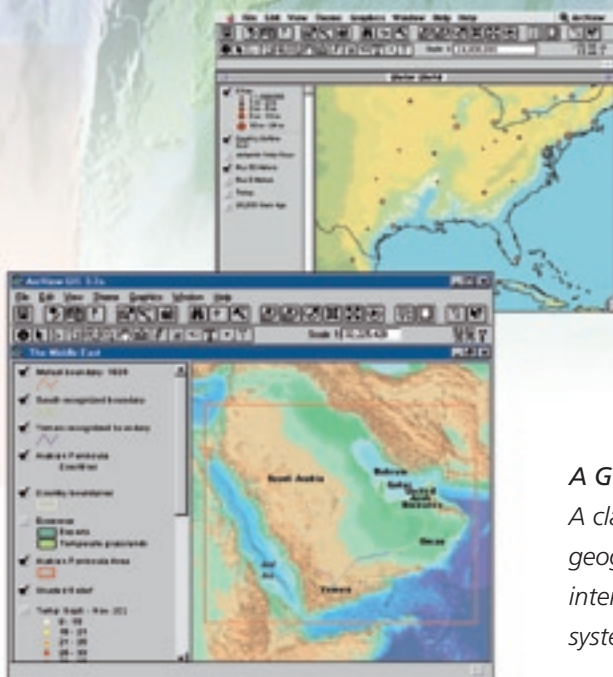


Mapping Our World

GIS Lessons for Educators



A GIS curriculum book and software package for teachers. A classroom resource for educators seeking to combine global geographic themes and issues, inquiry-based learning, and interactive mapping and analysis using geographic information system (GIS) technology.

What's Inside?

A complete instructional resource: a book with 19 standards-based GIS lesson plans, a one-year license of ESRI® ArcView® 3.x software for Microsoft® Windows® and Macintosh®, geographic data for all of the lessons, a teacher resource CD, and a companion Web site www.esri.com/mappingourworld.

Geographic inquiry is at the core of *Mapping Our World: GIS Lessons for Educators*.

- Ask geographic questions
- Acquire geographic resources
- Explore geographic data
- Analyze geographic information
- Act on geographic knowledge

From start to finish, teachers and students build upon GIS concepts and skills, acquiring an understanding of GIS theory as well as the “how to” of ArcView. In the process, the focus is on the application of GIS to global and regional geographic issues.



Seven Modules: 19 Lessons

- ArcView: The Basics
- Physical Geography I: Landforms and Physical Processes
- Physical Geography II: Ecosystems, Climate, and Vegetation
- Human Geography I: Population Patterns and Processes
- Human Geography II: Political Geography
- Human Geography III: Economic Geography
- Human/Environment Interaction

Each module in the book explores a geographic theme through three lesson types:



Global Perspective

Explores the topic from a worldwide point of view. Designed for beginning GIS users, these lessons provide detailed step-by-step instructions.



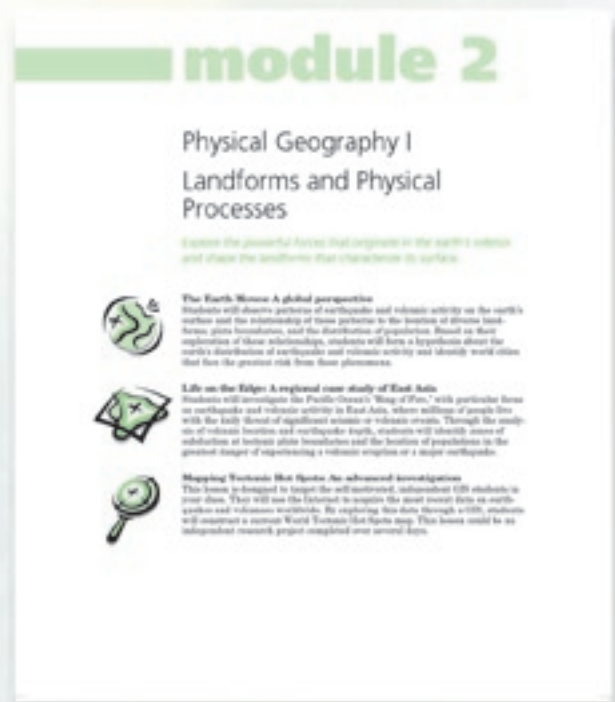
Regional Case Study

Examines an aspect of the geographic theme within a region of the world. These lessons also are designed for beginning GIS users.



Advanced Investigation

Provides students with an opportunity to conduct independent research on the key theme and incorporate data from outside sources such as the Internet or other GIS data sets. These lessons are designed for more experienced GIS users.



Instructional Design

Each of the 19 lessons in *Mapping Our World: GIS Lessons for Educators* contains information useful for the teacher, reproducible step-by-step GIS investigations for students, software and data, assessments, rubrics, and answer keys.

