Unleashing the Magic of GIS for Educational Use

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LAKE COUNTY SCHOOLS

Pondering Question:

What is GIS and why is it important in education?

Pondering Answer:

**I don't have time to learn
how to incorporate GIS
in my lesson plan**

Question - Part 1:

What is GIS?

Geographic Information Systems

GIS is an abbreviation for geographic information systems which is a <u>set of tools</u> that captures, stores, analyzes, manages, and presents data that are <u>linked to locations</u>. In the simplest terms, GIS is the merging of cartography, statistical analysis, and database technologies to develop better solutions and <u>make better decisions</u>.

Geographic Information Systems
The Science of Where

How does GIS fit needed skills?

- Critical thinking
- Cross-disciplinary problem solving
- Academic to real-world concepts
- Pathway for deciding best solutions
- Problem-based learning (PBL)
- Motivation with technology
- Builds workforce ready skills
- Growing demand in job market

Student Motivation with Technology

"I've rarely seen 100% engagement in any lesson activity as I have with ArcGIS Explorer Online. It was a great success!"

Diane Reid-Goolsby,
6th Grade Geography Teacher
Tavares Middle School

What are the components of GIS?

- **Hardware**

  computers, printers, servers

- **Software**

  programs, applications

- **Data**

  information, tables, spreadsheets, databases

- **Methods**

  how to ask questions

- **People**

What are the processes of GIS?

- ## Ask
  What is the problem

- ## Acquire
  Find needed data

- ## Examine
  Evaluate & organize data

- ## Analyze
  Methods to create new output

- ## Act
  Share results with your audiences

ACQUIRE
geographic
resources

ASK
geographic
questions

EXPLORE
geographic
data

ACT on
geographic
knowledge

ANALYZE
geographic
information

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Benefits of GIS in Education
Why is it important?

1.

Analyze the key issues of the 21st Century.

Benefits of GIS in Education

- Analyze the key issues of the 21st Century
- Inquiry and problem solving
- Working with real data
- Field work and community connections
- Generating a geographic perspective
- *Critical thinking*
- *Meaningful work with technology*
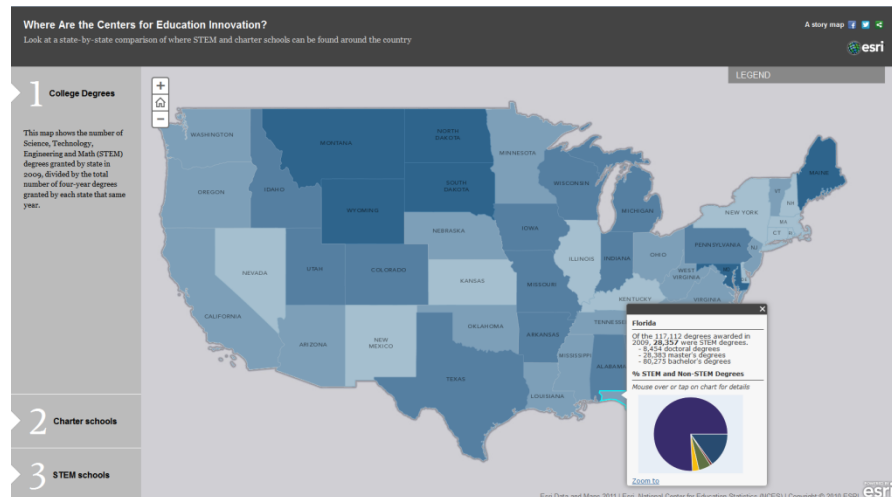- *Interdisciplinary work*
- *Career pathways*
- *Spatial thinking*

Infrastructure Requirements

- Computer hardware

- Network connectivity

- Educator knowledge & experience

- Circulum materials available

- Acquired an educational site-wide license

  – +30 license platforms with <u>unlimited use</u>

  – Desktop, server, tablet & smartphone platforms

  – Mobile (IOS, Windows Mobile & Android)

  – Business & community analyst applications

  – Cloud-based applications with ArcGIS Online

Freely Available Materials

- Circulum & informational materials available
    - National Science Foundation (NSF)
    - U.S. Geological Survey (USGS)
    - National Geographic Society – Geo-Literacy Project
    - Institute for the Application of Geospatial Technology (IAGT)
    - GIS & Science Blog
    - ESRI or GIS.com
    - GIS2GPS Portal
    - Slideshare
    - District's site

Teaching Resources

Movie: Website

Question – Part 2:

Why is it important?
(to student learning & success)

Geo-literacy in Education
Why is it Important?
(Preparing for Decision-Making in the 21 Century)


Movie (3:50): YouTube Video

Learning Important Skillsets

- Critical thinking
- Cross-disciplinary problem solving
- Connects STEM's focus discipines
- Real-world concepts
- Pathway to best solutions
- Problem-based learning (PBL)
- Great motivational tool
- Involves latest technology

What is the GIS Job Market?

