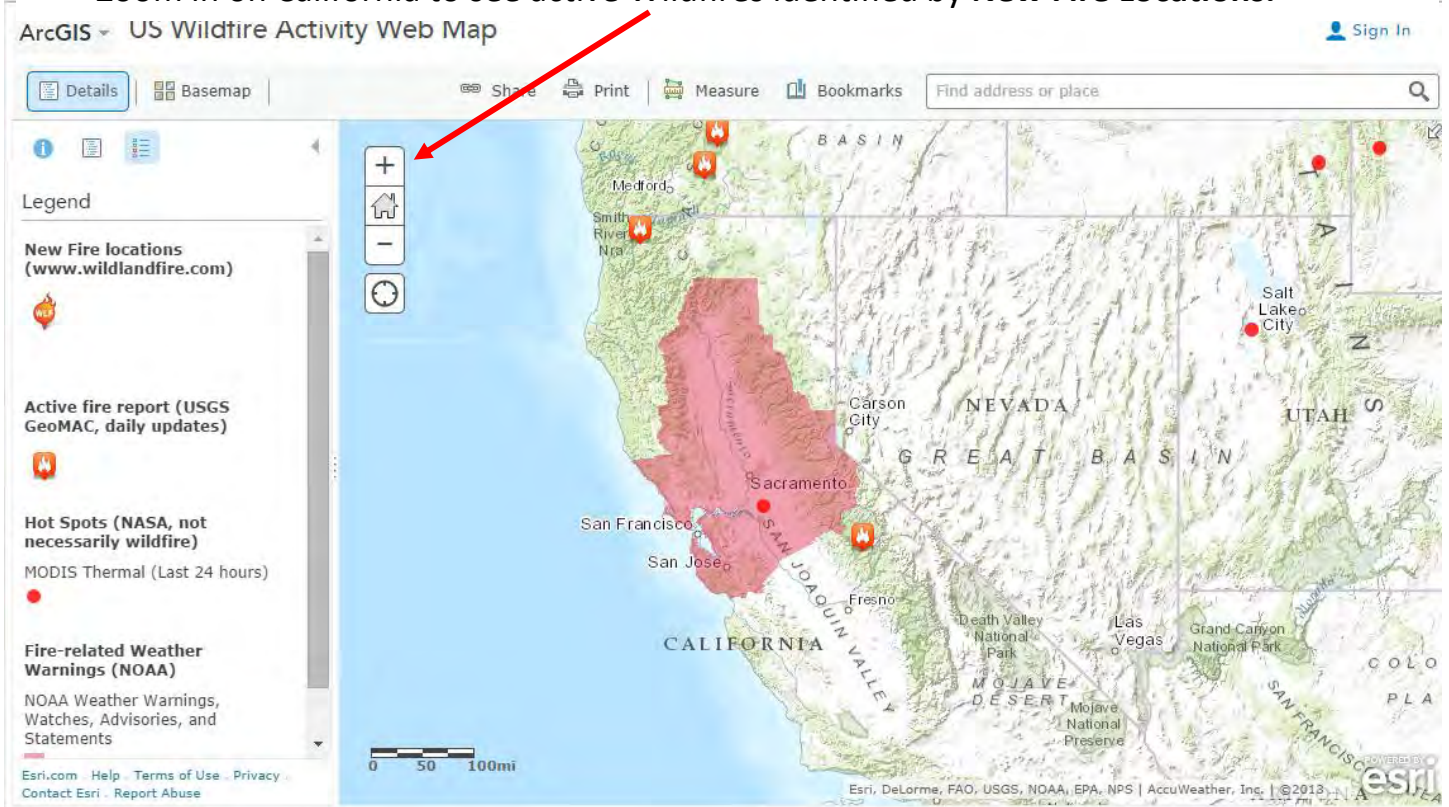
Note: Not all maps in the Gallery can be opened.

The screenshot shows the ArcGIS Online Gallery homepage. At the top, the navigation bar includes 'ArcGIS', 'FEATURES', 'PLANS', 'GALLERY' (highlighted with a red box), 'MAP', and 'HELP'. A 'Sign In' button is on the right. Below the navigation bar is a blue header with the word 'Gallery'. The main content area is titled 'Esri Featured Content' and is divided into 'Maps' and 'Apps' sections. The 'Maps' section has a sidebar with options: 'All', 'Imagery Layers', 'Basemaps', 'People' (highlighted with a red box), 'Earth', and 'Life'. The 'People' category is selected, showing a grid of map thumbnails. A red arrow points from the 'People' sidebar to the 'Disaster Response' folder. This folder contains six map thumbnails: 'Earthquake Web Map', '2014-2019 Population Growth Rate in the United States', '2013 Restaurant Spending in the United States', '2013 Health Insurance Spending in the United States', '2013 Alcoholic Beverages Spending in the United States', and '2014 Unemployment Rate in the United States'. A second red arrow points from the 'Earthquake Web Map' thumbnail to the 'Risk' category in the sidebar. The 'Risk' category is selected, showing a new set of map thumbnails. A red arrow points from the 'US Wildfire Activity Web Map' thumbnail to a tooltip that appears when the mouse hovers over it. The tooltip contains the text: 'This is a map of US wildfire locations (active/recent) and other sources of information related to wildfires, including social media. Click on the areas of interest.' The tooltip has two buttons: 'OPEN' (highlighted with a red box) and 'DETAILS'. A red arrow points from the 'OPEN' button to a dropdown menu that appears, with the option 'Open in map viewer' (highlighted with a red box) selected. A final red arrow points from the 'Open in map viewer' option to a button labeled 'Open in map viewer' in the bottom right corner of the screenshot.

2. Maps in the GALLERY are stored in folders. Click on **People** and a list of subfolders appears.
3. Click on **Risk** and a new set of maps appear.
4. Hover over the **US Wildfire Activity Web Map** and a box appears that describes the map.
5. Click on **Open** and a drop down menu appears.
6. Click on **Open in map viewer** to see the map.

People - Risk - US Wildfire Web Map

7. Wildfires are a constant threat to communities in western and south western states. Zoom in on California to see active Wildfires identified by **New Fire Locations**.



8. Monitoring national TV news identified several dangerous wildfires in California. As an example: On September 16, 2014, NBC NEWS reported wildfires ravaging near the small town of Weed, California. A Google search for **“Weed, California Wildfires”** found several internet links and dramatic videos of the devastation. Click on [NBC video](#) link to see videos of the devastation.



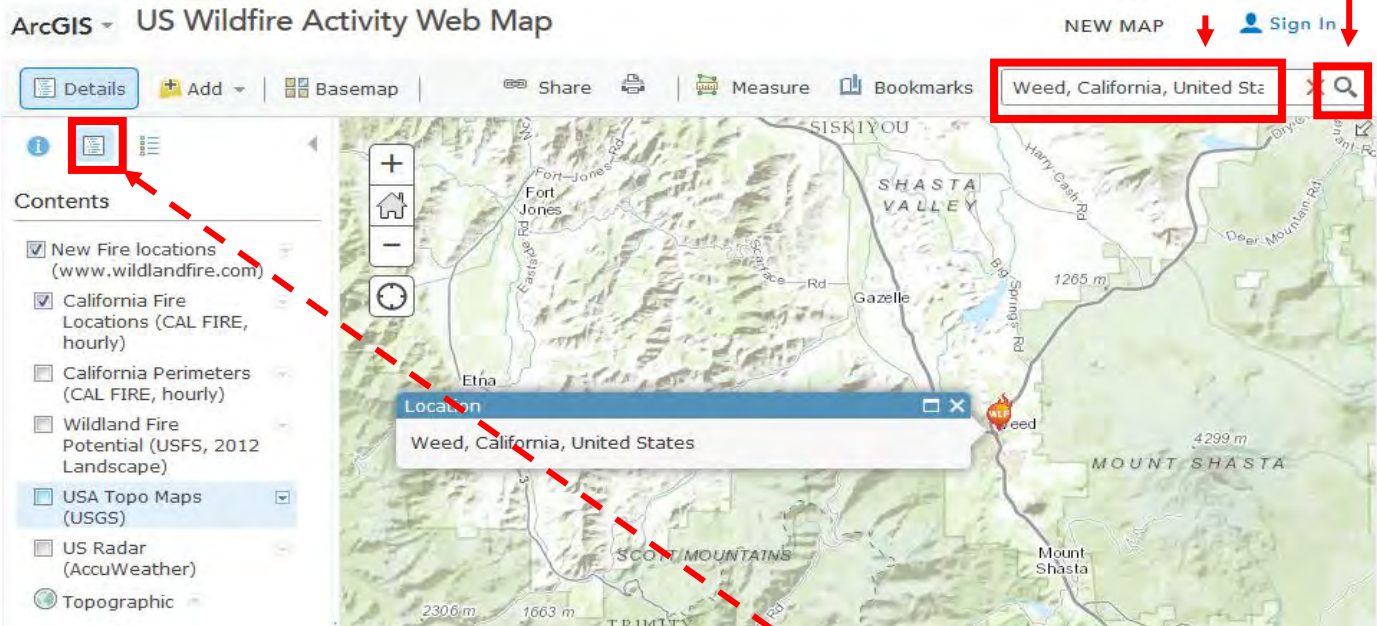
[NBC video:](#)