1. Teacher Information

This quick reference for teachers gives the lesson overview, estimated completion time, required materials, and the lesson's correlation to National Geography Standards. Details that educators need to teach the lesson in a variety of settings are provided in the lesson introduction, student activity description, and lesson conclusion.

Seasonal Differences
A regional case study of South Asia

LESSON OVERVIEW

Students will describe patterns of monsoon rainfall in South Asia and analyze the relationship of those patterns to the region's physical features. The measurement of monsoon season on factors 30 will be explored for studying South Asian agricultural practices and patterns of population distribution.

Estimated time: Two to three 45-minute class periods

Materials:

- Four large pieces of butcher paper
- Four or more students
- Student handouts from this lesson to be copied
- GIS Investigation sheets (pages 147 to 150)
- Student answer sheets (pages 148 to 150)
- Assessment (page 149 to 150)

Standards and objectives:

Standard	Objective	Objective
Use a variety of maps to gain geographic information, including topographic maps, satellite images, and regional maps for local and global regions.	Use student understandings to create maps, and discuss the relationship between data and maps.	Use student understandings to create maps and discuss the relationship between data and maps.
Recognize patterns in the world's population.	Use student understandings to create maps and discuss the relationship between data and maps.	Use student understandings to create maps and discuss the relationship between data and maps.
Use a variety of maps to gain geographic information, including topographic maps, satellite images, and regional maps for local and global regions.	Use student understandings to create maps, and discuss the relationship between data and maps.	Use student understandings to create maps and discuss the relationship between data and maps.

Objectives:

The student is able to:

- Describe the patterns of monsoon rainfall in South Asia.
- Explain the influence of landforms on patterns of precipitation in South Asia.
- Describe the impact of South Asia's climate and physical features on agriculture and population density in the region.

GIS Investigation

Regional case study: South and North Asia

Select 2 maps in Canada to the ChartMaker Properties dialog and click OK.

You will be able to zoom or change the size of the chart from a later step if it isn't exactly the way you want it to be.

Drag another icon to this window to the first chart. This icon will be for and choose between with Canada GIS 08.

United States Trade With Canada 1901 - 2000

When you are satisfied with the look of your layout, go on to the next step.

Click the Test tool. Now you will add your name and date to the map.

The Wealth of Nations

Assessment rubric

Middle school

Indicator	Indicator	Indicator	Indicator	Indicator
The student understands how to use maps and databases to analyze spatial distributions and patterns.	Use GIS to analyze economic data by creating at least seven thematic maps that compare and contrast the different economic indicators for two countries. Use additional data from outside resources.	Use GIS to analyze economic data by creating seven thematic maps that compare and contrast the different economic indicators for two countries.	Use GIS to analyze economic data by creating five or six thematic maps that compare and contrast the different economic indicators for two countries.	Use GIS to create four or fewer thematic maps based on economic data for one or two countries.
The student understands maps to classify economic activity.	Clearly describes the three economic production models and provides an example of each. Clearly defines and accepts regional definitions of developed and developing countries. Provides simple evidence for the definition.	Clearly describes the three economic production models and then creates an accurate and original definition of developed and developing countries.	Describes the three economic production models, and attempts to create original definitions of developed and developing countries.	Has difficulty describing the three economic production models, and does not attempt to create original definitions for developed and developing countries.
The student understands the spatial organization of human activities and physical systems and is able to make informed decisions.	The student understands how varying points of view about geographic content influence geographic change.	Compares own findings with the published economic data of the selected countries. Identifies any inaccuracies in the findings, and either accepts or rejects for the findings.	Compares and contrasts own findings with the published economic data of the selected countries.	Only uses data on the economic status of the selected country or countries, but does not have any comparisons with published economic data.

This is a four-point rubric based on the National Standards for Geographic Education. The "Mastery" level meets the target objective for grades 7-8.

2. GIS Investigation

Reproducible investigation handouts for each lesson include step-by-step instructions, illustrations, and questions designed to lead to the acquisition of broad-based problem solving skills.

Seasonal Differences

Middle school assessment

For this activity, you are to assess the role of an American student who is spending a year living in South Asia as an exchange student. Your task is to write four letters to friends or family back home about your experiences and observations during your year in South Asia. Your four letters should be dated August 1, April 1, July 1, and October 1. Using the data from your project as a guide, describe seasonal changes in your site and ways that your daily life and the lives of your friends may reflect these changes. Use your observations to explain your year in as great detail as you can. Use the following questions to guide you, if needed. You may use any additional resources such as your geographic book, maps, globes, and the Internet to help you develop your letters.

