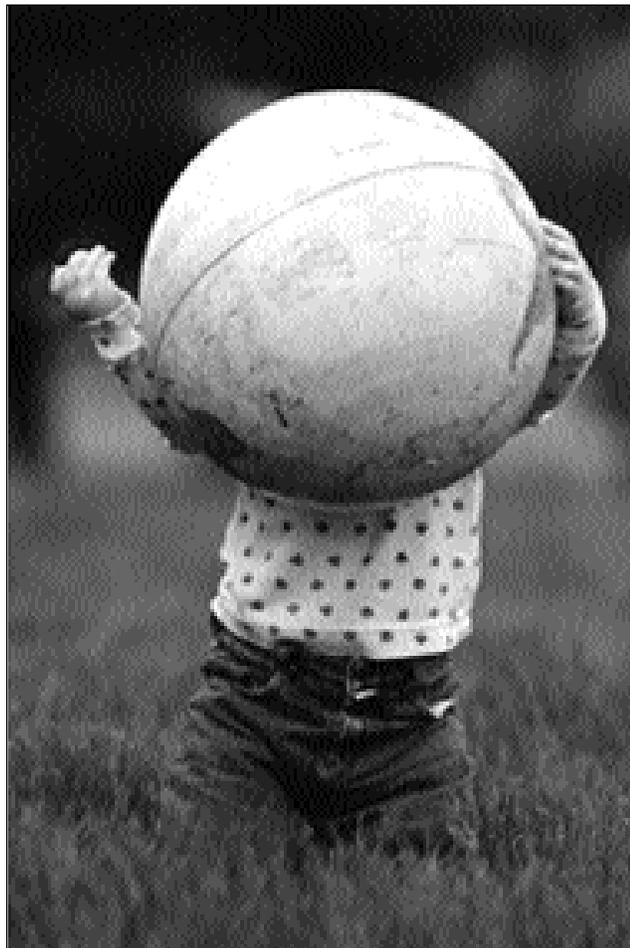


Chapter 3

**UNDERSTANDING  
GEOGRAPHY**



## THE GEOGRAPHY STANDARDS

### 6.7, 6.8, AND 6.9

**Standard 6.7:** All students will acquire geographical understanding by studying the world in spatial terms.

**Standard 6.8:** All students will acquire geographical understanding by studying human systems in geography.

**Standard 6.9:** All students will acquire geographical understanding by studying the environment and society.

All students need to develop geographic understanding as part of the general mandate of social studies education to develop informed citizens who know and appreciate their heritage as Americans. Geography teaches a sense of place, of temporality, and the sense that everything that happens to us is affected by our surroundings (including other people and the places within which we live, work, and travel). The study of geography brings a necessary spatial dimension to the study of history, but it is also, in and of itself, a major discipline.

The three major branches of geography are physical geography, human geography, and environmental studies. Brief descriptions of each of these areas are presented below. Table 10 summarizes the geography topics covered and lists the cumulative progress indicators (CPIs) that have activities relating to the topics.

#### PHYSICAL GEOGRAPHY

The study of land and water forms—*physical geography*—has been traditionally emphasized in geography. Physical characteristics of places include landforms, bodies of water, climate, soils, vegetation, animal life, and alterations made by humans. All of these are studied under Standard 6.7. There is substantial need for critical thinking and problem-solving skill development as students learn to use data and graphics such as maps and charts to answer geographic questions of every level of complexity.

#### HUMAN GEOGRAPHY

*Human geography*, the focus of Standard 6.8, considers human activities in the context of the world and in relation to populations: their nature and their activities. These activities are affected by the environment and the world and, in turn, modify that environment. Human geography draws from the disciplines of sociology and cultural anthropology as well as demographics to develop profiles of population groups and activities. Regional studies and area studies are major aspects of human geography. Here again, students must develop critical-thinking skills in order to look at human activities such as culture, technology, settlements, migrations, conflict, and cooperation.

**ENVIRONMENTAL STUDIES**

*Environmental studies*, highlighted in Standard 6.9, integrates the two areas above in that it emphasizes the interaction of physical and human systems in the context of the world. Students measure and analyze the effects of human activities on the environment and learn to make judgments about such activities. The allocation and use of natural resources, for example, is a major topic for study and a rich source of classroom activities.

**Table 10**  
*Structure of Geography*

<b>Topic</b>	<b>Standard/CPI</b>
	<b>6.7</b>
Maps, globes, other graphics	1, 6, 7, 11, 12
Location of major physical elements	2, 3, 4, 9
Five basic concepts: location, distance, direction, scale, and region.	5, 8, 10
	<b>6.8</b>
Populations, characteristics	1, 6, 12
Communities, settlements	2, 5, 7, 14
Urbanization	8, 9, 10, 14, 15
Regional studies	3, 4, 10
Global interdependence	11, 16
	<b>6.9</b>
Resources	1, 4, 6
People and the environment	2, 3, 5, 7
Technological change and the environment	8

---

## Standard 6.7

### PHYSICAL GEOGRAPHY

*All students will acquire geographical understanding by studying the world in spatial terms.*

---

#### INTRODUCTION TO STANDARD 6.7

This standard begins the treatment of geography in the social studies standards. The first topic is spatial concepts, which are the foundation for this area. The student begins in kindergarten with the study of directionality (up, down, north, south, left, right, and so on). He or she then progresses in the later elementary grades to learn about point, line, area, location, place, relationships within places, distance, direction, scale, region and populations.

Map study begins in the early grades with the study of simple maps and an introduction to the globe. The study of one's own community begins here, but the broader study of the state, nation, and world are also introduced in early grades. Map study continues throughout the grades as the student learns to read and interpret a variety of maps, to construct his or her own maps, and to translate information from maps into a variety of other graphics.

The study of land and water forms—including continents, oceans, and islands—is another major topic in geography. Regional geography looks at issues such as the settlements from simple villages to modern metropolitan areas such as Rotterdam, Calcutta, or the northeast corridor in the United States.

A related cognitive issue is the development of mental maps, which are internal representations of spatial concepts. Students begin to develop a sense of where they are in relation to the immediate neighborhood and the rest of the world. This ability to mentally reconstruct area, distance, and direction is an important aspect of geographic understanding. Students are expected to have recognition and recall knowledge of the basic land and water forms of the local community, of New Jersey, of the United States, and of the major regions of the Earth.

**Descriptive Statement:** Thinking in spatial terms is essential to knowing and applying geography. It enables students to take an active, questioning approach to the world around them and to ask what, where, when, and why questions about people, places, and environments. It allows them to formulate answers to critical questions about past, present, and future patterns of spatial organization and to anticipate the results of events in different locations. Thinking spatially, students learn to devise their own mental maps, which involve spatial relationships and students' perceptions of specific areas. Thinking spatially enables students to predict what might happen given specific conditions. Spatial concepts and generalizations are powerful tools for explaining the world at all levels, from local to global. They are the foundation for geographical understanding.

**Cumulative Progress Indicators:*****By the end of Grade 4, students:***

1. Use maps, globes, graphs, diagrams, and computer-based references and information to generate and interpret information.
2. Use mental maps to identify the locations of places within the local community and in nearby communities.
3. Use mental maps to identify the locations of the earth's continents and oceans in relation to each other and in relation to principal parallels and meridians.
4. Use mental maps to identify the locations of major physical and human characteristics in the United States and on earth.
5. Demonstrate understanding of the spatial concepts of location, distance, direction, scale region and movement.

***Building upon knowledge and skills gained in the preceding grades, by the end of Grade 8, students:***

6. Recognize the distinct characteristics of maps, globes, graphs, charts, diagrams, and other geographical representations, and evaluate the utility of each in solving geographical problems.
7. Translate maps into appropriate graphics to display geographic information.
8. Answer geographical questions regarding major physical and human characteristics.
9. Solve location problems using information from multiple sources.
10. Compare information presented at different scales.

***Building upon knowledge and skills gained in the preceding grades, by the end of Grade 12, students:***

11. Use and interpret maps and other graphical representations to analyze, explain, and solve geographical problems.
12. Use maps of physical and human characteristics of the world to answer complex geographical questions.

## LIST OF LEARNING ACTIVITY TOPICS FOR STANDARD 6.7

---

### Grades K–4

Indicator 1: *Using Maps, Globes, and Other Graphics to Answer Geographic Questions*

Indicators 2, 3, and 4: *Developing and Using Mental Maps*

Indicator 5: *Geography Basics*

---

### Grades 5–8

Indicator 6: *Using Maps, Globes, and Other Graphics*

Indicator 7: *Translating Map Data to Other Graphics*

Indicator 8: *Human Geography*

Indicator 9: *Using Multiple Sources in Location Problems—New Jersey Geography*

Indicator 10: *Using Scales in Geographic Study*

---

### Grades 9–12

Indicators 11 and 12: *Using Maps to Answer Geographic Questions*

---

*Indicator 1: Use maps, globes, diagrams, and computer-based references and information systems to generate and interpret information.*

---

This indicator focuses on the gathering of information from a variety of sources in a variety of ways to answer geographic questions. Activities provide students with opportunities to use the tools of a geographer to collect and interpret information locally and globally.

---

## **LEARNING ACTIVITIES: Grades K–4**

### **USING MAPS, GLOBES, AND OTHER GRAPHICS TO ANSWER GEOGRAPHIC QUESTIONS**

**Overview.** New Jersey is a diverse, multicultural state. Throughout history, many immigrants have come to settle in the area. This movement of people—starting in the colonial period to the Ellis Island group to the new wave of Asian and Latin American immigrants—can be easily tracked geographically. During the elementary grades, students learn about their ethnic backgrounds, the route by which their families came to the United States, and their reasons for doing so. The library media specialist can demonstrate methods of searching computer-based references and can show students how to navigate the Internet and evaluate sources found there.

**Tracing Family Roots—and Routes.** Students research the arrival of their own family in New Jersey by interviewing family members. They show this movement by creating a personal family map, that they share with their classmates. During sharing time, students relate the reasons for immigration that they discovered in the interview. These reasons are listed on a class chart, which can be used when looking for similarities and differences in decisions to emigrate.

**Map It! Graph It!** Students use a globe to show the routes their families took to arrive in New Jersey. A class map is created as each student locates and labels his or her family's route to New Jersey. This class map can be compared with similar maps developed by other classes. A grade-level or school immigration map can then be designed and exhibited in a prominent place—to be updated with new arrivals to the grade or school. Students make bar charts and graphs of ethnicity, routes taken, and reasons for emigration using the data collected.

**Sharing Heritage.** With the help of the library media specialist, students use the computer to discover more information about their different countries of origin. Afterward, students bring in music tapes (or sing songs), read folktales, share ethnic foods, and make and display arts and crafts representing the countries.

**Relocation Reasons.** Why do people move? Using real estate advertisements from current newspapers and magazines, students compare the “push/pull factors” used in the advertisements today with those used in the past. Is economics (proximity to one’s job) the main motivation to move or do other factors (e.g., “quality of life”) enter into these decisions?

**Further Exploration.** Students research immigration to New Jersey at various points in its history. They locate on a map where major populations settled and discuss possible reasons for settlement (e.g., economics, physical terrain, climate, religion). They list the benefits and challenges of immigration and analyze how it has impacted their family, town, and state. Students discuss the 1998 Supreme Court case (6-3 decision) whereby 90% (24 acres) of the present Ellis Island belongs to New Jersey. Those students whose relatives came through Ellis Island might discuss where they thought their relatives disembarked.

**Connections.** This activity allows students to apply the concepts of cause, effect, and consequences to historical events (Standard 6.3, Indicator 1); identify common elements found in different cultures (Standard 6.5, Indicator 1); identify the distribution and characteristics of populations at different scales, and understand the causes and effects of human migration (Standard 6.8, Indicator 1).

**Resources.** The following resources provide support for the suggested activities:

Geography Education Standards Project. (1994). *Geography for life: National geography standards 1994*. Washington, DC: National Geographic Society.

Cunningham, John T. (1994). *You, New Jersey, and the world*. Andover, NJ: Afton Press.

Cunningham, John T. (1997). *New Jersey: A mirror on America*. Andover, NJ: Afton Press.

Fay, Elaine, & Stansfield, Charles. (1996). *New Jersey, USA*. Silver Burdett Ginn.

---

**Indicator 2:** *Use mental maps to identify the locations of places within the local community and nearby communities.*

**Indicator 3:** *Use mental maps to identify the locations of the earth's continents and oceans in relation to each other and in relation to principal parallels and meridians.*

**Indicator 4:** *Use mental maps to identify the locations of major physical and human characteristics in the United States and on earth.*

---

These indicators focus on students' ability to develop mental representations of point, line, extent, distance, and direction of maps. This means that students are expected to know certain locations from memory without reference to a physical map or with reference only to an outline map. Mental maps help students make sense of the world physically and spatially. These representations provide a way to visualize a place and make connections. Because a mental map is our idea of where something is and how to get to it, a mental map is an important part of our ability to get around; it is our "sense of direction."