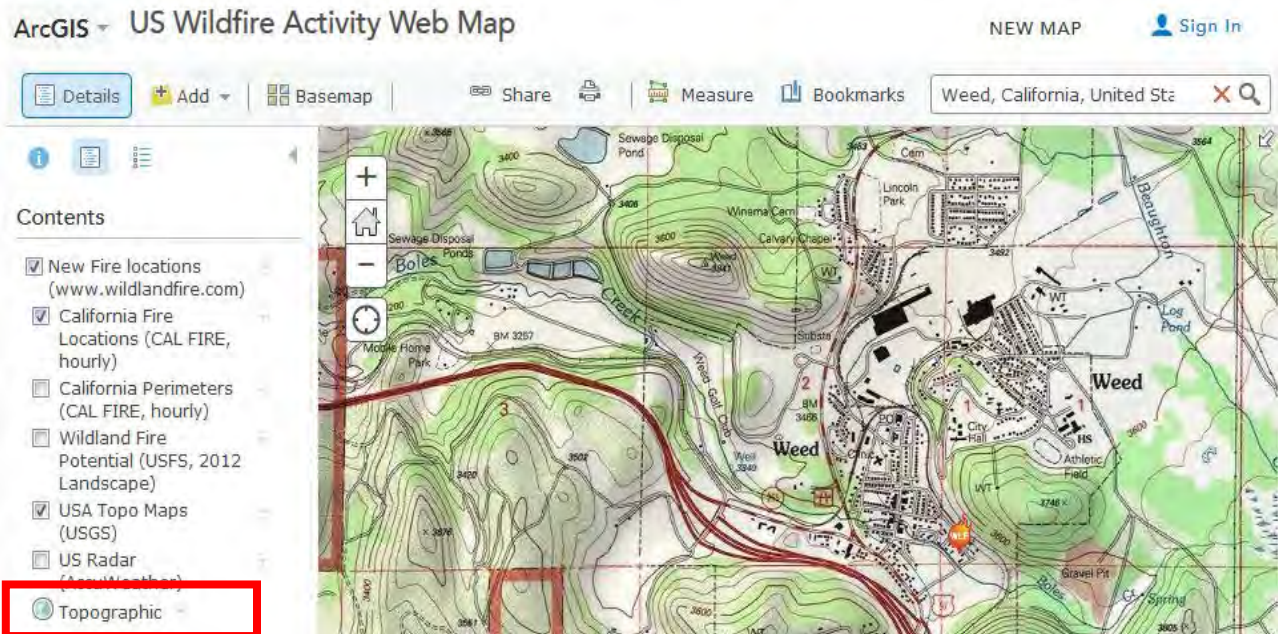
Search for Weed, California

9. To find maps and information on the Weed wildfire, use the **Find** option in ArcGIS Online. In the **Find Address or Place** box, type: **Weed, California, United States** and then click on the **Magnifier**.

10. The system zooms in and labels the community.



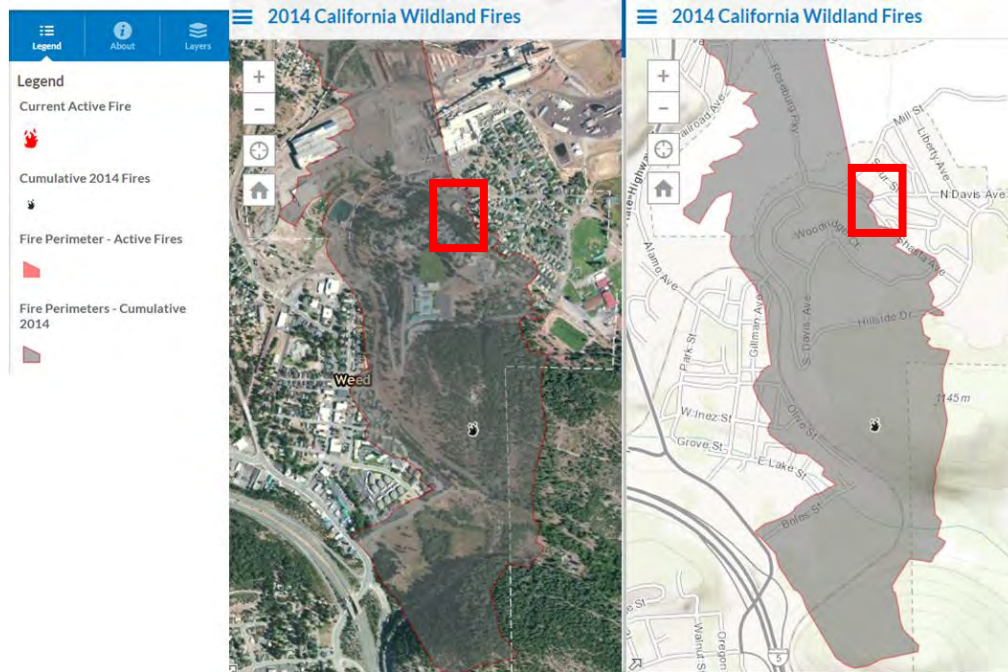
11. To see other layers click on the **Show Contents of Map** box. Click on any layer and its legend will open. Zoom in closer on Weed, California and open the **Topographic** layer. The topography layer shows developed areas, hills, steep slopes and forested areas.



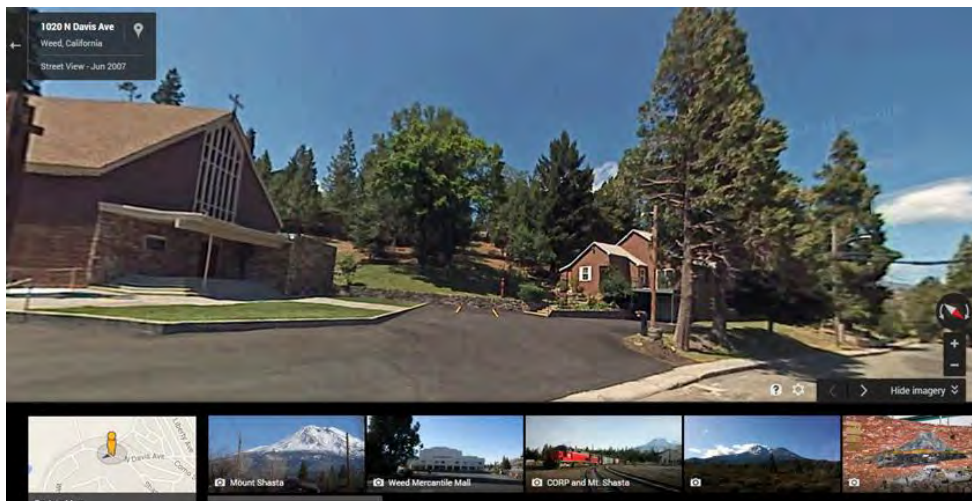
2014 California Wildland Fires

<http://esri.github.io/public-information-map-template-js/?webmap=9e6961b8e3724b1583ea594aeb2de8a6>

12. The example images below show how Google Maps and ArcGIS Online can be used together to understand the impact of a wildfire on a community. The link above opens a special Public Information Mapping application that identifies **2014 California wildfires**. The image below is an example of how the extent of a wildfire can be overlaid on top of an air photo to show the impact on a community. News reports identified that Holy Angels Catholic church was destroyed by the wildfire. The red box identifies the location of the church on the very edge of the fire.

