

Teaching “spatially” with geospatial learning technologies to investigate environmental issues

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Abstract:

Experience interdisciplinary science curriculum materials that use Google Earth and GIS to investigate energy, climate change, and land use issues while developing spatial thinking skills.

Environmental Literacy and Inquiry (ELI) ELI Web site <http://www.ei.lehigh.edu/eli/>

This session primarily features new Google Earth and Web GIS learning activities in the Climate Change and Energy geospatial-technology integrated curriculum. The session includes an overview of the ELI Web site, instructional sequence of the curriculum units, student resources, student handouts, assessments, and teacher resources and support materials.

**Energy Curriculum - <http://www.ei.lehigh.edu/eli/energy/>
Climate Change Curriculum - <http://www.ei.lehigh.edu/eli/cc>
Land Use Change Curriculum - <http://www.ei.lehigh.edu/eli/luc>**

Assessments for each learning activity are available using the following login and password:

Login: eliteacher

Password: 87dja92

Featured activities

Investigating Weather and Climate with Google Earth

<http://www.ei.lehigh.edu/eli/cc/sequence/day2.html>

Students use Google Earth to explore global temperature changes. They use Google Earth to determine how the temperature of the Earth has changed during a recent 50 - 58 year period. They also explore, analyze, and interpret climate patterns of 13 different cities, and analyze differences between weather and climate patterns.

Investigating Climate Hot Spots with Google Earth

<http://www.ei.lehigh.edu/eli/cc/sequence/day17.html>

Students use Google Earth to investigate areas affected by climate change.

Investigating Future Worlds with Google Earth (Part 1)

<http://www.ei.lehigh.edu/eli/cc/sequence/day18.html>

Students use Google Earth to explore evidence of climate change during 1980 - 2010. They use Google Earth to explore changes in the extent of Arctic Sea ice over a recent 30-year period, explore changes in the distribution of coral reefs in the Caribbean Sea, and understand that climate change will continue to affect our planet into the future.

Investigating Future Worlds with Google Earth (Part 2)

<http://www.ei.lehigh.edu/eli/cc/sequence/day19.html>

Students will use Google Earth (version 5.2 or higher needed) to explore the effects of a 2-meter rise in sea level on the existing landscape. Students use the Google Earth elevation profile tool to understand the effects of sea level rise in 5 low lying coastal areas and explore changes in sea level in the Chesapeake Bay region.

ELI Energy Investigation Web GIS:

<http://gisweb.cc.lehigh.edu/energy/>

Curriculum and support materials for Energy Investigation Web GIS:

Where is the Best Place to Locate a New Solar Power Plant?

<http://www.ei.lehigh.edu/eli/energy/sequence/solar.html>

Where is the Best Place to Locate a New Wind Farm?

<http://www.ei.lehigh.edu/eli/energy/sequence/wind.html>

Investigating Hydroelectric Dams with GIS

<http://www.ei.lehigh.edu/eli/energy/sequence/hydro.html>

Investigating Coal Production and Consumption with GIS

<http://www.ei.lehigh.edu/eli/energy/sequence/day25.html>

Investigating Natural Gas Production and Consumption with GIS

<http://www.ei.lehigh.edu/eli/energy/sequence/day26.html>

Investigating Oil Production and Consumption with GIS

<http://www.ei.lehigh.edu/eli/energy/sequence/day27.html>

Isle of Navitas Web GIS:

<http://gisweb.cc.lehigh.edu/navitas>

Energy Resources for the Isle of Navitas

<http://www.ei.lehigh.edu/eli/energy/sequence/navitas.html>

Students explore energy resources for one of three provinces on the Isle of Navitas. They analyze the benefits, costs, and environmental impacts of each energy source. They develop an energy policy statement to recommend an efficient combination of energy sources to provide sufficient power to the province while minimizing environment impacts.