Use the space below to brainstorm for your notes:

NAME: _____ DATE: _____

Letter 1: _____

Letter 2: _____

Letter 3: _____

Letter 4: _____

3. Assessment

Reproducible assessment handouts included with each global perspective and regional case study lesson are tailored to middle school and high school students.

Module 3 Global perspective: Running Hot and Cold

Step 1: Observe annual earth temperatures

Use the temperature data in Region Fahrenheit or Region Celsius.

Write three observations about the pattern of temperature displayed on the map.

Step 2: Label the latitude zones

Use the latitude lines to label information on cities and complete the table on your answer sheet.

CITY	APPROXIMATE LATITUDE	APPROXIMATE LONGITUDE	APPROXIMATE CLIMATE
Madrid	40° N	4° W	Temperate
North Singapore	1° N	103° E	Tropical
South Singapore	1° S	103° E	Tropical

4. Evaluation

Standards-based rubrics and answer keys enable teachers to evaluate student work efficiently and effectively.

ArcView Software, Data, and Teacher Resources

Correlation of National Geography Standards to Mapping Our World Lessons

STANDARD	MODULE 1		MODULE 2		MODULE 3		MODULE 4		MODULE 5		MODULE 6		MODULE 7	
	C	E	C	E	C	E	C	E	C	E	C	E	C	E
1 How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2 How to use mental maps to organize information about people, places, and environments in a spatial context														
3 How to analyze the spatial organization of people, places, and environments on Earth's surface	✓								✓	✓				
4 The physical and human characteristics of places	✓		✓	✓		✓			✓					✓
5 That people create regions to interpret Earth's complexity					✓									✓
6 How culture and experience influence people's perceptions of places and regions														
7 The physical processes that shape the patterns of Earth's surface			✓	✓	✓	✓		✓						✓
8 The characteristics and spatial distribution of ecosystems on Earth's surface														✓
9 The characteristics, distribution, and migration of human populations on Earth's surface							✓	✓						
10 The characteristics, distribution, and complexity of Earth's cultural mosaics									✓					
11 The patterns and networks of economic interdependence on Earth's surface										✓	✓			
12 The processes, patterns, and functions of human settlement							✓					✓		

In addition to 535 pages of instructional materials, *Mapping Our World: GIS Lessons for Educators* includes two CDs.

ArcView Software and Data CD	Teacher Resource CD
One-year licensed copy of ArcView 3.2a for Windows platforms and ArcView 3.0a for Macintosh platforms	Adobe Acrobat® version of the entire book
Data and ArcView projects for all lessons	A "Getting Started" section for the first-time ArcView educator
Can be installed on multiple computers within the school for use with <i>Mapping Our World: GIS Lessons for Educators</i>	Print and media resources for all lessons
	Extensive multimedia GIS resources

What do I do after the one-year ArcView license ends?

The ArcView software accompanying *Mapping Our World: GIS Lessons for Educators* is provided to get schools started. For use beyond the one-year time limit, users must obtain fully licensed ArcView software (Windows or Macintosh). ArcView is licensed to K–12 schools as a building site license without time restrictions. Other license options are available such as for individuals or for higher education institutions.