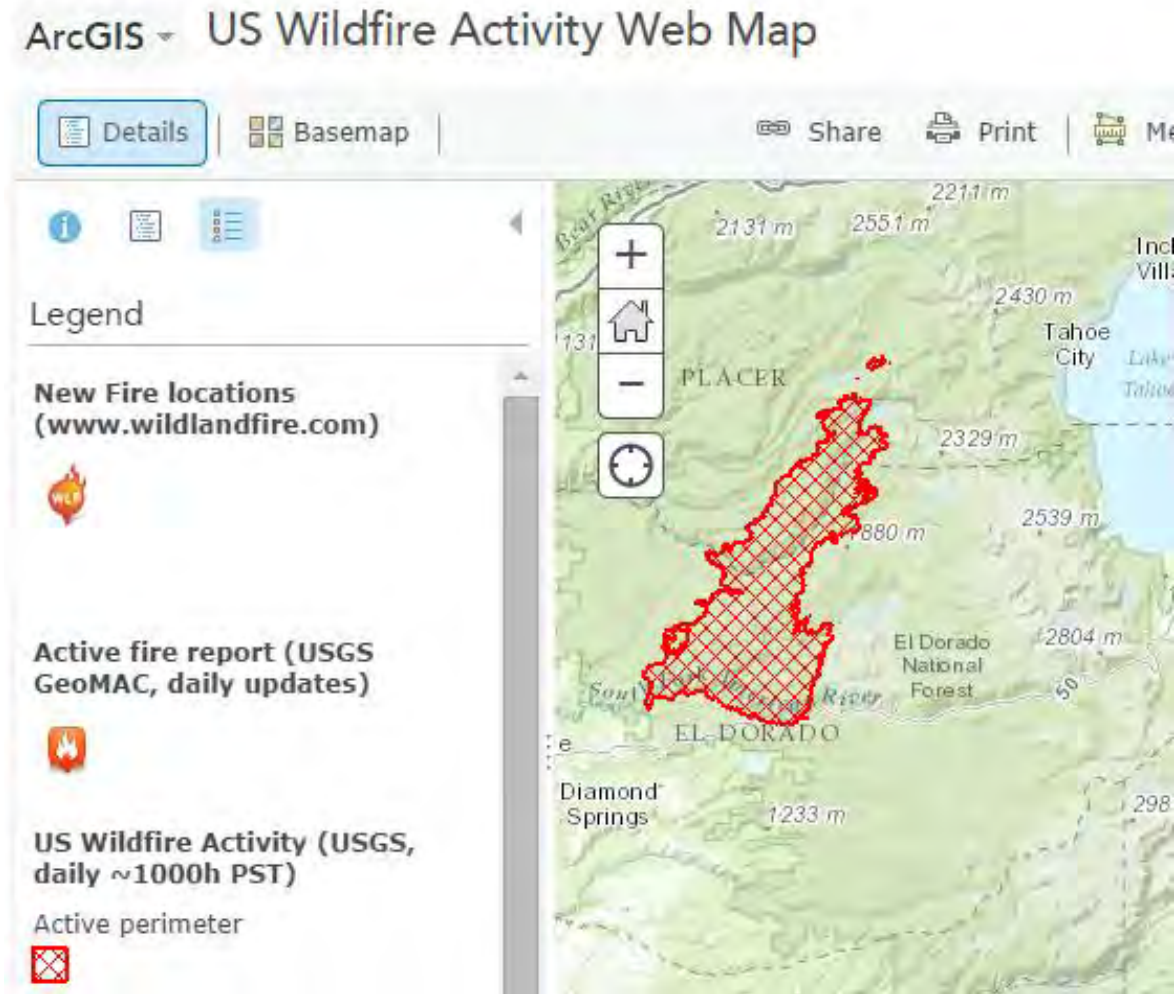


13. Using Google Maps to search for “**Holy Angels Catholic Church, Weed California**” Google Maps found the church. Then by selecting **Street View**, users can view photos of the church and the neighborhood before the wildfire occurred. Next year, new photos will be added to Google Maps and they will show the impact of the wildfire.



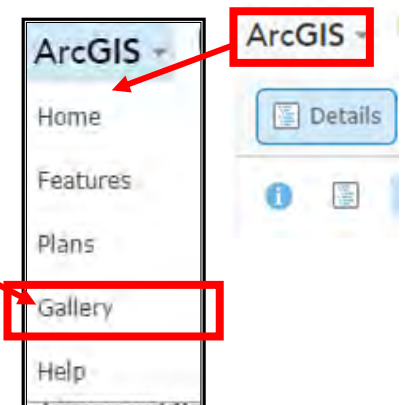
People - Risk - US Wildfire Web Map

14. The US Wildfire Activity Map identifies current fires. Students could monitor news reports for towns threatened by wildfires. Insert the name of the town threatened by Wildfires. The ArcGIS Online, US Wildfire Activity Web Map will have that fire identified on the map. Zoom in and click on Legend to see more information on each layer. Select **Basemap - Imagery with labels** and see the extent of the wildfire on aerial photography.



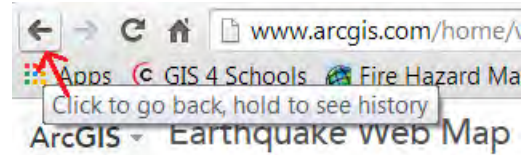
15. To return to the GALLERY, move the mouse over **ArcGIS**. As you **hover** over ArcGIS a drop down menu will appear that lists major sub-web pages available in ArcGIS.

16. Click on **Gallery** and it will display the list of map folders in the **Gallery**. Select a new map to view.



Explore maps in the Gallery

17. The Gallery has a wide variety of maps to view. Maps are stored in folders but some maps in the folders are not available. If you click a map that needs a license to open, use the **back arrow** to return to the **Gallery**.



on

Search the Gallery for the map examples identified below. Either zoom into an area that interests you or enter the name of your city. Do a screen capture of your map and paste the image into Paint. Save the image as a **JPG** and Name the file: **Your name_map title**. If you have forgotten how to do this, review the process listed on page 6.

