

# In the Field with GIS

## A National Assessment of GIS in American High Schools



According to the 2001 study by Joseph J. Kerski of the University of Colorado, Department of Geography, Boulder, Colorado, "Some educators consider GIS to be one of the most promising means for implementing educational reform. However, GIS technology has been adopted by an estimated less than 1% of American high schools."

The University of Colorado study used a survey approach to determine how and why secondary teachers are using GIS in the classroom. According to the survey results, "GIS faces stiff competition in the curriculum, particularly with the emphasis on teaching to national and state content standards. The wide spectrum of GIS is being incorporated within the traditional secondary educational curriculum, rather than in classes such as technology education or agriculture." To learn more about the study results, see this link for the 13-page report:

<http://www.channelviewpublications.net/irgee/010/0072/irgee0100072.pdf>.

## GIS Competition for High School Students



The Geographic and Land Information Society (GLIS) has announced a GIS competition for U.S. high school students who are studying geographic information systems. The contest is sponsored by the Environmental Systems Research Institute (ESRI) and is open to projects aimed at introducing students to GIS applications that lead to better management of land and other natural resources. For competition guidelines and deadlines, please go to: [www.glismo.org/comphome.htm](http://www.glismo.org/comphome.htm). (Hint: Click on the "NEXT" button at the bottom of each page at this site for more information on the competition.)

The mission of GLIS is to encourage

appropriate use of surveying and mapping technologies in the development and use of geographic and land information systems.

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## GIS Industry Profile

According to the U.S. Department of Labor, Employment and Training Administration (DOLETA), geospatial technology is a high growth industry, having the following characteristics:

- ✓ The market for geospatial technologies in 2002 was estimated at \$5 billion. This market is projected to have annual revenues of \$30 billion by 2005, consisting of \$20 billion in the remote sensing market and \$10 billion in the geographical information systems (GIS) market. (Gaudet, Annulis, Carr) Building the Geospatial Workforce, Urban and Regional Information Systems Association Special Education Issue, 2002)
- ✓ Geospatial projects and specialists are expected to play a large role in homeland security activities. Information gathering needs to protect critical infrastructure have resulted in an enormous increase in the demand for such skills and jobs. (Lorraine Castro, NIMA Human Resources Department, 2003)
- ✓ Increasing demand for readily available, consistent, accurate, complete, and current geographic information and the widespread availability and use of advanced technologies offer great job opportunities for people with many different talents and educational backgrounds. (U.S. Geological Survey and U.S. Bureau of Labor Statistics)



For more information on this high growth industry, please visit:

[www.doleta.gov/BRG/Indprof/Geospatial.cfm](http://www.doleta.gov/BRG/Indprof/Geospatial.cfm), and  
[www.doleta.gov/BRG/Indprof/geospatial\\_profile.cfm](http://www.doleta.gov/BRG/Indprof/geospatial_profile.cfm).

## Satellite Science

The National Corn Grower's Association offers a sample lesson on satellite science. The purpose of the lesson is to have students construct a model of a Global Positioning System (GPS) satellite, and be introduced to GPS application in agriculture. As a result of participating in the learning experience, students will gain a working knowledge of the components of a satellite, and will know that a GPS satellite sends signals to earth for pinpointing location, and that GPS is used by farmers to make maps of their fields.

For a full description of the lesson, including student activities, visit:

<http://www.ncga.com/education/unit5/u5l3.html>.



## My Wonderful World



In a May 2, 2006 press release, the National Council for Geographic Education announced the unveiling of a public engagement campaign designed to give students tools to become more informed global citizens. The National Council for Geographic Education, housed at Jacksonville State University, Jacksonville, Alabama, joins other organizations as a partner in the coalition led by the National Geographic Society.

The goal of the five-year, multimedia campaign – My Wonderful World – is to improve the geographic literacy of young people ages 8-17 by motivating parents and educators to expand geographic learning in school, at home and in their communities. Specifically, the campaign aims to:

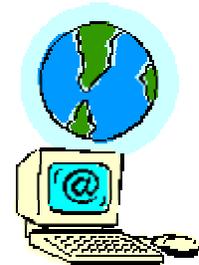
- Show parents how to help their children learn about the world.
- Increase geographic offerings in schools and the resources available to them.
- Increase the number of students who take geography-related courses and engage in related activities in school.
- Increase the number of community organizations that engage young people in geography-related activities.