*It should be noted that the wording of these indicators clearly means that students are expected to have recall knowledge of the specifics listed. This is true of all three mental map indicators.*

We all store these geographic images in our minds. Students learn through map study and discussion to construct better and more effective mental maps. Arnheim (1969, p. 81) pointed out that "no shape acquired from the past can be applied to the present unless the percept has a shape in itself." He also argued that categorization is an essential part of this memory- and perception-based process. There we link memory maps to conscious map study as a learned process. We can all have a better "sense of direction."

---

## LEARNING ACTIVITIES: Grades K–4

### DEVELOPING AND USING MENTAL MAPS

**Overview.** This topic begins in the kindergarten classroom as students map the location of classroom furniture, windows, books, and other objects. Follow-up activities include mapping the school and the neighborhood. Primary-level students can be introduced to simple maps of New Jersey, the United States, the North and South American continents, and the world. These maps can be the basis for related art activities. Through discussion and questioning, we can help students begin to develop a sense of directionality and distance. These discussions should be related to maps available in the classroom and to students' memory of travels.

Picture postcards, videotapes, films, and travel magazines provide students with visual images of what a place looks like. (An incredible variety of colorful maps are available for use.) Through these illustrations of physical characteristics, people, climate, customs, wildlife, and vegetation, students develop a rich geographic representation of that place and its location in the world.

Students learn about physical characteristics of areas (e.g., valleys, hills, mountains) as features of physical maps. By studying color-coded maps, they begin to relate their findings to the experience. Through the use of picture magazines such as the monthly *National Geographic* and *Travel* magazines, students relate these to the elevation maps and deepen understanding. Students should be encouraged to read stories that are rich in description of places in the United States. Through their readings, they learn to visualize the geographic and human features of an area. Students develop mental images of the place and practice writing descriptions of place and surroundings. These mental maps provide opportunities to compare and contrast information, extending references to time and place.

**Why Is This Here?** Using the community as a model, students picture where stores, schools, housing developments, parks, local businesses, churches, and other important places are located. They make inferences why the structures were built in those locations.

**Wish You Were Here!** Ask family members, friends, and pen pals to send picture postcards to the class. As each card is received, discuss the cultural, physical, and environmental characteristics of the place to help the students determine its location in the world (thereby enriching their mental maps of that place). Using a Styrofoam ball or a balloon, students label the continents and oceans including the principal parallels and meridians as a guide to their correct placement.

**Introducing Parallels and Meridians.** Make photocopies of maps beginning with simple, local maps and progressing to larger areas. Draw a grid over the photocopied maps using a simple numbering system: A to Z for the x-axis, 1 to 10 for the y-axis. Copy these gridded maps for the students. Teach the use of coordinates as students plot the location of various points. This is a good introduction to parallels and meridians.

**Plotting Coordinates.** Students learn that parallels and meridians are ways of mathematically describing or circumscribing maps of the world and of large areas of geography. Simple maps of New Jersey, the United States, the North and South American continents, and the world are used to study these concepts. Given a list of locations, students plot the coordinates (latitude and longitude). They compare sites around the world with their own communities and are surprised and interested to see the places that are on the same general wave-band as their homes.

**Creating a Community Representation.** Students create a representation of a community, develop a legend, and give reasons for the placement of the natural and constructed sites. Encourage students to be creative in developing keys and legends for explaining their diorama or relief map of the community. This can be an ongoing activity throughout the year as the class adds to and expands the community representation to the limits of their creativity.

**Collecting and Analyzing Data.** Students develop a questionnaire to be sent to various community facilities to gather information for their community representation. Using the data received, the students compile a profile of the various parts of the community.

**Describing Places.** Distribute sets of pictures of various places for which the students are to write descriptive passages. Provide them with models of description drawn from pages of *National Geographic* and the writings of Rachel Carson, John McPhee, John Muir, and other masters of description.

**Mapping a Journey.** Students read any travel book or fictional account of a journey by a child or a pet (such as Lassie) or view a film or video involving travel across a great distance. They visualize the route that the leading character takes from start to finish, paying special attention to the descriptions given that made the places unique. Students plot the trip on outline maps or other types of maps prepared for this activity. Alternately, they develop their own, hand-drawn maps with illustrations of the adventures and encounters of the characters along the way.

**Assessment.** Regularly assess students' development of mental maps by asking students distance and direction questions. Use outline maps to test students' sense of place and distance. Give students place-recognition tests using simple maps of New Jersey, the United States, the North and South American continents, and the world.

**Further Exploration.** As students receive the postcards from the activity referenced above, they use a variety of sources to research additional information and enhance their mental maps. They also note those continents from which no postcards have been received and do additional research about these areas.

As students explore the route that the main character took, they create stories about their own fictional characters who take a journey. The students share their stories with their classmates. They draw pictorial representations using the images stored in their mental maps.

**Connections.** Science Standard 5.10, Indicator 1, requires students to work with maps in studying the physical features of the Earth and the oceans. Students study simple physical maps that show elevation, water tables, and other features. Perhaps an arrangement with a science teacher could enhance the class's map study activities.

Students develop the tactile dimension through the arts. Arts Standard 1.3 says that "students will utilize arts elements and arts media to produce artistic products..." Students use modeling clay or papier mache to develop relief maps of their immediate community, and then the six New Jersey regions: (1) mountainlands, (2) high country, (3) urban area, (4) pinelands, (5) farm area, (6) shore (see illustration).

**Resources.** The following resources provide support for the suggested activities:

- Arnheim, R. (1969). *Visual thinking*. University of California Press.
- Brisson, P. (1991). *Magic carpet*. Bradbury Press.
- Carter, P. (1997). *A big trip for the Morrisons*. Viking.
- Cherry, I. (1994). *The armadillo from Amarillo*. Harcourt Brace.
- Gardner, G. (1996). *Where on the Earth am I?* Franklin-Watts.
- Geography Education Standards Project. (1994). *Geography for life: National geography standards 1994*. National Geographic Society.
- Hartmen, G. (1994). *As the roadrunner runs: A first book of maps*. Bradbury Press. (Also *As the crow flies: A first book of maps*.)
- Knowlton, J. (1988). *Geography from A-Z: A picture glossary*. Crowell.
- Leedy, J. (1992). *Blast-off to Earth: A look at geography*. Holiday House.
- Leventhal, D. (1994). *What is your language?* Dutton.
- MacEachren, A. (1995). *How maps work*. Guilford Press.
- Makower, Joel (Ed.). (1986). *The map catalog (Every kind of map and chart on Earth and even some above it.)* New York: Vintage Books/Tilden Press. [May be out of print. Try either of the two great Internet bookstores: [www.amazon.com](http://www.amazon.com) for books in print and [www.mxbf.com](http://www.mxbf.com) for books out of print.] The complete *National Geographic* CD-ROM Library. (108 years of the magazine available for \$199 from Teacher's Discovery (800-543-4180)).
- National Geographic. *Picture atlas of the world* [CD-ROM]. (See also any issue of *National Geographic* or *Travel*).
- Nystrom. *Neighborhood near and far* [CD-ROM].
- Rockwell, A. (1998). *Our Earth*. Harcourt Brace.
- Tillbury, D. (1997). *Teaching and learning geography*. Routledge.
- Tom Snyder Productions. *Neighborhood map machine* [CD-ROM].

### Atlases

- Block buddy atlas*. Nystrom.
- Boyle, B. (1992). *My first atlas*. Scholastic.
- Children's atlas of the world*. Rand McNally.
- Children's world atlas and teacher activity guide*. Rand McNally.
- Classroom atlas and teacher activity guide*. Rand McNally.
- First atlas*. (1994). Rand McNally.
- Map champ atlas*. Nystrom.
- National geographic world atlas for young explorers and teacher activity guide*. National Geography.

Make use of travel videos as well as children's literature rich in geographic settings.

---

**Indicator 5:** *Demonstrate understanding of the spatial concepts of location, distance, direction, scale, region, and movement.*

---

This indicator calls attention to the most basic skills in geography—thinking in spatial terms. Students will be working on this skill from kindergarten through Grade 12. In later grades, they begin to formulate answers to important questions about patterns of spatial organization (landforms, water, etc., in the past, present and future). They also learn to make predictions and anticipate results of events in different locations given specific conditions. Spatial concepts are important tools for explaining the world at all levels, from local to global. They are the foundation for geographic understanding.

---

## LEARNING ACTIVITIES: Grades K–4

### GEOGRAPHY BASICS

**Overview.** Students must understand the underlying physical processes that produce geographic entities and the ecological systems that are their result. According to *Geography for Life: National Geographic Standards*,

All individuals need to have an understanding of geography, which means that they need to have an understanding of the spatial contexts of people, places and environments on Earth. An isolated geographic fact does not constitute geographic understanding. (p. 21)

We must, however, recognize that students need to develop a database of knowledge of locations and places in order to better understand and use the higher-order skills when asking and answering geographic questions.

As students understand spatial concepts, they begin to see patterns as a way of identifying connections and interactions among people and places. Geographic understanding broadens to include everything from land use patterns to market research and from international relations to facilities planning. Students begin to see that geography is a very broad subject that encompasses many areas of human activity.

**Reviewing and Re-forming Regions.** Using a physical/political map of New Jersey, students locate and list the various regions (e.g., highlands, shore areas, pinelands, farmlands, plains). Students also learn the basic political subdivisions: counties, townships, towns, and cities. Discuss these regions and how the physical characteristics of each region affect the lives of the people who live there. Working in cooperative groups, the students divide a blank map of New Jersey into regions in a unique way.

**Retrieving Maps on the ‘Net.** Practicing technology skills, students use an electronic map collection on the Internet to locate maps of New Jersey and other states. They collect data and then present their findings to the class. Each student can take a state or a possession (Puerto Rico, Guam, Virgin Islands, Pacific territory), print the various maps, and write a description of what he or she has collected and learned. One source is the University of Texas at Austin’s collection of maps at the following Web site: [http://www.lib.utexas.edu/Libs/PCL/Map\\_collection/united\\_states.html](http://www.lib.utexas.edu/Libs/PCL/Map_collection/united_states.html)

**Further Exploration.** Students investigate the 14 states that make up the Appalachian Mountain region. They discover how the mountains have affected the lives of the people in the past and how the mountains are affecting its current inhabitants. They predict possible impact in the future. Students look for similarities and differences among the states. Various maps of the region can be made, focusing on different aspects (e.g., cities, wildlife, industry, population, temperature, rainfall).

**Assessment.** To evaluate student learning, use a variety of projects involving map-making and land-use analysis and planning. It is not too early to begin to introduce students to these concepts.

**Connections.** This activity naturally links up with mathematics and allows students to develop the concepts of coordinates and paths, using maps, tables, and grids (Mathematics Standard 4.7, Indicator 8); and to recognize and demonstrate the use of different kinds of maps (Science Standard 5.10, Indicator 1).

**Resources.** The following resource provides support for the suggested activities:

*Children’s atlas of the world.* (1992). Rand McNally.

*Discovery atlas of the United States.* (1993). Rand McNally.

Geography Education Standards Project. (1994). *Geography for life: National geography standards.* National Geography Society.

*Hammond children’s world atlas.* (1998). Hammond.

Hardwick, S. (1996). *Geography for educators: Standards, themes, and concepts.* Prentice-Hall.

*Kid’s US road atlas.* (1996). Rand McNally.

Lye, K. (1996). *Atlas of the world.* Raintree Steck Vaughn.

*Rand McNally student world atlas.* (1998). Rand McNally.

*Simon & Shuster young reader’s atlas.* (1993). Simon & Shuster.

Steele, P. (1997). *Kingfisher young peoples’ atlas of the world.* Kingfisher.

Wright, D. (1997). *Children’s atlas.* Facts on File.

For physical/political maps of New Jersey and United States, try MAPQUEST on the World Wide Web.

---

**Indicator 6:** *Recognize the distinct characteristics of maps, globes, graphs, charts, diagrams, and other geographical representations, and evaluate the utility of each in solving geographical problems.*

---

The study of visual representations of the world and the universe are, of course, central to geography. Students begin with simple maps of the school and the neighborhood and work their way up to using a variety of types of maps to answer geographical questions. Clearly, by the end of Grade 4, all students should know and be able to locate from memory the major land and water forms of New Jersey, the United States, and the world. This indicator covers the graphics used in geographical studies and in many other situations to solve spatial and other problems. Students learn how to use a wide variety of maps and related materials.

---

## LEARNING ACTIVITIES: Grades 5–8

### USING MAPS, GLOBES, AND OTHER GRAPHICS

**Overview.** The activities here and throughout this framework are intended only to suggest some types of activities that fit the indicators and are not an exhaustive coverage of the subject. As part of their education, students have been taught to use reference books such as encyclopedias and textbooks as sources of information. This is appropriate when looking for either general or specific information. It is important to insure that students also learn how to use the atlas as a source of information and as a research tool. Every student should have access to a traditional atlas or one of the new CD-ROM versions and be proficient in its use. Alternately, every student should have some experience with one of the many Internet mapping Web sites.