18. **Temporal - Imagery** folder maps to check:



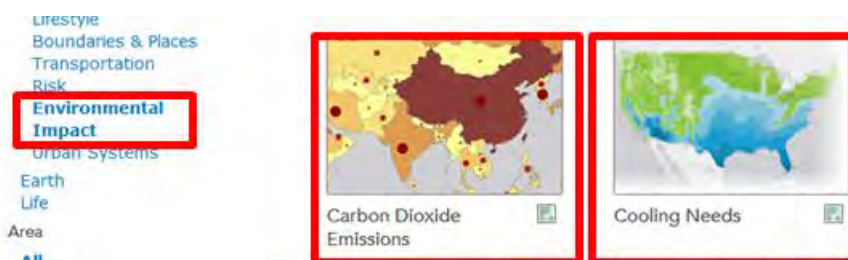
19. **Boundary** folder maps to check:



20. **People - Risk** folder maps to check:



21. **People - Environmental Impact** folder maps:



Prepare a Report with Map Images from the Gallery

22. Life - Ecology folder maps to check:

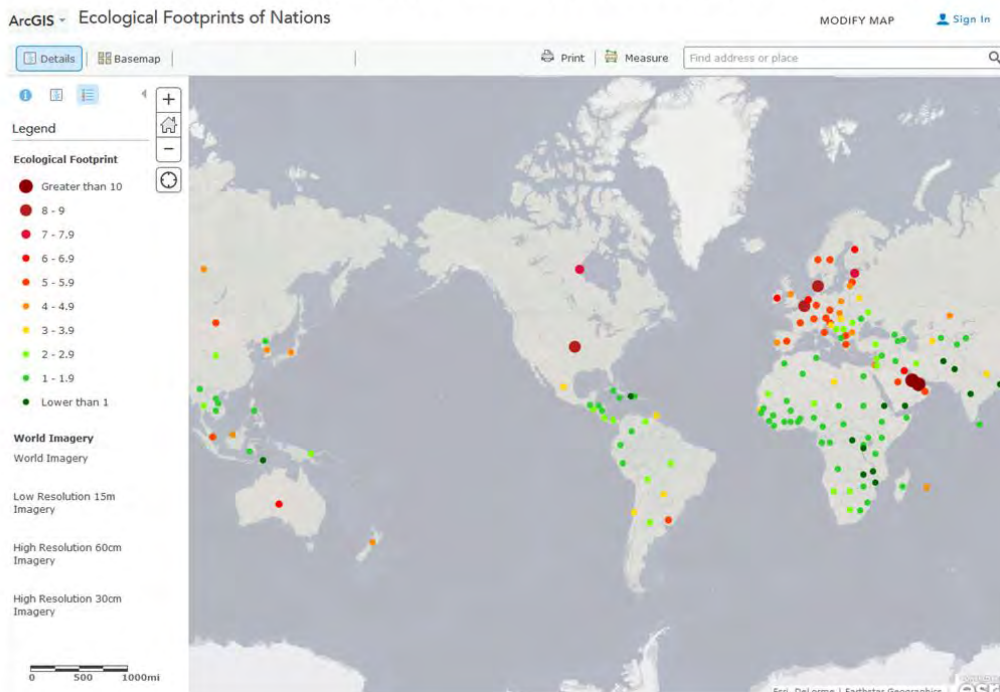


23. All maps in Gallery to check:



24. Your teacher may ask you to prepare a report. In that case, paste your images into a Word document. Your teacher will tell you how to print the file or to send the file to her. See example below:

Life – Ecological Footprints of Nations



25. When you are finished, close ArcGIS Online.

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kenpekarek@comcast.net www.gis4schools.org



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ArcGIS Online - Mapping Options for Your Classroom

Kenneth Pekarek, GIS 4 Schools, LLC

Coordinator of the Minnesota Firewise in the Classroom Project

- **Overview of ArcGIS Online map interface lesson.**
- **See how to add layers of geographic data.**
- **Learn navigation functions like zooming & scrolling.**
- **Find your school and add labels.**
- **Learn other Web Based GIS Mapping systems.**



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ArcGIS Online - Mapping Options for Your Classroom

THURSDAY	1:15 - 2:05
Veranda 3	ArcGIS Online Mapping Options for your Classroom
FRIDAY	10:00 - 10:50
Veranda 7	ArcGIS Online Mapping Options for your Classroom

***Exhibiting Firewise & ArcGIS Online
- Mapping Options***



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ArcGIS Online - Mapping Options for Your Classroom

1 - Lesson Overview

2 - Intro PowerPoint

3 - Lesson Handout



Download lesson from MMSA website: <http://www.mmsa.info/>

Overview: Students will learn how to navigate ArcGIS through a series of activities. Students will be introduced to ArcGIS mapping and how to plot points and measure distances. Students will apply their learning to wildfires in California. The city of New York Mills is the example used in this lesson, but any city may be used. This lesson is an introduction to ArcGIS as a geospatial technology tool and can be applied to the investigation of a variety of topics and areas of the world.

Minnesota Social Studies Standards:

(8th Grade)

Standard 1. People use geographic representations and geospatial technologies to acquire, process and report information within a spatial context.
 8.3.1.1.2 Create and use various kinds of maps, including overlaying thematic maps, of places in the world; incorporate the "TODALSS" map basics, as well as points, lines and colored areas to display spatial information.

(9th Grade)

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Objective: Students will be able to:

Navigate ArcGIS as a geospatial technology tool including:

- Zooming in/out
- Finding places
- Changing basemaps
- Measuring distances
- Labeling features
- Changing symbols
- Measuring areas
- Navigating layers

Materials needed:

- Computer Internet access with projector
- Computer Internet access for students
- Handout: "Web Mapping Using ArcGIS Online" (optional: project the handout)
- PowerPoint: "ArcGIS Online"

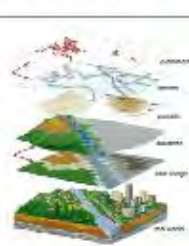
Time: 2-3 days

Grade: 8th and 9th

ArcGIS Online - Web Mapping

What is GIS?

- A geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.
- A GIS helps you answer questions and solve problems
- ArcGIS Online is an easy to use GIS that we will use today.



ArcGIS Online: Appearance



Web Mapping Using ArcGIS Online Exercise 1: See Your World

1. Open ArcGIS Online: Go to <http://www.arcgis.com> and click "Map"



2. New Map: When you initially open a new map, the left panel gives a quick four-step walkthrough on how to make your own map. We'll cover all that and more in this lesson. Grab, hold, and move the map to pan and see the rest of the world.

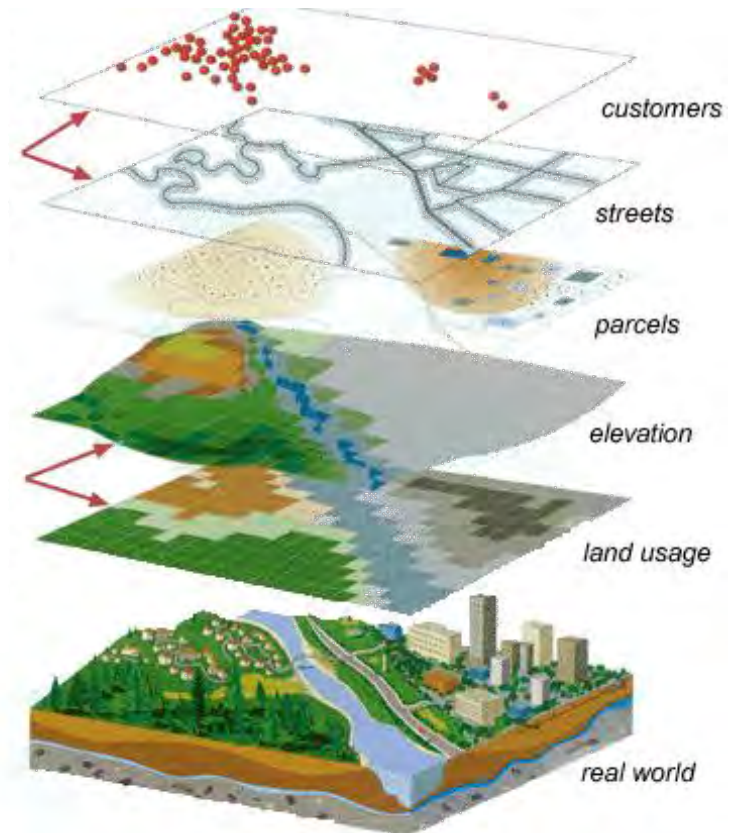


3. Zooming in/out: Test zooming in and out, use the map's zoom bar, the mouse's scroll-wheel, double-click, and "shift-click drag". Zoom out to the world and then all the way in to your home. Notice what happens when you zoom in and out. See how the numbers in the Scale Bar change.

