Technology in the Geography Classroom

For many years, geography teachers have used maps, graphs, and photos to excite students about the world around them. Today, however, geography students are able to connect with the subject like no other generation before them using sophisticated technologies, many of which are included in National Geographic's *World Cultures and Geography* program. These technologies can help your students think spatially and understand geographic concepts.

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TECHNOLOGY TOOLS

Three main technology tools have provided an incredible boost to research in geography and many other disciplines. These technologies are

- the Global Positioning System (GPS), which uses ground transmitters and satellites orbiting the earth to identify locations on the earth's surface;
- Remote Sensing (RS), which allows aircraft, satellites, ships, and similar vehicles to collect data on large or inaccessible locations;
- Geographic Information Systems (GIS), which can store, edit, analyze, and display the geographic data collected through GPS, RS, and other technologies.

Most middle school students have seen GIS technologies at work when, for example, their local TV meteorologist displays an animation of weather conditions on a map. They are also familiar with GPS as a result of the popularity of the tool in handheld and other electronic devices. Students may not realize, however, that the technologies are also used to map school attendance zones and their school bus routes.

Yet how can teachers harness the power of these tools to advance their students' understanding of geography? This is the question that has guided much of my research. Not only are students more likely to understand geographic concepts and acquire spatial thinking skills when they engage in technology-enriched lessons, they also enjoy the subject more.

CLASSROOM TECHNOLOGY COMPONENTS

The *World Cultures and Geography* program contains several components that allow you to seamlessly integrate technology with the lessons.

These components include the Interactive Map Tool, Interactive Whiteboard GeoActivities, Online World Atlas, Magazine Maker, Digital Library, and Student eEdition of the book. In addition to bringing many of the resources of the National Geographic Society into your classroom, these components allow your students to dive into the geography data and use it to design their own presentations and create their own maps.

The **Interactive Map Tool** is made possible by a technology called WebGIS. WebGIS for classroom use is advantageous because there is no software to download or install, the data are already loaded and available for exploration, and the Web interface is easy to navigate. The Interactive Map Tool gives your students access to a wide variety of data layers and several mapping tools that include maps on both human and physical characteristics of locations around the globe. As with any GIS, the layers can be turned on or off and overlaid to reveal many different spatial patterns and relationships.

The map tool allows your students to zoom in and out of regions, draw on the map, add labels, measure distances, determine the latitude and longitude of a location, and select different base maps. Students can also download or print the maps they have created. The Interactive Map Tool provides the platform to introduce your students to geospatial technologies and engage them in spatial thinking.

World Cultures and Geography also features **Interactive Whiteboard GeoActivities** with more than 300 activities presented on two different platforms. There is a GeoActivity for each lesson in the program. Using the Whiteboard technology to complete the activities, students can design and create maps, fill in charts and graphs, design their own drawings, and do much, much more.

In addition, an **Online World Atlas** contains all the maps included in the program's Student Edition. Students can use this handy collection for reference or insert the maps into their own multimedia presentations. The **Magazine Maker** helps students create such presentations. This technology provides a menu of layouts that can be implemented to create magazine spreads on a country or region's geography, history, or culture. Having groups of students work together to design the magazines is an ideal cooperative activity. The completed works can then be shared in the classroom and used to spark discussion.

The **Digital Library** contains a wealth of visual and audio treasures. This technology holds the **NG Photo Gallery**, a collection of images representing the geographical, historical, and cultural aspects of every region covered in the program—complete with caption information. The Library also holds the program's **GeoVideos, Explorer Video Clips**, and **music clips**. The GeoVideos and Explorer Video Clips provide a good introduction to their corresponding lessons. Showing both types of video is a good way to engage students in the material and make them want to learn more.

Finally, the **Student eEdition** presents the program in an interactive form. With this technology, students can click on a map to bring up related images and on visuals to enlarge them. By clicking on highlighted vocabulary words, they can check the words' definitions. The eEdition also provides access to the GeoVideos, Explorer Video Clips, and music clips. All of these components give students the chance to use new technologies as they study geography. The technologies will enhance students' experience of world geography and help bring the material to life.

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