**Different Maps.** To help a student understand different types of map projections, point to Greenland on a Mercator, Mollweide, Van deer Griten, or Robinson projection and notice its shape. Compare this to the shape on other projections or maps and finally to its shape on a globe. The accurate shape or projection is on the globe. Why are the others misshapen? Look for other land areas such as peninsulas and islands that are near the poles, and make the same comparisons. Remember, on a map we are showing a round object on a flat sheet of paper.

**Population Density Maps.** Students examine a population density map (dot map) of the world and share their observations with the class. Give them time to observe the data, and then ask them why there are concentrations of people in some areas and low population density in other areas (see sample questions below). Even though the students might be able to correctly guess the answers, make them use other maps, such as climatic or physical maps, to prove their answers.

- Why is there a band of population across the southern part of Siberia?
- Why are there so few people in parts of Northern Africa?

- Why are there so few people in Antarctica?
- Why do most Canadians live in the southern part of their nation?
- Why is there a concentration of people in Northeastern Egypt?
- Why are there few people along the central western coast of South America?

**Map Identification–Strait Facts.** In the early grades, students should have mastered identifications of the continents and oceans on a blank map of the world. In this activity, older students repeat this identification exercise from memory and then use an atlas to add the major ocean currents, wind patterns, seas, straits, canals, and peninsulas. It is important that students not only identify the major straits but also understand why the straits are important in world commerce. For example, the strait of Hormuz controls access to the Persian Gulf; the Dardanelles and the Bosphorus (critical sites during the Cold War) control access to the Mediterranean from the Black Sea; the Strait of Malacca connects the Indian and Pacific oceans. Russia and the United States are separated by the Bering Strait, which borders western Alaska. Students also identify and locate major canals such as the Erie, Panama, Suez, and Volga-Don canals and those that are a part of the Great Lakes-St. Lawrence system. They identify the history of the canal and its importance to world trade and transportation.

**Current Events.** When presenting current events, students locate the site of the event on a world map or other appropriate map. This process helps students understand where other nations are in relation to the United States and deepens their understanding of the “global relationship” of events.

**Further Exploration.** Students use various maps in an atlas to understand and explain industrial development in the United States. They identify and locate major areas where various natural resources are obtained and then relate these areas to the major U.S. industries. Next, they identify the major industrial centers and determine the means of transportation used to move the natural resources to the factories and transport the manufactured products to consumers. In the case of oil, tin, and some other resources, the map might indicate an offshore source that could lead to further study. Students can follow the same procedure to understand the relationship between U.S. agricultural centers and the distribution of food. They can expand this project on a seasonal basis by determining, for example, the source of the fresh fruits and vegetables consumed during winter in various regions of the nation.

**Connections.** These activities connect to the other geography skill activities.

**Resources.** The following resources provide support for the suggested activities:

- Microsoft. (1996). *Bookshelf atlas* [CD-ROM].
- Microsoft. (1996). *Encarta 97 virtual globe* [CD-ROM].
- Nystrom. (1996). *Nystrom atlas*.
- Rand McNally. (1996). *Classroom atlas*.
- Rand McNally. (1996). *Goodes atlas*.

See *Social Studies School Service Catalog* (800-421-4246) for a broad array of map study materials.

---

*Indicator 7: Translate maps into appropriate graphics to display geographic information.*

---

The key to this indicator is the word *translate*. The students will read information from all kinds of maps and display such information in pie and bar charts and other graphics. This application-level task strengthens the students' ability to use maps.

---

## LEARNING ACTIVITIES: Grade Levels 5–8

### TRANSLATING MAP DATA TO OTHER GRAPHICS

**Overview.** Students must be able to take information, analyze it, and display it in order to make it useful. With its variety of maps, charts, and graphs, an atlas is an important source of information. More importantly, an atlas can be extremely helpful to students who need to visually see an area in order to understand a concept. Some students can read a section of a text or a chapter describing the physical features of a nation or identifying the climatic regions of a continent and grasp its full meaning. Other students cannot visualize what they read, and they need to look at pictorial representations as presented on the maps or graphs in an atlas. With the addition of computers in social studies classrooms or access to computer labs, students will be able to use graphing and other programs to display information.

**Cultural Regions of the World.** After drawing and labeling the continents and oceans of the world on an outline map, students locate the major geographic, political, and cultural regions. Using the Internet, students access the flight schedules of various airlines and identify the world's busiest airports. They use the atlas and texts to determine why there are so many flights to certain locations and what the planes carry besides passengers. Students also identify the types of air cargo, other than mail, that might be carried on their flight.

**Sailing the Ships.** Students check the newspapers of major port cities such as Philadelphia and New York and look at the itemized list of ship departures and arrivals. They plot the ships' routes on maps and attempt to discover what type of cargo the ships carry to each destination. Students can search for this information on the Internet.

**Origin of Sports.** Develop a chart that lists all the major sports traditionally played in high school (column 1). The students speculate where each sport originated and write that country in the second column. After looking up the correct answers, students list the correct answer in the third column. Afterward, they locate the country of origin on a world map and write an essay about what they see on the maps. They should see that many sports had their origin in the Eastern Mediterranean and Western Europe. The sports that began in the Mediterranean were brought back to Europe by the Crusaders and then brought to America with the early colonists. Several sports such as lacrosse will be identified as uniquely American.

**Geography of the Clothing Industry.** Ask students to look at the garment tags in their jackets and coats. The students will discover that there are many countries of origin. They plot this information on a world map to study trade routes and patterns of commerce. Students research and discuss the reasons why some American companies (e.g., Reebok, Calvin Klein) have products made in Mexico, Taiwan, Albania, Malaysia, and other places. Fellman, Getis, and Getis (1990, p. 281) reported that “Wage rates in the mid-80’s for apparel production workers in the 20 countries that were major exporters of garments to the United States ranged from a low of 2% (of typical U.S. wages) in Bangladesh to a high of 25% in Singapore.” Students develop a database of wages of garment workers in the United States and in the countries to which such work is jobbed out by American manufacturers. Much of this information can be found in the popular press including newspapers, magazines, and television reports. An excellent resource is the CD-ROM version of the *Magazine Index* in the school library media center or local public library.

**Further Exploration.** Clothing is a subject that is of interest to all students. Students can investigate the kinds of clothing and other items that are manufactured in cheap-labor countries. Why, for example, are Levi’s jeans manufactured widely in China? Why Reeboks in Malaysia? Is there a cultural connection, or is the sole issue the cost of labor in that country? Do students know that Mercedes-Benz and BMW are building plants in the United States because labor is cheaper here than in West Germany? Why, then, is the cost of labor so high in another country? What is the role of unions in the cost of labor in West Germany and in the United States? Students should again use the resources of the library media center to investigate these questions. Some students may want to interview union members in their own families or neighborhoods.

**Connections.** The connection here is to Standard 6.6 on economic understanding as it relates to geography. Indicator 7 (“Explain the roles of markets and government policy in meeting the needs and wants of individuals and society”) is relevant here. Students can research government policy regarding imports from countries like Taiwan and Malaysia where cheap labor is used to manufacture fashionable clothing for Americans. How does our government’s policy support the free market? How do NAFTA (North American Free Trade Agreement) and GATT (General Agreement on Tariff and Trade) impact on the free market? How does this commerce affect the American worker?

**Resources.** The following resources provide support for the suggested activities:  
Fellman, Jerome, Getis, Arthur, & Getis, Judith. (1990). *Human geography: Landscapes of human activities*. Dubuque, IA: Wm. C. Brown.  
Nystrom. (1996). *Patterns of Manufacture in the United States*. Chicago: Author. A large, colorful wall map for classroom use.  
Rand McNally. (1996). *American Studies Map Series*. Chicago: Author.

---

*Indicator 8: Answer geographical questions regarding major physical and human characteristics.*

---

Thinking in spatial terms is essential to knowing and applying geography. It enables students to take an active, questioning approach to the world around them and to ask what, where, when, and why questions about people, places, and environments.

---

## LEARNING ACTIVITIES: Grade 5–8

### HUMAN GEOGRAPHY

**Overview.** Students must develop the skills to conduct successful inquiries and to develop generalizations and conclusions based on the data collected, organized, and analyzed. Students begin to formulate answers to critical questions about past, present, and future patterns of spatial organizations and to anticipate the results of events in different locations. The library media specialist can teach the use of electronic and print atlases.

**Some Important Questions.** Students investigate questions such as the following: What is the importance of the physical and human characteristics of New Jersey geography in history and in economic life?

**Portages in Colonial America.** Students who study American Colonial History at any level need to understand the geographic concept of portages and their relationship to the control of land. While students look at a map of the French Colonial Empire in North America, they try to figure out how the French were able to control this vast empire that extended from New Orleans to French Canada with only a few troops. To help answer the question, they use another map and identify the sites of the major battles of the French and Indian War. Ask other questions such as the following: What do the sites of the major land battles have in common? Why were battles fought there? Why were the forts located there? How many battles were fought at the mouths of rivers? How many were fought at portages? (A *portage* is a land route connecting two bodies of water.) Look at the battles of the Revolutionary War and notice their location. Are any of them portages? Examine the geographic importance of New Orleans or Saratoga.

**Portages in Contemporary America.** Using contemporary maps of America, students look for cities that are located at portages or at the mouths of rivers. Ask: Why are Pittsburgh, Buffalo, Detroit important cities? Why did Boston, our first major port, lose out as a center of commerce to Philadelphia, Baltimore, and now New York? Why has New Orleans always been a critical location during the early French and Indian War, Revolutionary War, War of 1812, and Civil War?

**Road Maps.** The state road map is probably the most commonly used type of map. Road maps published by Rand McNally or the State Division of Tourism can be used for a variety of activities such as the following:

- Students locate their home and trace the route of their school bus.
- Trace the route to the home of a relative or friend.
- Plan a trip around the state using a worksheet to record information such as the routes, distances, and sites to be visited.

Encourage students to use the map's legend or key. Ask: What does each symbol, line, or box represent? What sites related to New Jersey history are shown on the map? What recreational areas are shown? Where do relatives live and how do we get there?

**Further Exploration.** Students collect city and town maps and develop their own maps connecting various areas. They include familiar cultural and commercial sites.

**Resources.** The following resources provide support for the suggested activities:

- Bosco, P. (1991). *The War of 1812*. Millbrook Press.
- Carter, A. (1992). *The colonial wars: Clashes in the wilderness*. Franklin-Watts.
- Howarth, S. (1995). *Children's atlas of the 20th century*. Millbrook Press.
- Microsoft. (1996). *Bookshelf atlas* [CD-ROM].
- Microsoft. (1996). *Encarta 97 world atlas* [CD-ROM].
- Miles, L. (1996). *Usborne illustrated atlas of world history*. EDC Publications.
- National Geographic. *National Geographic map machine*.
- Smith, C. (1993). *The first battles: A sourcebook on the Civil War*. Millbrook Press.

See CPI6 for more resources by Rand McNally HISTOMAP OF WORLD HISTORY.

See also historical atlases.

---

*Indicator 9: Solve location problems using information from multiple sources.*

---

With the assistance of the library media specialist, students use a variety of print and media sources to determine the locations of various sites in the community.

---

## LEARNING ACTIVITIES: Grades 5–8

### USING MULTIPLE SOURCES IN LOCATION PROBLEMS New Jersey Geography

**Overview.** The geography of New Jersey is an important part of the standards-based curriculum because this is our state, we live here, and this can also be our learning laboratory. Students study the four major regions—the Appalachian Ridge and Valley, the Highlands, the Piedmont Plain and the Atlantic Coastal Plain—and their characteristics, including the 100 rivers, lakes, and beaches of southern and central New Jersey. Students learn that New Jersey covers only 7,500 square miles, which makes it 46th among the states in total area. They learn that only 20% of New Jersey is still farmland.

An important cultural and commercial center, New Jersey is home to the corporate headquarters of many Fortune 500 corporations. Students learn about cultural sites such as the New Jersey Performing Arts Center, the Liberty Science Center, and the Meadowlands Sports Complex as well as historic sites such as the Old Barracks Museum in Trenton and the Black River and Western Railroad in Flemington. (See Appendix B for a list of historic sites and organizations.)

**The Local Community and Its Economic Links.** After drawing a map of New Jersey, students locate their town or township and nearby metropolitan areas. Next, each student completes a form indicating where each parent or other adult in their household works. These locations are identified on a large wall map with strings connecting the home to the place of employment. Students identify the major transportation links from their town to the work locations and indicate if new routes are needed to speed their parents to work. In the next phase, students identify the industries, farms, or companies in town that employ their parents. This time they collect data on the locations from which raw materials are sent into their town and the forms of transportation and routes used. Finally, the students collect data concerning where the products are sent and the transportation routes used. Students display this information using string and pins on a map of New Jersey, the United States, or the world.