ArcGIS Online - Web Mapping

What is GIS?

- A geographic information system (**GIS**) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.
- A **GIS** helps you answer questions and solve problems
- ArcGIS Online is an easy to use GIS that we will use today.



Overview

EXERCISE 1: See Your World

Follow instructions on your handout



- 1. Open ArcGIS Online:** Go to <http://www.arcgis.com>, and click "Map"
- 2. New Map:** Grab, hold, and move the map.
- 3. Zooming in/out:** See numbers in the Scale Bar change.
- 4. Finding Places:** Use the **Search** box to find your city.
- 5. Changing Basemaps:** Look at each of the different basemaps

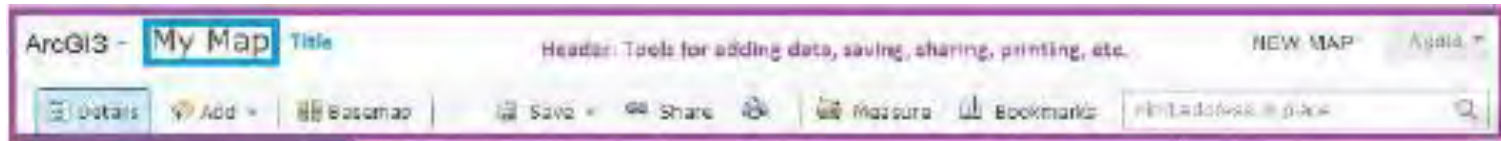
Web Mapping Using ArcGIS Online

Exercise 1: See Your World

1. Open ArcGIS Online: Go to

<http://www.arcgis.com>

ArcGIS FEATURES PLANS GALLERY **MAP** HELP Sign In



ArcGIS Online: Appearance

1 - Details

2 - Map Layers



3 - Zoom in/out

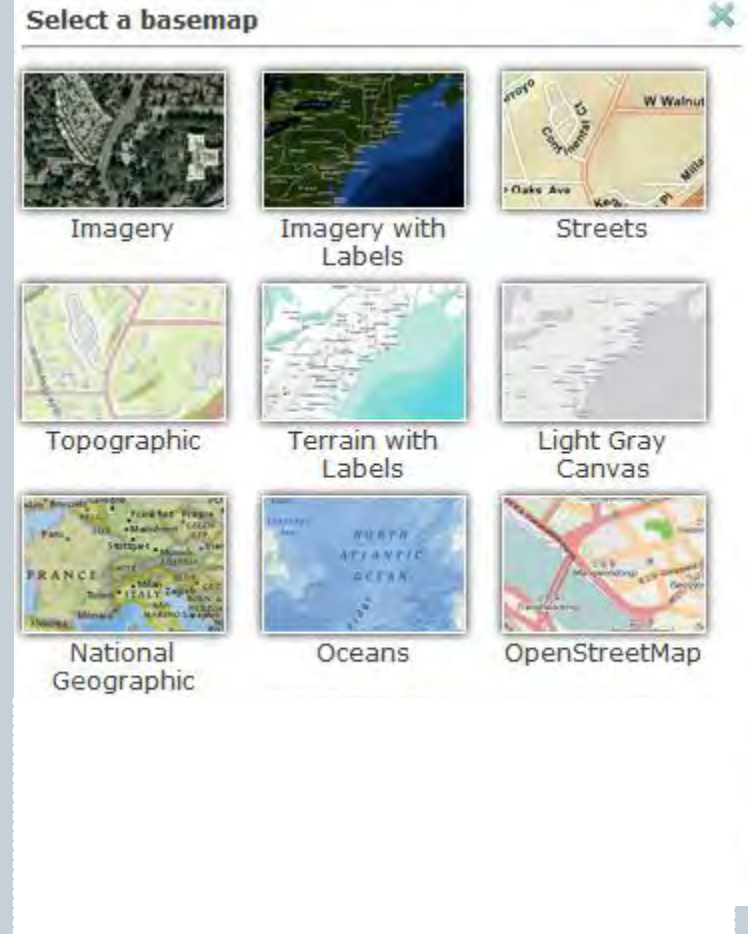
4 - Reference Map Insert

5 - Scale

ArcGIS Online Basemaps



- **Appropriate applications for different basemaps:**
 - **Reference**
 - ✦ *Business locations*
 - ✦ *Mountain peaks (for hikers)*
 - ✦ *Nearby landmarks for tourism*
 - **Thematic**
 - ✦ *Obesity rates by state*
 - ✦ *Ecological footprints by country*
 - ✦ *Housing values by neighborhood*



Overview

EXERCISE 2: Measure and Mark Your World

Follow instructions on your handout



- 1. Measuring Distances:** The Measure tool has three options: Area, Length and Location. Zoom out to the world. Click "**Measure**" and choose "**Ruler**"
- 2. Measuring Features:** West coast of USA to England
- 3. Adding Labels:** "**Modify Map**" and "**Add Map Notes**"
- 4. Changing Symbols:** Zoom to your city and Select **Imagery with Labels** Basemap.
- 5. Measuring Areas:** Zoom back home and use the "**Add Features**" palette to add an "**Area**" for the school grounds.

EXERCISE 2: Measure and Mark Your World

1. **Measuring Distances:** The Measure tool has three options: Area, Length and Location. Zoom out to the world. Click "**Measure**" and choose "**Ruler**", middle option. Click on the south coast of Alaska, then click on the northern tip of South America.



2. **Measure Feature:** Click on West coast of USA and Double Click on England. This is like a flight from Seattle to London. (Extra credit: What's a "great circle"?)



Label School and Measure Area of School

ArcGIS My Map

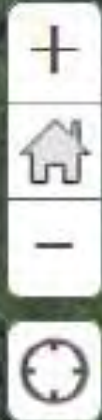
NEW MAP



Edit



New York Mills, Minnesota



(2 of 2)

New York Mills

Zoom to Edit



New York Mills



Overview

EXERCISE 3: ArcGIS Online GALLERY


<http://www.arcgis.com/home/gallery.html#c=esri&t=maps&o=modified>


Follow instructions on your handout

The screenshot displays the ArcGIS Online Gallery interface. At the top, there is a navigation bar with links for ArcGIS, FEATURES, PLANS, GALLERY, MAP, and HELP. A search bar and a 'Sign In' button are also present. Below the navigation bar is a blue header with the word 'Gallery'. The main content area is titled 'Esri Featured Content' and includes a 'Sort By:' dropdown menu set to 'Most Recent'. On the left side, there is a sidebar with 'Maps' and 'Apps' sections. The 'Maps' section lists categories like Imagery, Basemaps, People, Earth, and Life. The 'Apps' section lists 'United States' and 'World'. The main content area displays six featured items in a grid:

- US Wildfire Activity Web Map:** Features a thumbnail image of tall grasses and the text 'esri Disaster Response US Wildfire Activity Web Map'.
- Hurricane and Cyclone Web Map:** Features a thumbnail image of a stormy sky and the text 'esri Disaster Response Hurricane and Cyclone Web Map'.
- Hennepin County Transportation Map:** Features a thumbnail image of a map with green lines and the text 'Hennepin Transportation Map'.
- United States World:** Features a thumbnail image of a map of the United States with yellow and purple overlays.
- Cape Cod:** Features a thumbnail image of a sign that says 'BUY FRESH BUY LOCAL Cape Cod'.
- Who in America Watches the World Cup?:** Features a thumbnail image of a map with a dark overlay and the text 'Who in America Watches the World Cup?'.

