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An Introduction to Using Geographic Information Systems (GIS) in the Classroom

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An Introduction to Using Geographic Information Systems (GIS) in the Classroom

Lisa Millsaps
David Jensen
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2018 Interdisciplinary STEM Teaching and Learning Conference
Welcome

• Good morning!

• Introductions – us and you 😊
## Agenda

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<td>Teaching with maps and GIS</td>
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Goals for today

• To familiarize you with available online GIS programs to be used in your classroom or educational setting

• Give you the time and assistance to (hopefully) find something you can readily go out and use in your classroom or educational setting

• Spark new interests for using maps in STEM
Building the Case for GIS and Mapping
The Power of Maps


• Go to this website, look at the maps, and take 5 minutes discussing with your neighbor the most fascinating maps
Benefits of using maps and GIS in your classroom...

• Supports integrated teaching of multiple subjects

• Assists with the use of dual-encoding

• Works well with inquiry-based activities
  • Incorporates well with the STEM and technology movements

• Presents a significant amount of content in a geographical context

• Contemporary technology that introduces students to an in-demand job skill
Geographic Information Systems (GIS)

- any information system capable of integrating, storing, editing, sharing, analyzing, and displaying geographically referenced information

John Snow's 1855 map of the Soho cholera outbreak showing the clusters of cholera cases in the London epidemic of 1854

The Ghost Map by Steven Johnson
What makes GIS unique?

- Use of layered data
- Stacking or breaking apart of the whole
GIS in the World Around Us

- Mapping
- Planning and zoning
- Disaster relief
- Route planning
- Crime analysis
- Health

STEM!!!
Core Elements of GIS

Create Geographic Data

Analyze Data Spatially

Represent Data
How Can I Use GIS in My Classroom?

- Examples of projects that can use GIS:
  - Demographics information for countries of the world
  - Visualization of historic events
  - Natural change over time
  - Earthquake and volcano location
  - Travel routes
  - Locations of a books plot
  - Explore the location and spread of disease/illness
  - Community projects and involvement

http://www.cityoflakeforest.com/ps/fd/ps_fd2c10.htm
Multiple GIS Options

- Story Maps – premade, focused on exploration, narrative, and patterns
- GeolInquiries – premade, actual activities
- ArcGIS Online - free reign use of the tool

- National Geographic MapMaker
- Google Earth
- Google Maps
- EdGIS
Story Maps
(literally maps that tell a story)

www.esri.com/storymaps
Story Map Task

- Explore the gallery
  - Scrolling
  - Search bar
  - By story map type

- Find at least one map that you could use and plan to share which map and why
Reaction to Story Maps and the most useful maps you found
GeoInquiries

GeoInquiries are short, standards-based inquiry activities for teaching map-based concepts found in commonly used textbooks.

• Used to integrate ArcGIS Online technology to support subject matter content teaching.

• Lessons include learning objectives, technical “how-to’s”, textbook references, and formative whole-class assessment items – all packed into one page.

• These activities can be delivered in a classroom with as little as a tablet and a projector.

• Any teacher can use a GeoInquiry, regardless of their prior experience with digital mapping tools.
GeoInquiries

www.esri.com/GeoInquiries - GeoInquiries are short, standards-based inquiry activities for teaching map-based concepts found in commonly used textbooks.

owned by GeoInquiries

Description

Since 2014, GeoInquiries™ have been used to integrate ArcGIS Online technology to support subject matter content teaching. Lessons include learning objectives, technical "how-to's", textbook references, and formative whole-class assessment items - all packed into one page. These activities are technology agnostic and can be delivered in a classroom with as little as a tablet and a projector. Any teacher can use a GeoInquiry, regardless of their prior experience with digital mapping tools.

For questions or concerns, email geoinquiries@esri.com.

Latest Content

www.esri.com/GeoInquiries

Explore the geoinquiries

Find at least one geoinquiry that you could use and plan to share which one and why
Reaction to Geoinquiries and the most useful Geoinquiries you found
ArcGIS Online

- Online mapping program
- Create interactive web maps using provided data or your own data
- Share maps on the internet
- Access content shared by other users
- There are thousands of premade maps and data layers ready for you to use
But first, a quick demo...
ArcGIS Online

Sign-up now
Get a free ArcGIS Online account and start making web maps today.

Make a Map
Create a map that can be viewed in a browser, desktop or mobile device. Share it on a blog, via email, or embed it in a website.

ArcGIS for Developers
Build custom web and mobile applications that incorporate your maps and data.

Discover Lessons
Take hands-on lessons based on real-world problems.

www.arcgis.com/home Complete self-exploration 5x5 activity
Reaction to the 5 x 5 Activities
Can you visualize yourself using GIS in your classroom or education setting? How so? Share with us!
Final Questions?

Thank you!

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