**Traditional and Electronic Resources.** Every student should have access to a traditional atlas or one of the new CD-ROM versions and be proficient in its use. There are numerous electronic sources available such as National Geographic, Library of Congress, and Social Studies School Service. After typing in the term *geography* with any of the Internet search engines (e.g., Infoseek, Magellan,

Microsoft Explorer, Netscape, Yahoo), students find Web sites offering satellite photos, databases, and a variety of specialty maps.

**Further Exploration.** Students develop their own graphics based on information from various sources. They develop graphic displays regarding land elevation, water table, beach erosion, etc.

**Connections.** These activities relate to various standards and indicators in the visual and performing arts, language arts literacy, mathematics, and science.

**Resources.** The following resources provide support for the suggested activities:

Cunningham, J. (1999). *You, New Jersey and the world*. Afton.

Fradin, D. (1993). *New Jersey*. Children's Press.

Fredeen, C. (1996). *New Jersey*. Lerner.

*Images of America Series*. (1998+). Arcadia Publishers.

Kummer, P. (1998). *New Jersey*. Capstone Press.

Microsoft. (1996). *Bookshelf atlas* [CD-ROM].

Microsoft. (1996). *Encarta 97 world atlas* [CD-ROM].

National Geographic. *National Geographic map machine*.

Thompson, K. (1996). *New Jersey*. Raintree Steck Vaughn.

---

*Indicator 10: Compare information presented at different scales.*

---

The concept of scale is an important dimension of map study. Students study maps on a local, national, and global scale. Students understand that *scale* refers to the size of the unit covered by the map as well as to the relative size of the unit in relation to the actual size of the mapped area.

---

**LEARNING ACTIVITIES: Grades 5–8****USING SCALES IN GEOGRAPHIC STUDY**

**Overview.** There is a wide variety of types of geographic data and ways to display data in addition to the traditional political or physical maps. After learning how to read and interpret geographic data, students develop their own two- and three-dimensional land, water, and sky maps (or globes or other types of projections) displaying political and natural boundaries, elevation, rainfall, climate variables, resources of various areas, ethnic divisions, and agricultural regions. The students investigate geographic topics as they learn to read and use other formats for geographic data such as tables, graphs, other print material, databases, and other media (including CD-ROMs, videotapes, and the Internet). Using a variety of methods, they gather and analyze data and display their conclusions.

**Atlas Research: Characteristics of a Nation.** Students can gather basic data about a nation in several ways. For example, they can use an encyclopedia or other text, or they can learn to gather data from a traditional or CD-ROM atlas. In this activity, students gather data on two nations such as the United States and Russia. Using an atlas and a worksheet (or other data collection instrument), they gather data regarding population, landforms, climate, resources, agricultural production, life expectancy, literacy, transportation, etc. After completing the research worksheet, students write an essay using the data to compare and contrast the two nations.

**Use of Electronic Databases.** Once students are taught how to use a database such as GIS (Geographic Information System) to store and retrieve data, they can research and compare information about different geographical problems. Introduce the concept of databases by having students develop a list of questions they might want to know about other individuals in their classroom. The list might include questions about students' birthdays, birthplaces, number of siblings, where their grandparents live, where they went on vacation, their neighborhood town or township, and/or their favorite TV shows. After the questions are selected, students learn the fundamental database concept of file structure as they begin to enter the data. (Use Excel, Paradox, dBase, Appleworks, Microsoft Works, or any other stand-alone product.) Each student inputs his or her information. When finished, students learn to sort and manipulate the information to generate various kinds of reports.

**Further Exploration.** As students learn to develop and use a computer database program such as dBase or Paradox, it becomes a valuable tool to gather and manipulate geographic data from a variety of sources. A very useful activity for students, which would bring together a broad array of skills and understandings, would be a feasibility study to determine (a) the need for a new school and its best location, or (b) the best location of a proposed new fast-food restaurant, shopping center, or museum. Provide students with copies of such a study. These feasibility studies can be most easily obtained from local businesses, marketing research firms, the public library, or various Web sites on the Internet.

**Connections.** There are substantial opportunities here for student work in art, mathematics, and language arts literacy especially in relation to doing a feasibility study. The final report will require quality work in all three of the above disciplines and relevant standards.

**Resources.** The following resources provide support for the suggested activities:

Microsoft. (1996). *Bookshelf atlas* [CD-ROM].

Microsoft. (1996). *Encarta 97 world atlas* [CD-ROM].

National Geographic. *National Geographic map machine*.

New Jersey Department of Environmental Protection. (1987). GIS (Geographic Information System) *tools for decision making: Mapping the present to protect New Jersey's future* [CD-ROM].

Trenton, NJ: Author.

See CPIs 4-6 for additional resources.

---

*Indicator 11: Use and interpret maps and other graphical representations to analyze, explain, and solve geographical problems.*

*Indicator 12: Use maps of physical and human characteristics of the world to answer complex geographical questions.*

---

These related indicators continue map study with a focus on projects that answer complex geographical questions regarding physical and human characteristics of various areas. Students conduct area and ethnic studies using maps, graphs, and charts.

## LEARNING ACTIVITIES: Grade 12

### USING MAPS TO ANSWER GEOGRAPHIC QUESTIONS

Overview. “By exploring what the world was like and how it was perceived at a given place at a given time, the geographically informed person is able to interpret major historical issues” (*National Geographic Society*, p. 101). In order to determine why and how history happened, students must examine the roles that physical and cultural factors have played. In American and World History courses, students must learn the geographic features of the places or regions of study and analyze the impact those geographic factors have had on the development of the landscape, people, or region. Such a study includes the names and locations of the mountains, rivers, and lakes as well as information about the area’s climate, soils, topography, and hydrology. Information available through the Internet and geography software is particularly helpful, in addition to atlases and text materials.

**An Area Study.** Area studies bring together many disciplines and many sources of data. Work with the class to select a subject for an area study—an intensive study of a specific geographic area or political entity such as a city, a country, or a region (e.g., Russia, South America, the Northeast). Create high interest by selecting an area combining interesting geography and recent history. The former Yugoslavia would certainly combine both subjects and would require the class to deal with complex issues that have directly involved the United States Government. Students research answers to the following questions:

- What physical features does the place have that affect the nature of settlements?
- What physical limitations have had to be overcome to settle and develop the area?
- How was the place modified by human activity?
- What about the environment or cultural features might have attracted migration to the area?
- How might further migration or emigration to the area take place?

- What images do people have about the place that may influence settlement?
- How have these perceptions been reflected in music, art, or literature?
- What cultural groups have settled in the area? under what circumstances?
- What has been the impact of the settlement of various groups on the place or region?
- How might cultural differences and/or struggles for power related to physical or economic resources lead to conflict?
- In what ways have nations encouraged or discouraged human migration and why?

**Connections.** Students analyze the mutual influences among different cultures (Bosnia, Serbian, Moslem) in the area throughout time (Standard 6.5, Indicator 13); interpret how the three cultures have adapted or not adapted to their environments (Standard 6.5, Indicator 15); and use and interpret maps and other graphical representations to plot the development of Yugoslavia into a nation and then into a series of ethnic countries again as students analyze, explain, and solve geographical problems (Standard 6.5, Indicator 11).

**Resources.** The following resource provides support for the suggested activities:  
Jackson, Richard H., & Hudman, Lloyd E. (1990). *World Regional Geography*. New York: Wiley.  
Bradshaw, M. (1997). *A World Regional Geography*. New York: McGraw Hill.

See also any issue of *National Geographic* for area studies.

For a wealth of available and relevant software, access the Educational Software Institute's Web site at [www.Edsoft.com](http://www.Edsoft.com) or call them at 1-800-955-6670. The following items are typical:

*Asia: An Introduction* (BFA Education Media). Laserdisc CAV (7707-LD).

*South America: People and Culture*. (BFA Educational Media). Laserdisc VHS (7707-LD).

(To order call 1-800-955-5570.)

---

## Standard 6.8 HUMAN GEOGRAPHY

*All students will acquire geographical understanding by studying human systems in geography.*

---

### INTRODUCTION TO STANDARD 6.8

This standard provides an understanding of people and their interaction with the physical world around them and various environmental factors. Students study human population characteristics, similarities and differences of people in various communities, as well as the related physical characteristics of places and regions. They identify the basic land and water formations and discuss their role in the growth and movement of human populations.

Standard 6.8 includes the study of topics from demographics and human geography. Students investigate the characteristics of human populations at different scales—from families to nations—and study spatial patterns of settlement and relationships of urban, suburban, and rural settlements. Urbanization is an important topic that encompasses both geography and history. The growth of cities is a major worldwide phenomenon that students learn about through this standard.

Students also examine changes in technology, such as improvements in communications and transportation, that have profoundly affected the everyday lives of people throughout the world. Students learn how these technological advances have increased global interdependence in the world economy and how these changes directly impact their own communities in terms of jobs and products that are available. They learn how technology affects the location of human activities. In summation, they learn how physical, social, cultural and economic processes shape places and regions.

**Descriptive Statement:** Students need to understand the interaction of human and environmental factors. The study of human systems includes the characteristics, distribution, and migration of human populations on the Earth's surface; the characteristics, distribution, and complexity of the Earth's cultures; patterns and networks of economic interdependence; processes, patterns, and functions of human settlement; and how cooperation and conflict influence the division and control of the Earth's surface.

#### Cumulative Progress Indicators:

##### *By the end of Grade 4, students:*

1. Identify the distribution and characteristics of populations at different scales, and understand the causes and effects of human migration.
2. Discuss the similarities, differences, and interdependencies among rural, suburban, and urban communities.

3. Compare the effects of geography on economic activities locally and in New Jersey, the United States, and different parts of the world.
4. Explain how improvements in transportation and communication have resulted in global interdependence.
5. Compare the physical characteristics of places and regions.

***Building upon knowledge and skills gained in the preceding grades, by the end of Grade 8, students:***

6. Compare and analyze demographic characteristics of populations, and determine the reasons for variations.
7. Identify the spatial patterns of settlement in different regions of the world.
8. Explain the causes and effects of urbanization.
9. Give reasons for the changes in spatial patterns of human activities.
10. Describe how changes in technology affect the location of human activities.
11. Give reasons for global interdependence.

***Building upon knowledge and skills gained in the preceding grades, by the end of Grade 12, students:***

12. Predict trends in world population numbers and patterns.
13. Analyze the impact of human migration on physical and human systems.
14. Analyze and compare the functions and spatial arrangement of cities locally and globally.
15. Analyze the processes that change urban structure, and the impact of changes in urban areas.
16. Explain the historical movement pattern of people and goods, and analyze the bases for increasing global interdependence.
17. Explain how physical, social, cultural, and economic processes shape the features of places and regions.

**LIST OF LEARNING ACTIVITY TOPICS FOR STANDARD 6.8**

---

**Grades K–4**

- Indicator 1: *Populations and Migrations—Native Americans*
- Indicator 2: *Comparing Types of Communities—New Jersey*
- Indicator 3: *Geography and Economics*
- Indicator 4: *Global Interdependence through Transportation and Communication*
- Indicator 5: *Physical Geography*

---

**Grades 5–8**

- Indicator 6: *Human Geography*
- Indicator 7: *Worldwide Patterns of Human Settlements—The Living Space*
- Indicator 8: *Urbanization—A Major Theme in Geography: The Growth of Cities*
- Indicator 9: *Spatial Interaction*
- Indicator 10: *How Technology Affects Life (Grade 8)*
- Indicator 11: *Global Connections*

---

**Grades 9–12**

- Indicator 12: *Trends in World Population Growth (Grades 11–12)*
- Indicator 13: *Human Migration*
- Indicator 14: *From Village to Megalopolis (Grade 11–12)*
- Indicator 15: *The Urban Landscape*
- Indicator 16: *Movement of People and Goods (Grades 11–12)*
- Indicator 17: *Natural and Human Changes in the Environment (Grades 11–12)*

---

**Indicator 1:** *Identify the distribution and characteristics of populations at different scales, and understand the causes and effects of human migration.*

---

At the K-4 level, the focus should be on population characteristics such as ethnicity, cultures, family life, and social customs. The issue of migration and its causes can also be handled in the primary grades with emphasis on families and communities.

---

## LEARNING ACTIVITIES: Grades K–4

### POPULATIONS AND MIGRATIONS Native Americans

**Overview.** Throughout history, the movements of populations in search of more and better resources—whether land or raw materials—have caused intergroup conflicts. Frequently the incoming group (e.g., Normans, Vikings, Conquistadors, settlers in early America) causes problems for the original inhabitants. Violent conflict usually results in a new political entity and a reconfiguring of the civilization that was present.

At the time of Columbus, the area that is now called the United States was populated by 2,000 Native American tribes speaking more than 200 different languages. The tribes in the Northwest, such as the Makah, were mostly fishermen. Those in the Southwest, such as the Hopi, were mostly farmers. The Great Plains Indians, such as the Mandan, hunted buffalo. American Indians in the Northeast, such as the Penobscot and the Lenni-Lenape, farmed and hunted. Beginning in the early 1600s, the immigration of Europeans to the New World greatly affected the lives of these Native Americans. In New Jersey (where 15,000 Native Americans currently live), the Lenni-Lenape and Powhatan-Renape tribes were present. Some chose to live in harmony with the Europeans, others moved away, and still others chose to wage warfare. There is a large literature on the subject of Native American life and lore. Topics include their religion, with its belief in the omnipresence of spiritual beings and its belief that all living things have a soul. As students learn about the native peoples, they will be also be learning about diversity and tolerance.