 Details

 Basemap

 Share



Find address or place 



Legend

Initial Attack locations (www.wildlandfire.com)



US Wildfire Activity (USGS, daily ~1000h PST)

Active fire report



Active perimeter



Fire-related Weather Warnings (NOAA)

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Developing - Demographic Lesson

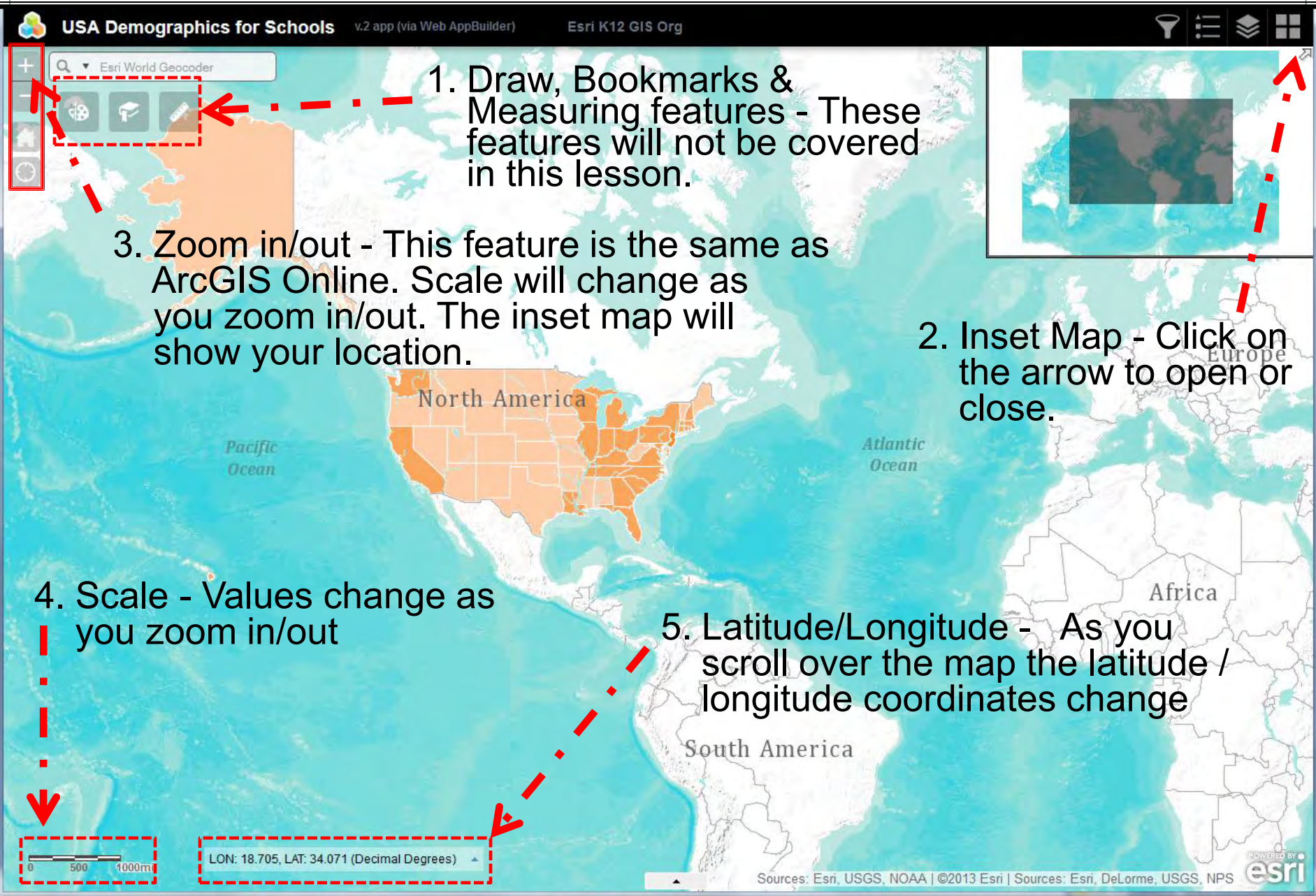
Step 1: Open USA Demographics For Schools

<http://esriurl.com/usademographicsforschools>

1. To open USA Demographics For Schools **click** on the link above. The application opens with a view of the world with USA Pop Density data layer active.
2. This app is different from ArcGIS Online explored in Ex 1-3.
 - Only USA Demographic data is available.
 - There is no Find option
3. This app works on PCs with Windows Xp,7 & 8, MACs, Chromebooks, iPads, Android tablets, iPhones, and Android phones.



Step 2: Map Appearance and Features



1. Draw, Bookmarks & Measuring features - These features will not be covered in this lesson.



2. Inset Map - Click on the arrow to open or close.

3. Zoom in/out - This feature is the same as ArcGIS Online. Scale will change as you zoom in/out. The inset map will show your location.

4. Scale - Values change as you zoom in/out

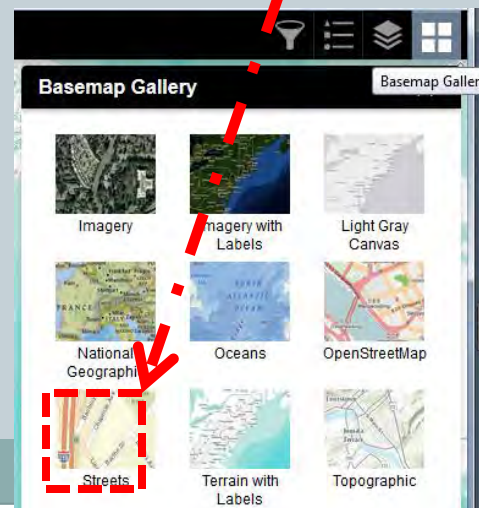
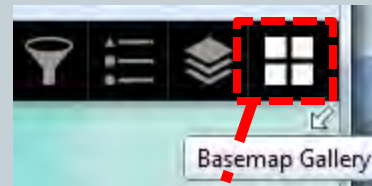
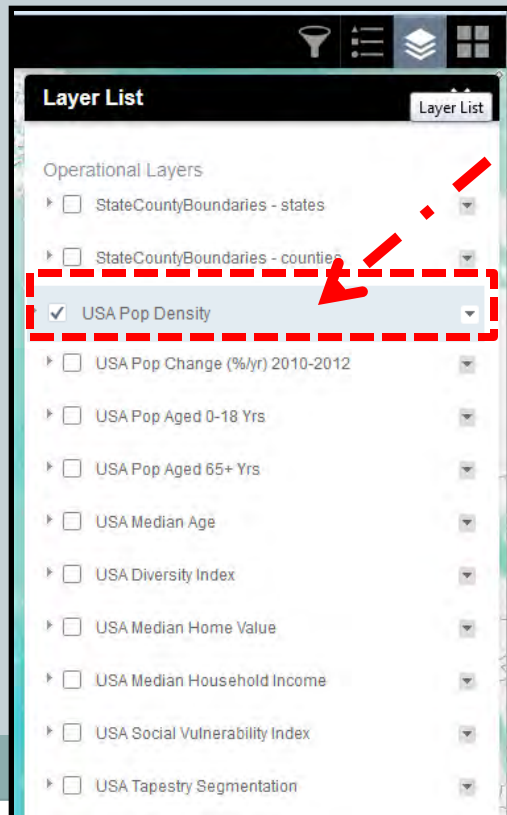
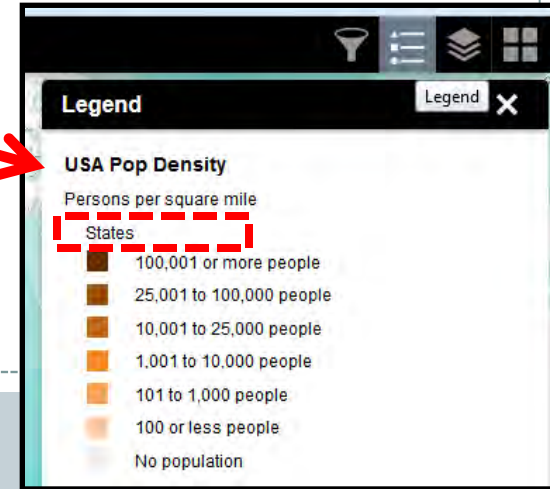
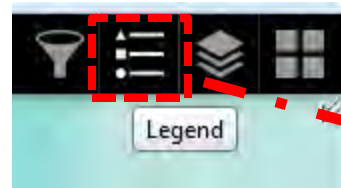
5. Latitude/Longitude - As you scroll over the map the latitude / longitude coordinates change



LON: 18.705, LAT: 34.071 (Decimal Degrees)

Step 3: Legend, Layer List and Basemap Gallery

1. Click on **Legend** box and the active Layer's legend appears with State, County, Tract or Block Group data.
2. Click on **Layer List** box and the list of available layers appear with the active Layer checked.

