GIS IN SECONDARY SCHOOL EDUCATION: A BENCHMARK STATEMENT

Using geographical (spatial) information to make decisions and solve problems is important skills for all active, responsible EU citizens in the 21st Century. Developing such spatial literacy includes the availability of computer-based tools such as geographic information systems (GIS) which allows students to interact with data, answer questions and reflect critically using a geographic approach. They can also clearly communicate the results to a broader audience. Any efforts should result in the relevant and ethical uses of spatial information in this area should be coordinated with the e-Europe initiative.

Level Descriptor

Four fundamental goals of secondary education are important when considering what GIS should be studied in school Geography, these are to:

- Create digital earth citizens
- Prepare school leavers for higher education
- Increase employability opportunities and
- Encourage lifelong learning

A GIS component in a schools programme prepares school leavers who:

- can actively participate in public decision making use of spatial information and visualization
- understand the basic purpose and application of GIS to interdisciplinary real world problems
- can use GI interfaces to obtain geographic information in order to investigate and critically reflect on spatial phenomena
- are able to communicate the results of their investigations with the help of GI
- are aware of the ways of maintaining and building their own GI knowledge and skills

Learning Outcomes

At the end of secondary schooling, students will be able to:

- Critically read, interpret and produce cartographic displays in different media

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  - Example: Analyse a map of a natural disaster seen on TV or a map of election results from a newspaper
  - Example: Analyse the power of maps
  - Example: Be aware of sources of information and their reliability
- Be aware of geographic information and its representation through GI and GIS.
  - Example: GPS, GIS, Internet interfaces
- Visually communicate geographic information
  - Example: Produce basic maps
- Describe and use examples of GI applications in daily life and in society
  - Example: GPS-related/locational (social networking), Google Earth
  - Example: Who are the people who use GIS professionally – emergency services, law enforcement, precision agriculture, environmental planning, military, civil engineering, transport, academic research
- Use **freely** available GI interfaces at a basic level
  - Example: Find your house in a digital earth browser
  - Example: Find and use data from your national data portal
  - Example: Find routes from school to home and back, get a topographical map for a walk
- Carry out basic data capture
  - Example: gather information from fieldwork studies
- Ask and answer geographical questions with the help of GI interfaces
  - Example: What changes have taken place …. ? In which direction ….?

Acronyms

GI - Geoinformation or geographic information, created by manipulating geographic (or spatial) data
GIS - Geographical Information Systems
GPS - Global Position System

This benchmark statement has been produced as a result of the HERODOT thematic network for Geography in higher education meeting in Madrid, Spain May 2008 and then revised at the AGIT Conference in July 2008.