**Geography and Native American Life.** Students research Native American tribes living in different parts of the United States, develop written narratives and drawings of their daily life, and discuss how the geographical area influenced their beliefs and everyday life. Students examine their shelters and methods of farming, hunting, eating, and drinking as well as their religious myths and beliefs. They research answers to questions such as the following: Why did the Hopi believe in reincarnation? Why did the Pima devise the “rain dance” ceremony?

**Early Routes to America.** Groups of students trace the routes of Europeans into the New World, studying the background of the explorations and trying to understand their motivations. Other stu-

dent groups look into theories about the origins of the Native Americans. Where did they originally come from? Did they walk across the now-vanished Bering land bridge from Asia into Alaska? What are the current theories about the Asiatic origins of these people? How credible are these theories?

**Relationship of Colonists and Native Americans.** Students learn about the growth of colonization in North America, primarily the United States and Canada. How did it develop? How were the Native Americans treated by the colonists? How did they treat the colonists? Were some colonists and some Native Americans peaceful, and were some members of either group combative and territorial? Students describe the profound impact that colonization had on Native American culture. They develop a short play depicting the effect of colonization in one selected place on one group of Native Americans.

**Illustrating Native Tales.** Students in the primary grades draw pictures of Native Americans in a setting discussed in a story read in class. Evaluate the drawings for content based on a teacher-developed rubric. Older students write descriptions of a Native American character they have created.

**Coloring with Native Colors.** Use books such as the *Bellerophon* series to develop black-and-white line drawings of Native American art and artifacts. Photocopy the drawings (and simplify them with White-out, if necessary) or do freehand drawings and photocopy them for the students. Students in the primary grades color these pictures with typical Native American hues as they learn about the native culture.

**Further Exploration.** Students create a one-act play or presentation identifying both colonists' and Native Americans' arguments regarding ownership and use of the land. The class as a whole develops the basic context before separate student groups write the material for the colonist and Native American points of view. Students cite the sources used, including unique materials and references.

**Connections.** This activity will allow students to recognize human experiences through time, as depicted in works of history and literature and in the fine arts (Standard 6.2, Indicator 1); to evaluate works, such as personal creations, which communicate a human condition or question (Standard 6.2, Indicator 4); and to apply the concepts of cause, effect, and consequences to historical events (Standard 6.3, Indicator 1).

**Resources.** The following resources provide support for the suggested activities:

- Cunningham, J. (1994). *You, New Jersey, and the world*. Afton Publishing.
- Harvey, K. (1997). *Teaching about Native Americans*. National Council of Teachers of Social Studies.
- Joseph, A. (1994). *500 nations: An illustrated history of North American Indians*. Knopf.
- Kummer, P. (1998). *New Jersey*. Capstone Press.
- New True Indians of North America Series*. (1987+). Children's Press.
- True Book - American Indians Series*. (1997+). Children's Press.
- Van Laan. (1994). *Rainbow Crow: A Lenape tale*. Knopf.
- Viola, H. (1996). *North American Indians*. Random House.
- Waldman, Carl, & Wexler, Alan. (1990). *Who was who in world exploration?* Facts on File.
- Wilker, J. (1994). *The Lenape Indians*. Chelsea House.

Many anthologies of Native American tales are available in libraries and bookstores.

---

*Indicator 2: Discuss the similarities, differences, and interdependencies among rural, suburban, and urban communities.*

---

This is the traditional social studies focus on family, neighborhood, and community. However, in the primary grades, we also look at the broader picture to discuss interdependencies and family and community life in other parts of our state, our country, and our world.

---

## LEARNING ACTIVITIES: Grades K–4

### COMPARING TYPES OF COMMUNITIES

#### New Jersey

**Overview.** After World War II, the communities of New Jersey began to change dramatically. Areas that were once rural became suburban or even urban, while the large cities lost their population bases to the surrounding communities. Today, 90 percent of New Jerseyans live in cities and towns, most in the northeastern part of the state.

**Urban, Suburban, and Rural Communities.** Students make a list of characteristics of urban, suburban, and rural communities. The list should include geographic types, ethnicity of residents, business and industry, transportation, educational facilities, and entertainment opportunities. The students then create a Venn diagram to compare and contrast these three types of community.

**Investigating Community Changes.** Students analyze their own community in greater detail by consulting newspapers, magazines, relatives, and family friends. They identify changes over time and formulate reasons for the changes. They look at how the community has become more interdependent with other communities. They apply the skills of oral historiography as each student interviews a family member about community change over a 5-, 10-, 20-, or 50-year period.

**School-and-Community Timeline.** The class works as a group to develop a school-and-community timeline. Using large sheets of poster board, students draw a timeline from 1960 to the present, marking off 5-year intervals. They then fill in the years and begin to collect pictures and stories from newspapers and magazines about the community and the school. This is a good opportunity for oral historiography as students interview family members, the principal, teachers, and other community members to identify notable events and people for referencing in the pictorial timeline. If photographs are not available, students draw pictures and write narratives for various points on the timeline. This can be an ongoing activity for several months of the school year.

**Designing an Ideal Urban Community.** Students identify characteristics of urban communities, including the central business district, recreation facilities, cultural center, retail outlets, schools, and residential areas. They then develop a retrieval chart with columns for characteristics and typi-

cal examples. After discussing these characteristics of urban communities, students design a model city with characteristics agreed on by the class.

**Further Exploration.** To continue the timeline concept, students analyze their own community in greater detail by consulting newspapers, magazines, and other resources in the library media center and by interviewing relatives and family friends. Invite members of a local senior citizens association to your school. In the invitation, students explain their timeline project and indicate what information they are seeking. Assign teams of two or three students per adult. The class should develop the interview question list before the activity commences. Some suggested questions might be:

- When and why did you come to this community?
- Why have you remained here?
- What are the most significant changes in the community you have seen since you first moved here?

The class then interviews the senior citizens about the history of the community and the school. They should record the information as the interview is conducted, possibly using a tape recorder or video-tape camera. The class then reviews the information and decides what events and personalities should be highlighted. The completed presentation should be shown to the senior citizen group at the senior citizen center if possible with the teacher and class in attendance.

**Connections.** Students write community descriptions by synthesizing information from multiple sources (Language Arts Literacy Standard 3.3, Indicator 8); they use simple charts, graphs, and diagrams to report data (Language Arts Literacy Standard 3.5, Indicator 8), and investigate the interdependence of living things and their environment (Science Standard 5.12, Indicator 1).

**Resources.** The following resources provide support for the suggested activities:

Cunningham, J. (1990). *New Jersey: A mirror on America*. Afton Press.

Fradin, D. (1993). *New Jersey*. Children's Press.

Fredeen, C. (1996). *New Jersey*. Lerner.

Issacs, S. (1996). *New Jersey Studies Program: Activities Book*. Graphic Learning.

Kummer, P. (1998). *New Jersey*. Capstone Press.

Thompson, K. (1996). *New Jersey*. Raintree Steck Vaughn.

U.S. Census Bureau. (1990). *Report of the United States Census Bureau*. Author.

Any of the titles in the *Arcadia Images of America* series, a collection of brief historical studies of New Jersey communities (Arcadia Publishing, Dover, NJ)

A directory of county historical societies is available from the New Jersey Association of Museums (201-377-2982).

See Appendix B for a listing of state historic sites, including the Old Barracks Museum, Waterloo Village, the New Jersey Museum of Agriculture, the New Jersey State Museum, and many others.

---

**Indicator 3:** *Compare the effects of geography on economic activities locally and in New Jersey, the United States, and different parts of the world.*

---

This indicator focuses on the effects that geography has on the economic activity of a place. The activities provide students with opportunities to discover how geography influenced the development of a community and how people are employed.

---

## LEARNING ACTIVITIES: Grades K–4

### GEOGRAPHY AND ECONOMICS

**Overview.** The geography of an area (e.g., location, natural resources, landforms, bodies of water, climate) directly affects the economic activities of the people living there. For example, Rotterdam is considered to be one of the world's greatest seaports because it is situated at the gateway to Europe; Philadelphia is a good port, but not a great one because it is not near the ocean. The Arab countries are wealthy because there is oil under the desert. Geography is a critical determiner of a nation's destiny. It should be noted that technological advances often alter the patterns of economic growth and can, at times, offset the advantages given by natural resources. South Africa is richer now than in the first half of this century because its rich plutonium deposits are needed for the production of nuclear energy.

**Crops and Geography, Part 1.** Students select a crop species (such as Jersey tomatoes, Idaho potatoes, or Nebraska corn) and outline the steps in its production from seedling to final product. Students use this activity as an opportunity for further map study. They create their own tomato or potato map, tracing the path from the raw material stage to the distribution of the final product and purchase by a consumer in a market somewhere in the United States. At each point, they determine how the geography of the area is significant. The library media specialist introduces the use of atlases and teaches students how to use standard atlases for the study of climate and topography.

**Crops and Geography, Part 2.** Students develop a retrieval chart matching products and places. The chart has columns for characteristics of products and of places, climate, and other necessary conditions for the products (e.g., the soil in Cuba for cigars or in Colombia for coffee). Why is Cuban tobacco better than any other tobacco for cigars but it is not great for cigarettes? Why is Virginia tobacco great for cigarettes but not for cigars? These are fascinating topics for research as students learn about the uniqueness of places and products.

**Further Exploration.** Students research communities at 40 degrees North latitude and compare them to determine how the geography of an area influences the economic activity. Note that latitude is not the only factor influencing climate. Remind students that elevation and proximity to water also affect climate. A community at 40 degrees North latitude at the shore will have a different climate than one at the same latitude on an interior plain (*continentality*).

**Connections.** Students develop the concepts of coordinates and paths, using maps, tables, and grids (Mathematics Standard 4.7, Indicator 8). They explain how meeting human requirements affects the environment (Science Standard 5.12, Indicator 2), and they describe work that people perform in our economic system (Social Studies Standard 6.3, Indicator 3).

**Resources.** The following resources provide support for the suggested activities:

Ancona, G. (1989). *An American family farm*. Harcourt Brace Jovanovich.

Becklake, J. (1991). *Food and farming*. Gloucester Press.

De Condo, A. (1999). *The New Jersey Adventure*. Gibbs-Smith. ([www.gibbs-smith.com](http://www.gibbs-smith.com)).

A new resource.

Fowler, A. (1993). *If it weren't for farmers*. Children's Press.

Halley, N. (1996). *Farm*. Knopf.

Ketterman, H. (1995). *Luck with potatoes*. Orchard Books.

Maynard, C. (1997). *Jobs people do*. Dorling-Kindersley Limited. (This is a unique book for the early grades that describes some major occupations.)

McKnight, T. (1987). *Physical Geography: A Landscape Appreciation*. Prentice-Hall.

New Jersey Geographic Alliance. *The Hershey bar around the world* (lesson plan). Available from the Educational Improvement and Resource Center in Sewell, New Jersey.

New Jersey Network. *Around and about New Jersey* (video series). Available from New Jersey Network.

Peterson, C. (1996). *Harvest year*. Boyds Mill Press.

Robbins, K. (1992). *Make me a peanut butter sandwich and a glass of milk*. Scholastic.

Saunders-Smith, J. (1998). *The farm*. Pebble Books.

Ventura, P. (1994). *Food: It's evolution through the ages*. Houghton-Mifflin.

---

*Indicator 4: Explain how improvements in transportation and communication have resulted in global interdependence.*

---

This indicator provides an understanding of the transition from sailing vessels to modern nuclear-powered supertankers, from horses to motorcars, from the carrier pigeon to the telegraph to the fax machine and e-mail, and how these changes have shaped the life and work of the times. Global interdependence has resulted from technological advances. The global economy is a phenomenon that transcends national boundaries.

---

## LEARNING ACTIVITIES: Grades K–4

### GLOBAL INTERDEPENDENCE THROUGH TRANSPORTATION AND COMMUNICATION

**Overview.** Throughout history, technological advances have occurred that changed the lives of people around the world. These advances have increased the interaction of nations everywhere with respect to the exchange of goods, services, and ideas. Some individuals suggest that these exchanges are not always good. The global spread of elements of American popular culture (Disneyworld in Paris, Dairy Queen in Calcutta, etc.) is not universally seen as beneficial in every instance. The global spread of American democracy, on the other hand, is a widely accepted benefit. The Kyoto Accords on environmental pollution are an example of international cooperation, as was the Gulf War. Can the U.S. population decrease its production of greenhouse gases by 30% in 5 years? Activities associated with this indicator provide students with an opportunity to grapple with such questions and to compare and contrast changes that occurred at different periods in time and their effect on people's lives.