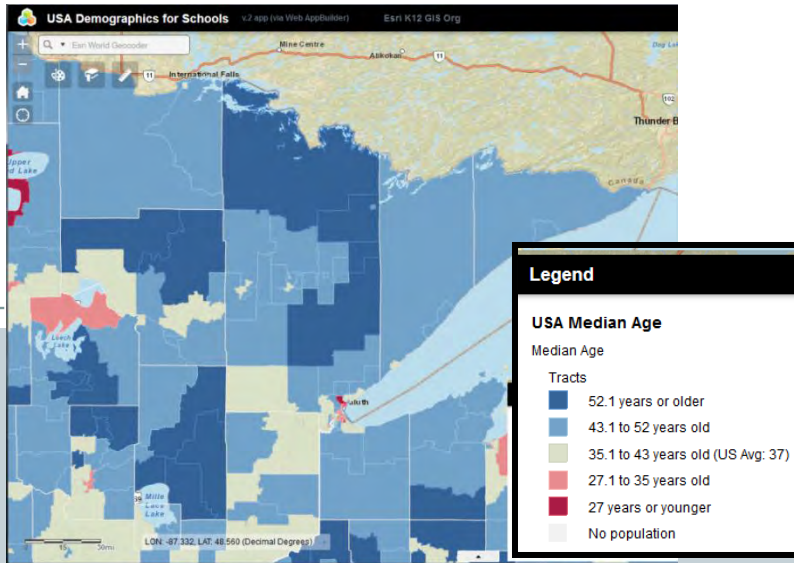


3. Click on **Basemap Gallery** box and the list of Basemaps appears. Later in the lesson you will select Streets because it has the best description of city and street names.
4. Click the **X** to close Basemaps Gallery.