- Industry grew by double digits in early 2010's
- Is considered a "high growth industry" *(Dept. of Labor)*
- Expected annual growth of 35% each year through 2020
- Florida was 4th of top 10 job postings states in GIS
- Can earn an annual salary of up to $70,000
- GIS Analyst (Information Technology Sector) rank in top 100 of Best Jobs in America *(CNN Money)*
- Diversity of available jobs based on all educational levels
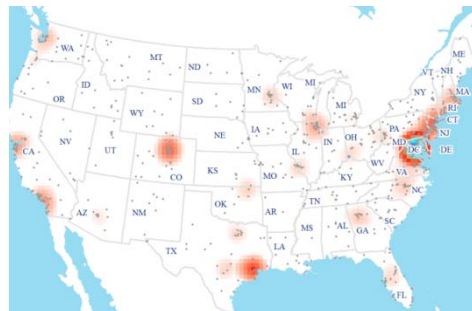
Types of jobs that use GIS

- Computer Science
- Electric/Gas Utilities
- Business/Marketing
- Telecommunications
- Transportation Logistics
- Petroleum & Mining
- Engineering
- Water & Wastewater
- Health Care
- Federal Government
- Economics
- Environmental Mgmt.

- Local Government
- School Districts
- Geology
- Military/Intelligence
- Archeology
- Sociology
- Community Planning
- Real Estate & Cadastral
- Agriculture
- Forestry
- Public Safety
- Risk Management
- Aerial Photography

Presentation Takeaway
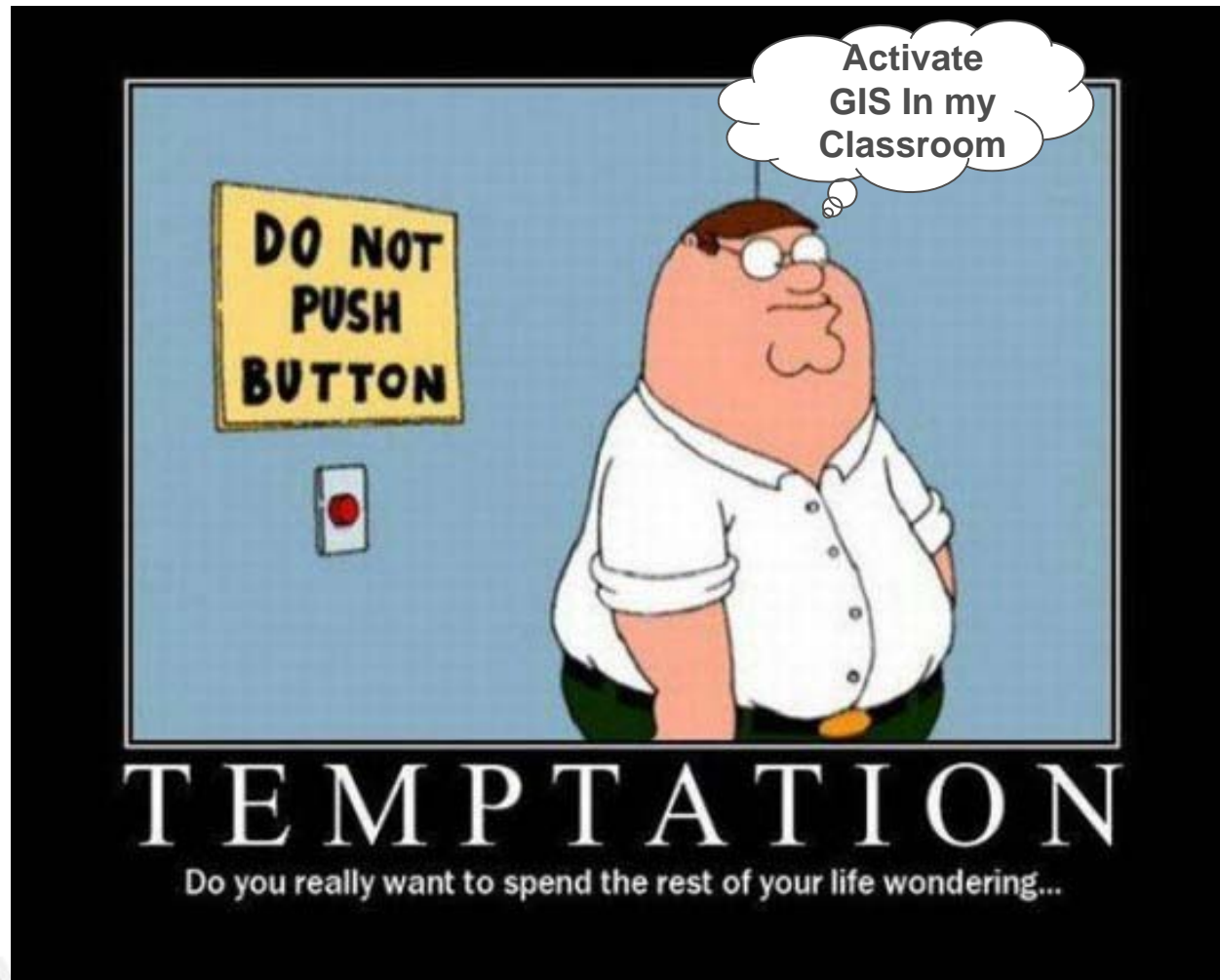
Questions

Contact & Presentation Information

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