**Creating Timelines to Document Global Interdependency.** Students brainstorm answers to the following questions: What major inventions throughout history have made air, sea, and land transportation faster and easier? What major inventions throughout history have made communication faster and easier? Students then research these two topics. Ask the library media specialist to introduce students to relevant resources, including bookmarked Web sites, encyclopedias, and other reference works. After completing their research, students work in two separate groups—one for transportation and the other for communication—to prepare timelines. These timelines will show how, where, and by whom transportation and communication advancements were developed and how the discoveries have made the world more interdependent by increasing the global flow of goods and services.

**Looking Closer to Home.** Each student prepares a report concerning the effects of one major contemporary technological advancement on his or her immediate community. Computers, fax machines, beepers, cell phones, videocameras, the Internet, e-mail, and digital videodiscs would be good examples.

**Further Exploration.** Use a phone book and map of the local community to locate large clusters of related businesses or other economic activities. Students work cooperatively to research how improvements in communication and transportation keep the businesses in operation. They also investigate why the businesses are located where they are.

**Connections.** This activity will allow the students to hear, read, write, and talk about scientists and inventors in historical context (Science Standard 5.3, Indicator 1), to recognize that scientific ideas and knowledge have come from men and women of all cultures (Science Standard 5.3, Indicator 2), and to describe the influence of technology in daily life (Social Studies Standard 6.5, Indicator 4).

**Resources.** The following resource provide support for the suggested activities:

*All aboard Series.* (1994+). Price Stern Sloan Publishers.

Brady, P. (1996). *Freight trains.* Bridgestone Books.

Coster, P. (1997). *Transportation and communication.* Children's Press.

Ganeri, A. (1998). *The story of communication.* Oxford University Press.

Geography Education Standards Project. (1994). *Geography for life: National geography standards 1994.* National Geographic Society.

Loomis, C. (1996). *Rush hour.* Houghton-Mifflin.

Maynard, C. (1993). *I wonder why planes have wings and other questions about transportation.* Harper Trophy.

Siebert, D. (1995). *Train song.* Harper Trophy.

*Transportation True Book Series.* (1997+). Children's Press.

See also books and computer software on inventors and inventions.

---

**Indicator 5:** *Compare the physical characteristics of places and regions.*

---

This indicator focuses on the physical landforms, bodies of water, soil, vegetation, weather, and climatic conditions that identify a specific location. Activities provide students with the opportunity to identify the physical characteristics and to compare and contrast physically similar areas and those that are vastly different.

---

**LEARNING ACTIVITIES: Grades K–4****PHYSICAL GEOGRAPHY**

**Overview.** Physical geography aims to bring understanding of our physical environment, the context of human activities. The study of the Earth and the study of maps are essential to this subject. Each place possesses a unique set of tangible and intangible characteristics that help to distinguish it from other places. Students develop an understanding of why places are the way they are as they strive to comprehend and appreciate the similarities and differences of places around their community, state, country, and planet.

Using textbooks and other readily available learning materials, students learn to recognize and define basic landforms and water forms through a series of activities that are basic to this subject. The library media specialist is a major resource in the school who can teach students how to use standard atlases and almanacs to understand climate, topography, scale, and other important geographic concepts.

**Planning a Trip Close to Home.** Working in small groups, students pretend they are planning to go on a trip. Each group picks a different destination in the community or state and compiles a list of pertinent information the students will need to know before they leave. Each list includes physical characteristics of the area, such as climate, rainfall, terrain, seasonal temperatures, and natural landmarks. Students also estimate the distance to the place they will visit, their method(s) of travel, and the cost of the trip. They collect pictures and descriptions of the selected destination and create travel posters, travel brochures, and travel maps. Students write letters to friends and relatives telling them about the place they have visited on their imaginary classroom journey.

**Planning a Trip Far Away.** Again working in small groups, students plan a trip to a more remote destination. After collecting climate information, they create a list of the clothing they should pack. They also speculate about activities to do on their vacation. For example, visiting Argentina in July is not the same as visiting Arizona in July. Students can use the Internet or CD-ROMs to check on the weather in various parts of the world.

**Creating Edible Topographic Maps.** Physical geography can be made visually exciting for children. Nabisco has a recipe that includes the shapes of all New Jersey counties as well as suggestions on using various snack products to illustrate topographic features. A similar topographic map of the United States can be created using food products such as Hershey's Kisses for the Rocky Mountains and chocolate chips for major cities.

**Place Names and Their Origin.** In his book *New Jersey: Its People and Culture*, Abraham Resnick explained how places in New Jersey got their names. Some city names, such as Mahwah, are Native American in origin, while Paterson and Washington Township are named after individuals of historic importance. The names of many other places—including High Point, Seaside Heights, and Atlantic City—are related to the physical environment. Students compile a list of places in the state that reflect the physical environment.

**Setting, Plot, and Characters.** Students choose favorite book, story, or film characters that lived in very different kinds of places or regions. Students write description of each physical setting and explain how they affected the story, including plot and characters.

**Further Exploration.** Students create an imaginary place that includes physical features such as plains, plateaus, mountains, and rivers. Challenge the students by asking where towns and cities might be located. Use a theme to tie it all together; for example, the *Continent of Sports* might include *Baseball Bay*, *Rollerblade River*, *Lacrosse Lake*, *Soccer Sea*, etc.

**Connections.** Students synthesize information from multiple sources (Language Arts Literacy Standard 3.3, Indicator 8) in demonstrating understanding of spatial concepts of location, distance, direction, scale, region, and movement (Social Studies Standard 6.7, Indicator 5).

**Resources.** The following resources provide support for the suggested activities:

Field, R. (1990). *A road might lead anywhere*. Little, Brown & Co.

*Fodor's travel guide Series*. (1999). Fodors.

*From sea to shining sea Series*. (1992+). Children's Press.

Geography Education Standards Project. (1994). *Geography for life: National geography standards 1994*. National Geographic Society.

Hyatt, P. (1995). *Coast to coast with Alice*. Carolrhoda. (Fiction)

Loomis, C. (1994). *We're going on a trip*. Morrow.

Partin, R. (1998). *The Prentice Hall directory of online social studies resources*. Prentice Hall.

*Rand McNally 1999 road atlas deluxe*. (1999). Rand McNally.

Roberts, W. (1997) *The absolutely true story...how I visited Yellowstone National Park with the terrible Rupes*. Aladdin. (Fiction)

The Society for Visual Education. (1994). *The geography of the United States* [laserdisc].

The Society for Visual Education. (1994). *U.S. geography: From sea to shining sea* [laserdisc].

Multicultural literature and travel posters would be useful references for this indicator.

---

**Indicator 6:** *Compare and analyze demographic characteristics of populations, and determine the reasons for variations.*

---

Demography is the statistical study of human populations (in terms of population growth and decline) as related to natural change and human migration. This indicator can also include the study of population geography, which deals with populations in a spatial context.

---

## LEARNING ACTIVITIES: Grades 5–8

### HUMAN GEOGRAPHY

**Overview.** Human geography is the study of people and environments. It seeks answers to questions such as the following: What are the cultural differences of people the world over? How is culture influenced by environment? How have cultures evolved from the earliest evidence of cultivation of grains before 10,000 BC to the modern use of computers? How do the ideological, sociological, and technological subsystems in a civilization interact? How do cultures change and grow or decline? How do cultures interact to diffuse innovations that enrich or destroy other cultures?

**Introduction to Demographics: The New Jersey Model.** Using the telephone book, students locate a map of New Jersey showing the various area codes. Thirty years ago, we had two area codes: 201 (which was the nation's first) and 609. Today we have six. Ask the library media specialist to review with the class the use of atlases, almanacs, statistical resources such as *Census Reports*, and electronic sources of statistics such as the *SIRS Government Reporter and Execy*. Discuss with the class and assign them to research the following questions:

- Why has New Jersey grown to six area codes?
- What parts of the state have these new codes?
- Are all the additional area codes related to population trends or is there another explanation, perhaps related to technology? (*Hint:* Survey the class to determine how many telephone lines, fax lines, Internet access lines, and cellular lines have been added to their households in recent years.)
- What can we learn about population patterns and culture from the telephone directory?

**Imagining Population Characteristics of a World Village.** Students predict the distribution of population characteristics, such as gender, origin, language, and religion, in a representative world village of 1,000 people. They compare their individual and group predictions with actual data by creating graphic representations and analyzing differences. Next, students identify the distribution and characteristics of populations at different scales (e.g., a village of 100 people) and use different charts (e.g., choropleth maps, pie charts, bar graphs) to display the information. Encourage them to visualize and draw a typical scene in the world village (e.g., market, housing, office). Ask students

to research answers to questions such as the following: What problems would exist in terms of communication? How could these difficulties be overcome? What kind of government (e.g., democracy, republic, dictatorship) would most likely develop? Why? Students design a flag for the world village and explain why they chose the colors and design that they did.

**Sustainable Development and Population Characteristics.** How do variations in populations contribute to the possibility of sustainable development? Introduce the concept of sustainable development. In small groups, students analyze data on the physical quality of life (an index of life expectancy, infant mortality and literacy rate), per capita GNP, life expectancy, literacy of males, literacy of females, and infant mortality for 10 to 20 countries and ask students to predict which country goes with which data (include data for developed and developing countries in the choices). Discuss the results. Are students surprised by any results? Ask students questions such as the following: What do the differences relate to? Is there a relationship between one factor and another, such as between economic development and high quality of life? What problems do countries on the bottom of the list face that countries at the top do not experience? How will sustainable development practices fare in both cases? Students research countries at the top and bottom of the list to explore the issues and see what practices in agriculture, industrial development, and environmental protection are currently in place.

**Further Exploration.** What is a hero? How does the development of heroes within a culture reflect the characteristics of the population at large? Investigate different places and cultures of the world through a comparative study of heroes. Discuss with your students the characteristics of heroes and how a person becomes one. Students research answers to questions such as the following: What purpose do heroes serve within a culture? Are the heroes of one culture the same as the heroes in another culture—or are heroes culturally specific? Do our heroes change as we grow older? Conduct a survey of your students to find out who their heroes are and what walks of life they come from. Then ask students to investigate some popular heroes in American history and some heroes from another country. If possible, arrange for your students to dialogue with students in that country. What do the heroes of one country have in common with the heroes of another country? Are the heroes tied to a particular country or place in time? Ask students to predict where new heroes will come from here, at home, and in the country studied.

**Connections.** These activities provide many opportunities for linkage to the mathematics standards related to graphing, functions, and projections.

**Resources.** The following resource provides support for the suggested activities:

Hursh, H. (1999). *Using the new State of the World Atlas, grades 7–12*. Penguin.

Hazell, R. (1996). *Heroines: Great women through the ages*. Abbeville.

(Also *Great men through the ages*.)

Lewis, B. (1992). *Kids with courage*. Free Spirit.

*State of the...atlas Series*. (1995+). Penguin.

---

*Indicator 7: Identify the spatial patterns of settlement in different regions of the world.*

---

Students learn that there have been settlement patterns throughout history. Human settlements develop with certain spatial regularities. By studying these patterns, students develop an understanding of the development of their own environment.

---

## LEARNING ACTIVITIES: Grades 5–8

### WORLDWIDE PATTERNS OF HUMAN SETTLEMENTS The Living Space

**Overview.** Human settlements have followed certain patterns throughout recorded history. There have been rural and urban patterns, ethnic patterns, and so forth. For example, one scheme identified eight types of settlement: linear hamlet, grouped hamlet, string, cluster and round village, skeleton grid plan, walled village, and rural dispersal. Today, most city dwellers live in a skeleton grid plan type of settlement, while inhabitants of rural areas dwell in nucleated settlements that are either hamlets or villages. Students study these patterns and extend their knowledge of the interaction of people and the physical world.

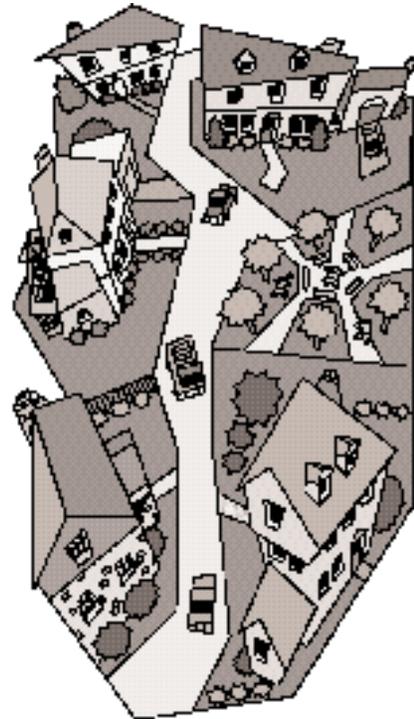
**A Vignette.** Mr. Dallapiccola was doing a unit for his eighth grade class on settlements throughout history. He had introduced them to the basic settlement forms: linear, string, grouped, cluster, round, skeleton, and other patterns. The class had examined many maps and diagrams as well as photographs and paintings to classify types of villages, towns, and cities. The students had learned about the growth of urban areas around a CBD (central business district), exurbs, and suburbs. They had also done some related artwork by sketching these patterns with the help of Ms. Phroens, the art teacher. They had then learned about the various functions that towns and cities can play and by which they can be classified; for example, the “company town” such as Hershey, Pennsylvania, or the “college town” such as University Park, Pennsylvania, where the university is the major employer and source of the town’s income. These are unifunctional places, as opposed to multifunctional places such as Philadelphia and New York, where there are many different kinds of business and industries.