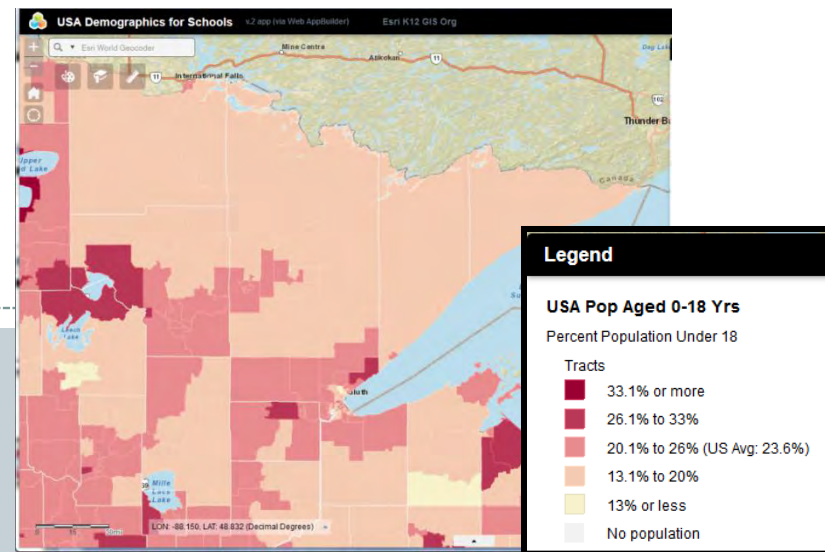


Compare Demographic Data

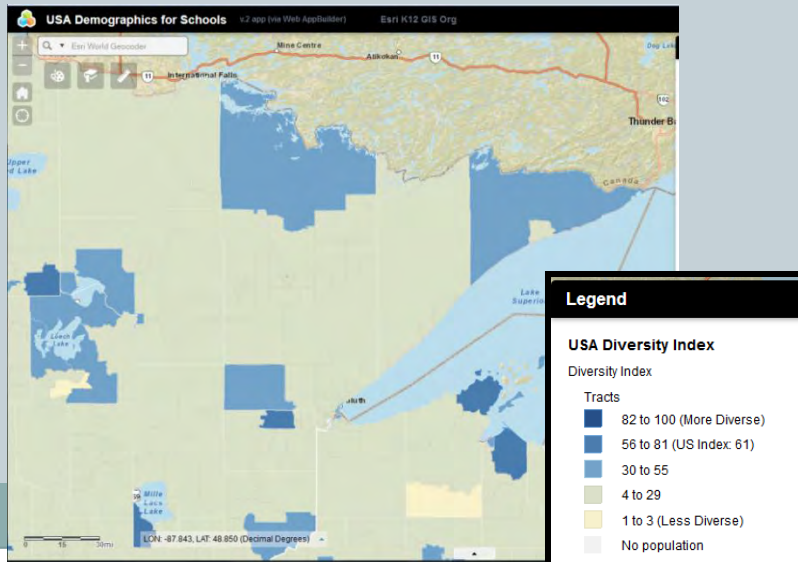
USA Median Age



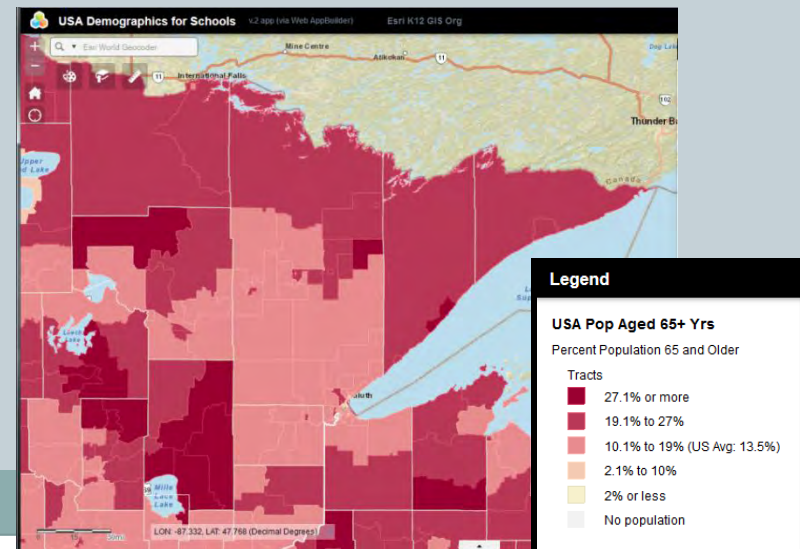
USA Pop Aged 0-18 Yrs



USA Diversity Index

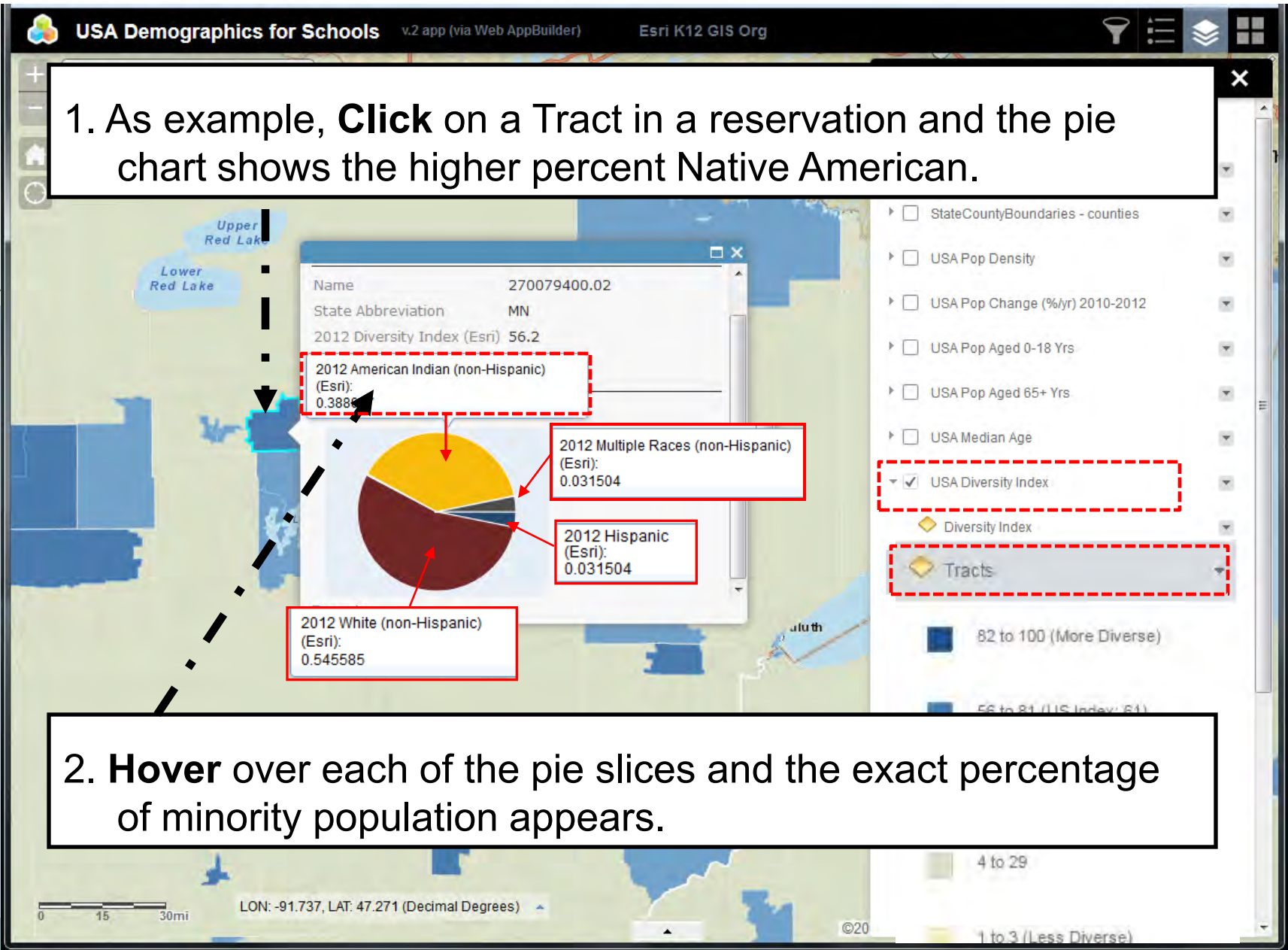


USA Pop Aged 65 + Yrs



Click on Areas with More Diversity

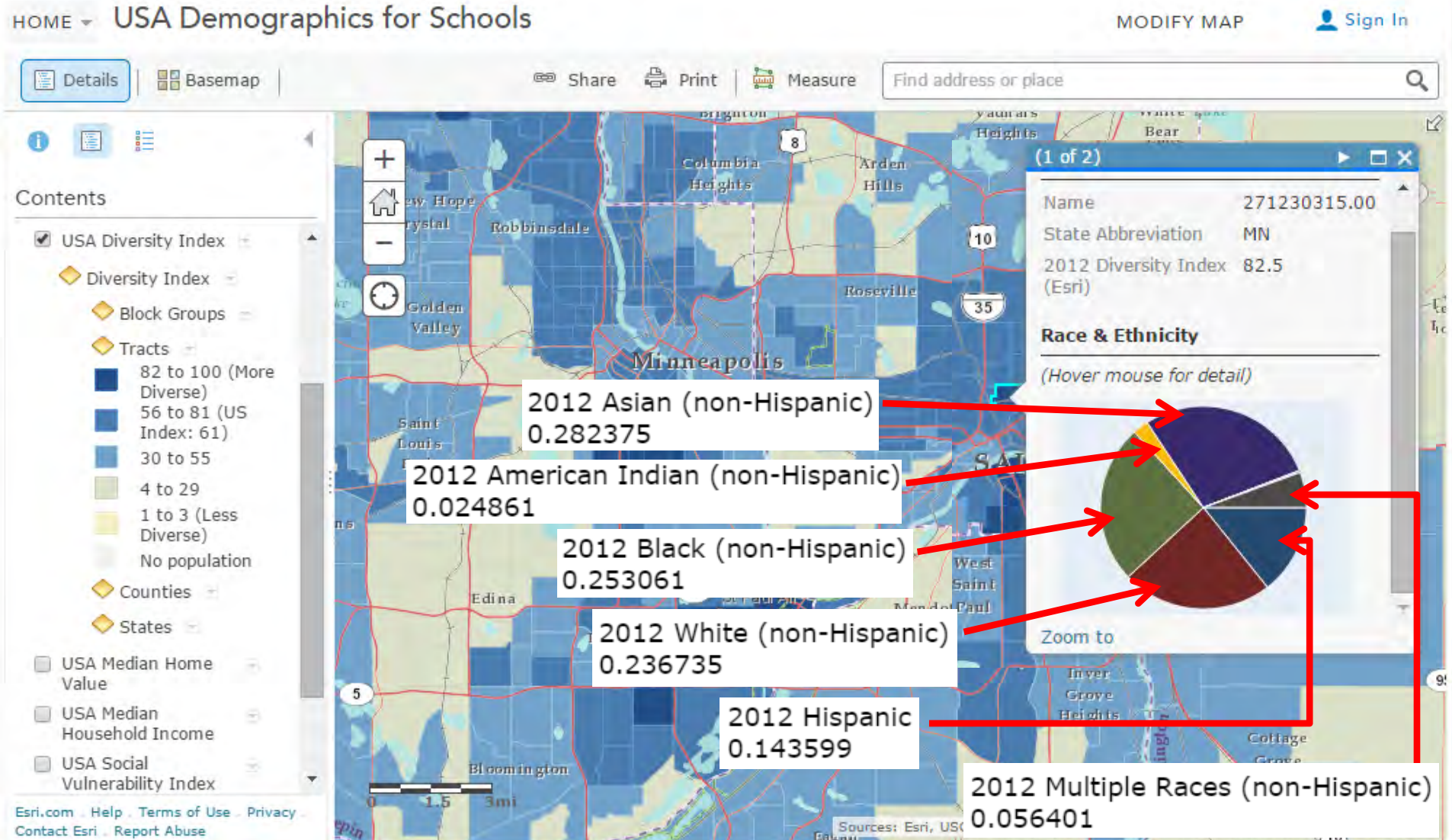
1. As example, **Click** on a Tract in a reservation and the pie chart shows the higher percent Native American.



2. **Hover** over each of the pie slices and the exact percentage of minority population appears.

Identify Race & Ethnicity

Example: Census Tract in St. Paul



ArcGIS Online Resources:

- 1 - Lessons available from conference website
- 2 - Lessons available from www.gis4schools.org

AGO Lessons

- 3 - Contact me to teach lesson to your class.
Kenneth Pekarek kenpekarek@comcast.net

- 4 - MAGE (Minnesota Alliance for Geographic Education) <http://lt.umn.edu/mage/resources/>

- 5 - Esri tutorials and videos:

<http://resources.arcgis.com/en/tutorials/>

- 6 - Additional resources from MN Dept. of Education

<https://education.state.mn.us/MDE/SchSup/SchTech/GISinK-12/index.html>

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