The campaign Web site, <http://mywonderfulworld.org/>, provides resources such as suggestions for family activities and ways that parents can work to get more geography into the classroom. The site also provides links to geography games and online adventures for kids and teens, classroom materials for educators, and ways for young and old to test their global IQs. The site also provides tools for communicating to policymakers and education leaders the importance of geographic literacy.

For more information on the National Council for Geographic Education, please visit [www.ncge.org](http://www.ncge.org).

## 4-H Programs Introduce Kids to GIS and GPS

The [U.S. Department of Agriculture](http://www.usda.gov) maintains the Cooperative State Research, Education and Extension Services or CSREES. The CSREES mission is to "advance knowledge for agriculture, the environment, human health and well-being, and communities through national program leadership and federal assistance." One of the programs operated through CSREES is the 4-H Youth Technology Leadership Team Program that fosters the learning of geographic information systems and the global positioning satellite system.



For more information about the cutting edge activities that are taking place around the country through this program, visit: [http://www.directionsmag.com/article.php?article\\_id=572&trv=1](http://www.directionsmag.com/article.php?article_id=572&trv=1)

## Geospatial Technology Extension Network

The USDA Geospatial Extension Specialist Program is designed to facilitate the practical use of Earth systems science and technology, and help meet the growing demand for a spatially literate workforce. This is made possible through seeds sown by NASA, USDA and NOAA, and the science and education networks provided by [Land Grant](#) (Cooperative Extension), [Space Grant](#), [Sea Grant](#) and other local partners.



*A Geospatial Extension Specialist works to:*

- Promote socioeconomic value and enable economic, environmental, and national security through the benefits of Earth science research results.
- Address virtually all of the [national priority application areas of emphasis](#).
- Extend Earth science research results to local communities.
- Function as an interface between NASA, NOAA and USDA research & development and the Community of Practice, helping to meet the mandate of helping the public derive socioeconomic benefits from Earth science applications.
- Train field workers to use geospatial technology to gather specific local data necessary for NASA researchers to develop or ground truth Science-based applications for grass roots needs.
- Partner with government, academia, not-for-profit, and private-sector organizations to extend the benefits of Earth science research results.
- Promote improved Earth science data accessibility.
- Contribute to workforce development to meet federal agency and national needs.
- Focus on innovative approaches for using Earth science information to enable enhanced decision-support that can be adapted in applications worldwide

For more information on the USDA Geospatial Extension Specialist Program, please visit: <http://geospatialextension.org/>.

## GIS4Kids!

Check out GIS4Kids! at <http://www.gis4kids.com/default.htm>. The “GIS4Kids Team” believes that GIS applications can be created that will provide increased interactive learning and that will have the benefit of improving geographic literacy. The GIS4Kids Team is committed to making the applications available for free so that all schools, no matter how they are funded, will have the chance to participate and be part of this exciting frontier.



## What Skills Does a GIS Analyst Require?

According to The GeoCommunity, the following are key technical skills required for a GIS analyst:

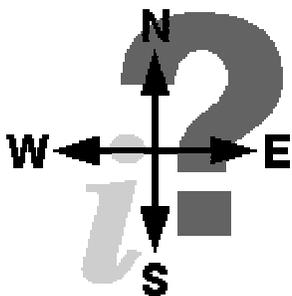
- Strong GIS skills with two or more GIS packages
- Strong Macro / C / C++ / Visual Basic programming skills
- Understanding of and/or willing to learn math and statistical analysis
- Strong Oracle or related RDBMS skills including development skills
- Excellent verbal / written communication skills
- Genuinely excited and enthusiastic about learning and pushing technical limits / finding new solutions
- Good writing skills - for documentation, training, processes
- Formal training (eg. Degree) or high level of experience with GIS.
- "Hands-on" experience
- Good analytical / problem solving skills
- A basic understanding of the concepts behind data management in a relational database
- Good IT technical skills
- The ability to think and solve problems

For other skills and knowledge typically required for GIS analysts, please visit The GeoCommunity Website at: <http://careers.geocomm.com/resources/gisanlystskills.html>.



The GeoCommunity™ is the place for the Geographic Information Systems (GIS), CAD, Mapping, and Location-Based industry professionals, enthusiasts, and students to gather. The GeoCommunity is a leading GIS online portal and daily publication reaching 41,000+ subscribers to the Daily SpatialNews Newswire.

## Got Questions?



For more information on geospatial technologies, or to provide feedback on this newsletter and/or suggestions for future articles, please contact:

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