Mr. Dallapiccola’s class then studied a set of functional maps of the United States. These outline maps included coding for various types of activities in the states including manufacturing, retail and wholesale business centers, transportation, and educational centers. Using the maps, the students wrote summaries of what they had learned from the maps. Then, referring to more detailed maps, they filled in the details indicating where, for example, the manufacturing centers were.

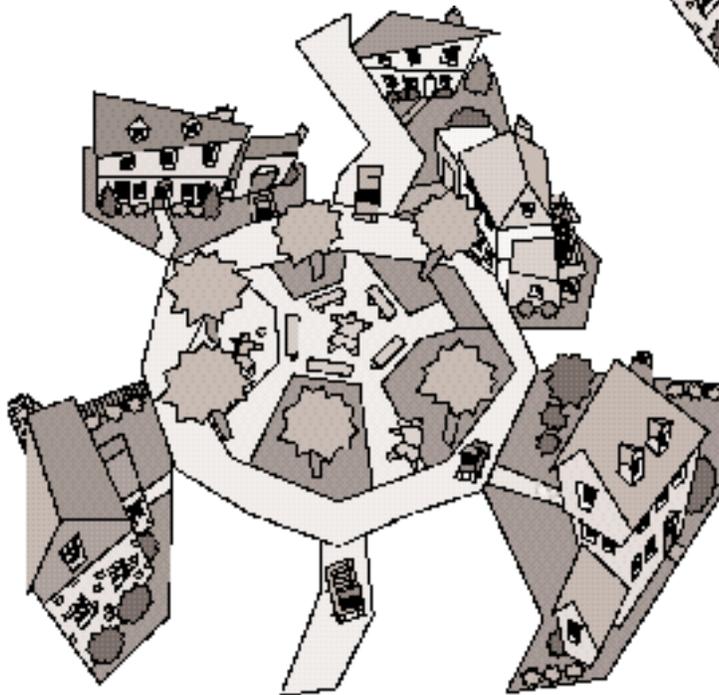
**Identifying Types of Settlements.** Students examine maps of communities in their area to develop some facility with the classification of settlement types. They try to find examples of each type of settlement by studying detail maps of smaller areas.

**Connections.** These activities provide opportunities for linkage to arts standards as students sketch the various types of settlements.

For example, here is a linear hamlet design:



This is a round village pattern:



**Resources.** The following resource provides support for the suggested activities:  
Fellman, Jerome, Getis, Arthur, & Getis, Judith. (1990). *Human geography*. Wm. Brown Publishers.

---

**Indicator 8:** *Explain the causes and effects of urbanization.*

---

Urbanization, the growth of cities, is a major topic in geography and history. This growth—from the Greek polis to the modern metropolitan area—continues to be a major force in history. Each of the following occurrences is both a cause and an effect of urbanization: the movement of populations, structural changes in societies, major social and economic events such as the three industrial revolutions (i.e., printing, factories, computers). Other effects include ethnic consolidation and/or conflict, and the growth of nations in the 19th century.

---

**LEARNING ACTIVITIES: Grades 5–8****URBANIZATION-A MAJOR THEME IN GEOGRAPHY**  
**The Growth of Cities**

**Overview.** Urbanization is such a big topic that it will take several units to address. These units would include the things that happen because of urbanization, such as the growth and diversification of industry and trade and the improvement in the standard of living in many places. The growth of cities in the 20th century alone has been so great that it should be studied as a separate issue. In 1900, 1.6% of the world's population lived in large cities. In 2020, the percentage is projected to be 27.1% (Population Reference Bureau). The effects of urbanization in the northeastern corridor from Boston to Washington, D.C., can be studied using appropriate books, articles, and newspapers.

**Changes in Community.** Encourage students to understand the ongoing processes and patterns of human settlement over time by having them write descriptions and create line drawings of their community environment, whether urban, suburban, or rural. Compare these with the pictures in *Window* by Jeannie Baker (1996), a pictorial journey of a boy growing up and the changes in his community. This activity requires students to understand the causes and effects of human migration; the similarities, differences, and interdependence of rural, suburban, and urban communities; and the causes and effects of urbanization. Ask students to predict future changes in the *Window* story as well as future changes in their community, based on information gathered from interviews with long-time community residents and other local people. Students write new illustrated versions of *Window* based on their community and present these stories to younger children.

**Megacities.** By the year 2000, more than 27% of the world's population will live in cities, including 21 megacities of more than 10 million people. "A few urban giants are coping with their expanding dimensions. Elsewhere chaos looms." (*Time*, January 11, 1993, p. 3) Ask students to define what an urban area is, and ask if they live in or near one. Distribute charts and information about the top-ranked urban cities in the world. Students locate these megacities on a map and compare them to find patterns. Students compare top-ranked cities in the world at various time periods and note the patterns. Cities in Europe are not likely to appear on a list of top-ranked cities as they did in 1950. Note the increase in the number of megacities in Asia, Latin America, and Africa. Students should be

able to explain what the above quote means and how rapid urbanization in places like Sao Paulo affects the city's infrastructure and the quality of life (especially for the new arrivals).

**Expected Services.** The infrastructure of a city weakens as population growth outpaces essential services. In the book *Sustainable Cities*, the authors present a prioritized list of what services people expect to find in a city. The list includes the following services: food, water, energy sources, education, transportation, recreation, health services, police and fire protection, housing, environmental services, sanitation, and law enforcement. Students print these services on poster paper and attempt to prioritize them. The most essential services are given the highest priority. Note that individuals living in more developed countries tend to take certain things for granted, whereas those in less developed countries do not.

**Further Exploration.** Encourage students to visit the library media center to find the classical writings of Arthur Schlesinger, Sr., Lewis Mumford and Jane Jacobs, and more current authors<sup>1</sup>. Students learn that citification is an exciting and interesting topic that directly affects their lives. They research answers to questions such as the following: What about their own city or the urban center nearest to them? How did it develop? If it has declined, how has the history of manufacturing and industry or other causes of population changes contributed to that decline?

**Connections.** A related activity involves Social Studies Standard 6.7, Indicator 11, which concerns using and interpreting maps to solve geographical problems. Students examine a series of historical maps of the United States to determine how the top 10 urban centers have developed since 1800. For example, what caused the growth of New York City? of Los Angeles? of Detroit? In each case, there are different historical and demographic patterns. Students represent the relative populations of these centers at different times with a proportions chart. Introduce the concepts of the megalopolis and of conurbations and show students what they look like on a U.S. outline map.

**Resources.** The following resources provide support for the suggested activities:

Adoff, A. (1995). *Street music: City poems*. HarperCollins.

Baker, J. (1996). *Window*. Random House.

Brill, M. (1996). *Building the capital city: Cornerstone of freedom*. Children's Press.

Hamdi, N. (1997). *Action planning for cities: A guide to community practice*. John Wiley and Sons.

Macauley, D. (1974). *City: A story of Roman planning and construction*. Houghton Mifflin.

Parker, P. (1995). *Global cities*. Thomson Learning.

Quinn, P. (1995). *Urbanization: Global issues activities* (Teaching kits for high schools).

Stren, Richard, White, Rodney, & Whitney, Joseph. (1992). *Sustainable cities*. Westview Press.

<sup>1</sup>See Gilfoyle, Timothy, J., "White Cities, Linguistic Turns, and Disneylands: The New Paradigms of Urban History." *Reviews in American History*. Vol. 26 (March, 1998), 175-204. Includes an excellent biography.

---

**Indicator 9:** *Give reasons for the changes in spatial patterns of human activities.*

---

There are many reasons for the ways in which populations arrange themselves. These may include the uneven distribution of natural resources throughout the world. The movement of individuals within a geographic area and their interaction are affected by the availability of natural resources. The locations of human settlements, factories, entertainment centers, military bases, and corporate farms are usually based on resource availability. Students study this relationship between human activity and resource availability.

---

## LEARNING ACTIVITIES: Grades 5–8

### SPATIAL INTERACTION

**Overview.** World conflict and cooperation are frequently influenced by location and by economic activity that results from that critical factor. Economic activities are shaped by a variety of processes, and our reaction to them is usually a mixture of solid information and facts plus incomplete information and stereotypes. Cultural differences can lead to cultural, national, and ethnic stereotypes and to differing perceptions of resource holdings in other parts of the world. These stereotypes and misconceptions increase the potential for conflict that already exists in a world of uneven wealth distribution. In this era of great concern over a new world order, to what extent have we progressed toward international cooperation and understanding? Are international cooperation and understanding desirable? Is there a conflict between national self-interest and international harmony?

**Distribution of the World's Resources.** With the help of the library media specialist, students prepare tables and graphs of worldwide resource distribution. They answer questions such as the following: Which countries are rich in certain resources? Which ones have the oil, the gold, and the diamonds? Which ones are rich in wheat, corn, and rice? Using the data gathered, students identify potential areas of conflict. What events in recent history can be explained by conflicts between nations over resources? What wars can be seen in this light? The Gulf War?

**Mental Images of the World.** Investigate students' mental images of other cultures (e.g., Arab, Japanese, Chinese, Iranian). Ask them where in the world (including the United States) they would most like to live, and where they would least like to live. Explain that all individuals have unique mental images. Each student ranks the major resource locations using a five-point scale ("1" means the student would never want to live there, "5" means he or she would really like to live there, and "3" indicates no preference either way). Next, ask students to map their individual preferences using four or five groupings with a color for each group. Discuss patterns, probing the students with questions such as the following: What experience or information led to their decisions? What other information would be helpful? Will they eventually go there? What forces "push" people out of an area, and what forces "pull" people into other areas? Calculate class preferences for each state or country

by averaging data, then make a class-preference map, looking for patterns. Ask students how tourist bureaus and chambers of commerce could use this information. Suggest that students research the top-rated and bottom-rated states to see if their mental images hold up. Consider expanding the survey to include other students, parents, and other individuals. Useful Web sites for information about the world village can be found at [222.geolink.com](http://222.geolink.com) and the U.S. Census Bureau Web site.

**Mental Images of New Jersey.** Conduct an image study of New Jersey with your students. Ask them marketing-survey-type questions that elicit responses about the degree to which they consider New Jersey a quality place to live. Next, conduct a word-association activity with students about their hometowns. Afterward, students select an image from a clip-art book that suggests their town or state to them.

**Further Exploration.** Over 4,500 years ago, the ancient Egyptians produced one of the world's most enduring landmarks, the Great Pyramid at Giza. As a way to explore ancient and modern Egypt and modern New Jersey, challenge students to develop a plan for moving the Great Pyramid to New Jersey. Working in small groups, students brainstorm ways to move the pyramid. They investigate how other large structures have been moved, why they were moved, and the outcomes. (For example, the London Bridge was moved to Arizona; Ramses Temple in Egypt was moved to save it from flooding due to the Aswan Dam.) After developing recommendations regarding how to transport the pyramid, students choose a new location in New Jersey and justify their site decision. Using New Jersey state maps, students indicate what roads provide access to the proposed site. They research the impact of the geology and climate of the proposed site on the pyramid. They also consider the positive and negative impacts of the pyramid on the New Jersey site, as well as the negative impact of its loss on Egypt. Discuss alternatives to moving the pyramid, such as creating an artificial pyramid or a scaled-down model. Note that New Jersey has at least one town whose name makes it an intriguing candidate for the site: the town of New Egypt in Ocean County.

Students work in committees to prepare a resource map of New Jersey, including both natural resources and other resources.

**Connections.** Students write about New Jersey or their hometown in a variety of formats as part of the image study.

**Resources.** The following resource provides support for the suggested activities:

Hooker, S. (1990). *The Art of Construction: Projects and Principles for Beginning Engineers*.

Chicago Review.

Kolars, John F., & Nystuen, John D. (1974). *Geography: The study of location, culture, and environment*. McGraw-Hill.

Lattimore, N. (1995). *The winged cat: A tale of ancient Egypt*. HarperCollins Childrens.

Lehner, M. (1997). *The Complete Pyramids*. Thames & Hudson.

Macauley, D. (1975). *Pyramid*. Houghton-Mifflin.

Mann, E. (1996). *The great pyramid*. Mikaya Press.

Millard, A. (1996). *Pyramids*. Kingfisher.

Putnam, J. (1994). *Eyewitness: Pyramid*. Knopf.