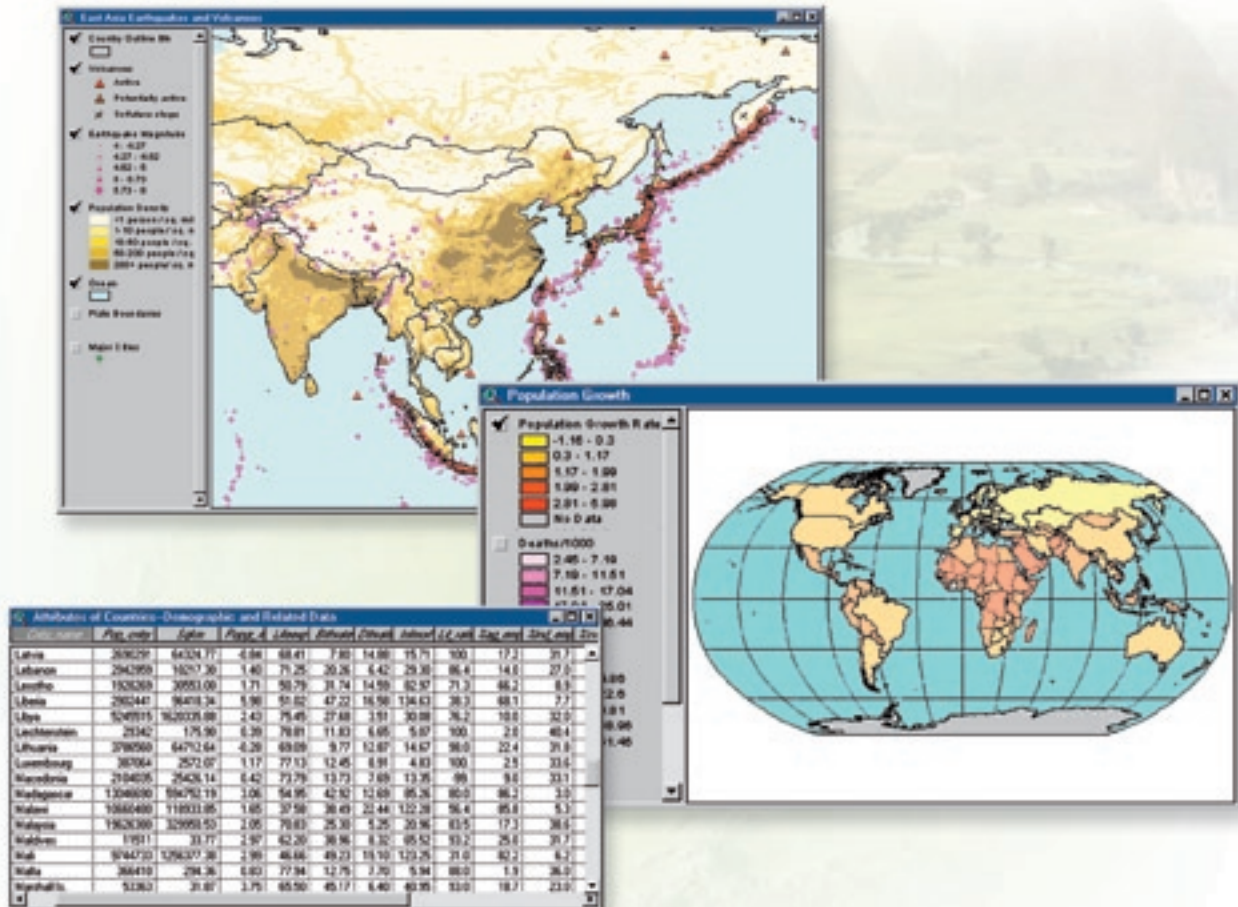
For more information, visit www.esri.com/k-12 or e-mail k12-lib@esri.com.

**Mapping Our World:
GIS Lessons for Educators**

To order, call
1-800-447-9778
or visit
www.esri.com/esripress

Mapping Our World: GIS Lessons for Educators

- Promotes inquiry-based learning in world geography and other disciplines through the use of geographic information systems, a technology that combines interactive mapping software and geographic data with students' natural curiosity about the world around them.
- Combines the open-ended exploration inherent in GIS with the structure of national standards, course content, classroom procedures, teacher notes, and student handouts and assessments. The result promotes far-ranging geographic explorations within a solid pedagogical foundation.



- Is designed for teachers and students new to GIS as well as experienced users. Each lesson includes step-by-step instructions, illustrations, and key questions and answers. It guides educators and students through existing course content in new ways, acquiring and building broad-based problem solving skills in the process.
- Contains 19 GIS lesson plans, step-by-step instructions, illustrations, important questions and answers, data, a Teacher Resource CD, and a one-year license for the use of ArcView 3.x on both Windows and Macintosh platforms, complete with a supporting Web site www.esri.com/mappingourworld.

Support inquiry-based learning and spatial thinking in your classroom.

To order, call

1-800-447-9778

or visit

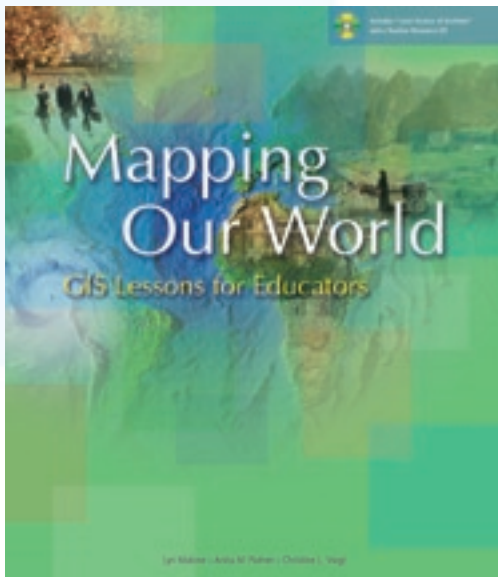
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535-page book packed with educational material

- Seven modules, 19 lessons
- Teacher instructions and student handouts
- Assessments and evaluation rubrics
- Designed for photocopying

Companion CDs loaded with software, data, and resources

- One-year license of ArcView 3.x software for Windows/Macintosh for use with book
- 250 MB of GIS data used in the lessons
- Printable versions of the lessons
- Multimedia GIS resources and links to other data and resources

Standards-based content for grade 5–12 students

- Physical and human geography using GIS
- Inquiry-based learning
- New and experienced users of GIS