

GIS: K-12 Education

By Seth Harrison & Victoria Welborn

The use of Geographic Information Systems (GIS) is quite low in K-12 schools. The obstacles to using GIS in lessons are many. However, the use of GIS to give a visual representation of spatial data and information can both greatly enhance inquiry-based learning and help teachers and administrators prepare lessons specifically designed for the demographics of a particular school district or school. This poster is designed to show ways GIS can be used in K-12 education and how to minimize the obstacles.

GIS for Administrators/Teachers

Using GIS teachers and administrators can analyze specific school districts and attendance zones for specific schools to see specific demographics. This analysis could include such things as:

- The number of residents who use English as a second language.
- The ethnic diversity of an attendance zone or school district.
- The socio-economic status of an attendance zone.
- Traffic patterns in a school zone
- Crime statistics in a school zone.



Current Uses in Greenville County Schools

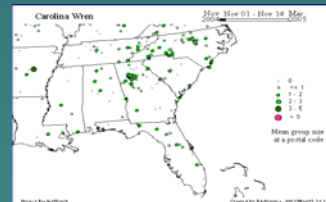
The Planning and Demographics and Transportation departments are using GIS data in partnership with Greenville County GIS dept to:

- map Student Attendance zones.
- track bus location and communication.

GIS data sources

Teachers also say lack of data a barrier to GIS projects in K-12. But there are now many public web based data sources.

Google Earth (earth.google.com)
 Geography Network ([www. Geographynetwork.com](http://www.Geographynetwork.com))
 National Atlas (nationalatlas.gov)
 GeoData Web (geodata.gov)



One of the reasons teachers give for not using GIS is lack of knowledge about the software, no access to desktop computing to run programs. But today there are many Web -based GIS programs and projects..

Examples of Web based GIS

Project Feeder Watch (birds.cornell.edu/pfw) helps scientists track broad scale movements of winter bird populations and long-term trends in bird distribution and abundance.

Water on the Web (waterontheweb.org) helps college and high school students understand and solve real-world environmental problems using advanced technology.

The GIS 2 GPS Portal (www.gis2gps.com) developed by teachers for teachers and students to provide a site where educators can find useful GIS links, lesson plans and find classroom resources and ideas they can use with projects.

Maps Help Canadian Kids Find Safe Routes

GIS Services recently completed custom maps for each elementary school throughout the District and City of North Vancouver. These maps would allow students to color-in their current route to and from school, with teachers highlighting safe and acceptable routes to schools. The students are expected to integrate these "safe" alternatives into their existing routes.

Community Developer Jean Thompson of the North Shore Health Region said, "They were extremely well received, going out to all intermediate aged students (grade 4-7) in North Vancouver with the Safety on Our Streets educational resource. In fact they were attractive to more than the target audience as a mother phoned me from Handsworth Secondary School, who was trying to collect all the feeder school maps for some other school purpose!"

The coalition of agencies involved with the project included: ICBC, North Shore Health Region, RCMP, North and West Vancouver school districts, and the municipalities of North and West Vancouver.

From: <http://www.gisweb.dcu.org/newsdevelopment/news2000.html> 9/6/2000



In summary, visual representation of geographic data can be of high use to educators as they plan lessons and administer schools. While many desktop GIS software programs have large technological demands, and steep learning curves, there are many web based projects and programs where students and teachers can start.