Rubalcaba, J. (1998). *A place in the sun*. Puffin. (Fiction)

---

*Indicator 10: Describe how changes in technology affect the location of human activities.*

---

The key here is “changes in technology.” This does not mean electronics and computers only. The first uses of iron and bronze in prehistory were changes in technology. The wheel is arguably the greatest technological change of all time. As students investigate changes in technology throughout human history, they will come to understand their importance and how they benefited society.

---

## LEARNING ACTIVITIES: Grade 8

### HOW TECHNOLOGY AFFECTS LIFE

**Overview.** Technological innovation has been a major force for change in human societies since the discovery of fire. Examples of technological innovations include the use of horses for transportation, the printing press, the Industrial Revolution, the assembly line, the computer, the fax machine, and so on. These innovations have had an enormous influence on world cultures, on the daily lives of individuals everywhere, and on the movement of people, goods, services, and ideas.

**Researching Effects of the Information Revolution.** The Information Revolution continues to have profound social, economic, and geographic effects that are global in scope. Using the library media center, students research the effects of television and computers on learning, the use of leisure time, and human/community interaction. Ask the library media specialist to introduce the notion of points of view (bias) in published books and articles so that students can recognize a given point of view or a lack of objectivity in the articles they select for debate purposes. Possible research projects include the following:

- Compare distance learning with the traditional classroom.
- Develop methods of evaluating *sources* of information retrieval (print and nonprint) and their effects on education.
- Analyze the effects of home shopping on commerce.
- Analyze changes in the conduct of business. Predict what skills will be necessary for jobs in the future.
- Research and debate the implications of electronic devices of the future, such as wireless, palm-size receivers that are a combination telephone/computer/fax/television.

Students draw conclusions about how the Information Revolution has affected the daily lives of Americans and predict future impact.

**Connections.** Students investigate other important issues in history, such as technologies of war such as gunpowder or the use of horses, the printing press, the Industrial Revolution, and the cotton gin. This is a vast subject that can only be suggested in a brief note here. These activities connect with the following Social Studies Standards: Standard 6.4, Indicator 5, compare and contrast developments in societies separated by time and/or distance; Standard 6.5, Indicator 10, analyze the political, social, economic, and technological factors that cause cultural change; Standard 6.7, Indicator 9, solve location problems using information from multiple sources; and Standard 6.8, Indicator 9, give reasons for the changes in spatial patterns of human activities. Also addressed are the following Cross-Content Workplace Readiness Standards: Standard 1 (Indicator 9); Standard 2 (Indicators 1 and 10); and Standard 3 (Indicators 1, 3, 4, 8, 9, and 12).

**Resources.** See also the October 1995 issue of *National Geographic*, which focuses on the Information Revolution.

Brinkerhoff, R. (1993). *One-minute readings: Issues in science, technology and society*. Addison-Wesley.

Cross, G. (1996). *New world*. Puffin. (Fiction)

Dale, R. (1994). *Machines in the office*. Oxford University Press.

Markham, L. (1994). *Inventions that changed modern life*. Raintree Steck Vaugh.

Grubler, Arnulf. (1998). *Technology and Global Change*. Cambridge University Press.

*Larousse Dictionary of Science and Technology*. (1996). Larousse, Inc.

See also (Internet) the [www Library: History of Science, Technology and Medicine](#).

---

*Indicator 11: Give reasons for global interdependence.*

---

Students learn about interactions between nations that over time grow from contact, to cooperation, to sometimes strong relationships. They see the gradual progression from international to global connections. Students learn about these patterns and begin to make judgments about them.

---

**LEARNING ACTIVITIES: Grades 5–8****GLOBAL CONNECTIONS**

**Overview.** Global interdependence is a 20th-century concept based on increased trade, travel, and cultural communications across nations and continents. There are also political implications based on the relationships of nations, especially pertaining to the economic conditions of developed and developing nations in the East and West. Students exhibit their knowledge of international trade zones and areas in which certain countries are working closely. Provide students with summary materials on trade agreements and treaties for study and evaluation. The library media specialist will teach research strategies for print and nonprint sources so that students can find materials on trade agreements. A brief summary of recent trade agreements with China empowers students to evaluate the worth of the agreements and their value to the United States. The federal government prints an annual summary of all treaties and trade agreements involving the United States.

**Tracking System Components.** By studying an agricultural or industrial product from A to Z, students get a sense of global connections. Working in small groups, students select a product to investigate (candy bars or automobiles would be good examples). They list its ingredients or components and the state or country in which each is produced. Discuss the nature of a system, such as the “chocolate bar system.” Provide data sheets for the top three world producers of each ingredient or component. For example, the following items might be studied by a group investigating the components of a “chocolate bar system”: cocoa (cacao) beans, sugarcane, sugar beets, cow milk, soybeans, vanilla, paper, etc. Where do all these ingredients come from and where are they combined? Encourage students to examine other parts of the world food supply system and problems such as floods, strikes, and changes in demand.

**Global Economic Interdependence Made Tangible.** In “I’ve Got the World on a String,” a lesson available through the New Jersey Geographic Alliance, students toss a ball of string from person to person until all the students become part of a web representing global economic interdependence. Using references, each student researches a country’s major export, finds out what country imports the product, and shares this information with the class on index cards. The game proceeds as follows. One player states: “I’m Brazil and I ship Brazilian hardwoods to Japan.” Another player responds: “I’m Japan and I ship automobiles to the United States.” Eventually the entire class will be connected to each other. For added interest, simulate a natural disaster such as a severe drought. Each student whose country’s import or export is affected would then tug on the string.

**International Trade in the News.** Students examine some of the complexities of international trade by perusing print and electronic magazine databases and other library resources. They learn that trade is based on the relationships between nations and on the degree to which a given nation values business and commerce. They learn about export balances and imbalances. Students search the daily papers at home for trade-related news stories and present them to the class.

**Further Exploration.** This activity develops the ability of students to work with primary source historical documents on subjects that have geographic implications (e.g., Monroe Doctrine, Warsaw Pact, French and Spanish conflict over the New World). Students analyze a series of brief, one-paragraph selections from international relations documents from the more recent periods of world and United States history. They assess the issues in each to determine which selections are specifically related to international (as discriminated from global) relations.

**Connections.** The topic of global relationships connects with history. Students investigate the growth of international relations in the 19th century leading to multinational connections in the 20th century. By examining international relations over several eras, students begin to develop the concept of “global” as involving more than international or multinational connections.

**Resources.** The following resources provide support for the suggested activities:  
Fellman, Jerome. (1990). *Human geography*. Dubuque, IA: Wm. C. Brown Publishers.  
*How things are made*. (1981). National Geographic.  
Kuklin, S. (1994). *From head to toe: How a doll is made*. Hyperion.  
Lhommedieu, A. (1998). *From plant to blue jeans*. Children's Press.  
*Made in the USA Series*. (1999). Blackbird Marketing.  
*Start to Finish Series*. (1986+). Lerner.  
National Council on Economics & Education. *Virtual Economics*. CD-ROM. op.cit. Grubler, op. cit.

---

**Indicator 12:** *Predict trends in the world population numbers and patterns.*

---

This indicator requires students to learn about world populations, to examine the growth and decline of populations, and make predictions about population growth or decline and the effects of both. Students learn the importance of population statistics and the related issues of living space, human and political factors, and economics of populations.

---

**LEARNING ACTIVITIES: Grades 11–12****TRENDS IN WORLD POPULATION GROWTH**

**Overview.** Population geography is the study of settlement density and rates of growth and related factors. Demography, on the other hand, looks at the statistics of human growth rates in relation to data on spatial arrangements and economic conditions. Students learn about the fourfold growth of the human population over the last 150 years, and the concomitant growth in the food supply and in our ability to feed ourselves. Is it possible that the population will continue to grow at the present rate, or may we live to see the limit that the Earth can support? We know that the growth of the total population since 1990 equals the total world population in 1600. Based upon current trends, it is likely that in the next century China will be the most populous country in the world and India will rank second. China is a growing economy; India is not. Students should study population growth trends in context and begin to speculate about the next hundred years with clues gathered from the last hundred years.

Governments deal with the issue of population based on politics and economics or both. In China, birthrates are strictly controlled, sometimes with brutal methods. In the United States, there are few government controls on the birthrate. Human rights issues and the ability of the economy to support the numbers are viewed differently in different places. Students learn to make simple projections based on the available data and examine the political, economic, and human conditions surrounding the issue of population.

**Some Basic Questions.** Students think about and research basic questions such as the following:

- How many people can the Earth support?
- How much of the planet's land mass is usable for people?
- Has food production kept pace with population growth?

Next, students read the illuminating *Atlantic Monthly* article by Bill McKibben (May 1998) entitled "A Special Moment in History." This article provides a wealth of information on population growth as well as many useful references. Students locate the most and least populous countries using print and electronic magazine databases, world almanacs, and other standard references. Ask the library media specialist to review statistical resources with students as they research the total world popu-

lation in the current year and the growth since 1987, when the total reached 5 billion. They also do research to determine what the experts project for the next 10 to 20 years.

How Much Is a Million? Use the following examples to convey to students the concepts of million and billion:

- You were a million seconds old when you were just 11.6 days old.
  - A million dollars in a pile of thousand dollar bills would be 4.3 inches high.
  - A billion dollars in thousand dollar bills would stretch the length of a football field.
- Students develop these concepts with their own calculations.

**Mathematical Projections of Population Growth.** Students learn about mathematical projections (Mathematics Standard 4.12, Indicators 12 and 22). They examine linear and quadratic trends and use these to extrapolate from the known to the future. They learn that population growth took off after World War II and that the growth spurt from 1950 to the present was greater than anything preceding that period. Students speculate about the causes for this rapid growth and the policies that governments should be considering to deal with future growth.

**The Graying of the World's Population.** Students research the growth of the older population in the United States to determine where and how this rapidly increasing segment of the population is going to live. They compare U.S. data to those from countries in other parts of the world. Using the data they collect, students create graphics such as bar or pie charts or population pyramids showing the population status by age and the projected growth of these age groups in other countries. Some countries will show rapid growth; others, slow growth or no growth at all. Countries such as the United States, Japan, and Kenya will differ greatly. Students research the social implications of these trends.

**The Younger Generation.** Using data available from the Population Reference Bureau, students list countries with large percentages of their populations under 15 years old. They display the data on a series of bar charts for each country.

**Further Exploration.** Students predict certain population trends when given a set of data about present populations in New Jersey and certain parts of the United States. Evaluation of such projections should be based on how reasonable their estimates are and the logic of their predictions. Thus, a prediction of increasing growth in the northeastern megalopolis could easily be justified, but a prediction of significant industrial growth in the Southwest could not. Clearly such a project involves a lot more than numeric projections as students study the prevailing human, political, and economic realities.

**Connections.** This topic is linked to the Mathematics Standards, especially Standard 4.1, Indicator 16, Standard 4.2, Indicator 9, and Standard 4.4, Indicator 12 about predictions based on data and other information.

**Resources.** The following resource provides support for the suggested activities:  
Fellman, Jerome, Getis, Arthur, & Getis, Judith. (1985). *Human geography*. Dubuque, IA: William C. Brown Publishers.

Glassman, Bruce. (1996). *The Macmillan visual almanac*. New York: Macmillan.

See also the October 1998 issue of *National Geographic*, which focuses on the general topic of population.

---

*Indicator 13: Analyze the impact of human migration on physical and human systems.*

---

This indicator focuses on the migration of people and its effect within countries and regions, and across countries and continents. Students study the impact of immigration from other countries and migrations within our country.

---

**LEARNING ACTIVITIES: Grades 9–12****HUMAN MIGRATION**

**Overview.** It is generally accepted that the United States is a nation of immigrants. Beginning with the precolonial period and continuing to the present, our shores have seen many waves of immigration from all over the world. Immigration today is a political issue and a national problem as great numbers of illegal immigrants enter the United States. The effects of migration to this country have been both positive and negative. As students study the acculturation of people from Europe, Asia, Africa, and Central America to the culture of America today, they can analyze the demographic, cultural, and political implications of this issue. Introduced by social scientists 30 years ago, the concept of the “melting pot”—a blending of various cultures into one culture—seems to be fading away. Students identify more current metaphors such as the “salad bowl” and “gorgeous mosaic” concepts. They debate the related issue of possible government action to make English the official language of our country.

**Effects of Population Loss.** Students examine the patterns and reasons for population loss in the Great Plains region from 1940 to 1990. Focusing on a particular state (Kansas, for example), they examine key factors such as railroad decline, development of highway and interstate systems, and change in farming technology. They investigate the impact of the population loss on the economy of that state’s small towns and on the services provided there. Students read the Yellow Pages of a phone book from small towns to see what kinds of services are typically available in a town of that size. They compare this list to the number and kind of services in the area where the students live. They predict what stores and services might be successful but are not currently there.

**Learning More about Other People.** Use students’ prior knowledge of countries to explore how their perceptions (which may be based on stereotypes) limit their knowledge of other cultures and places. Ask students what countries have contributed immigrants to the United States in the past and present. Write the name of each country on a card as it is given. After concluding the brainstorming part of the activity, give a card at random to each student along with a piece of drawing paper. Ask them to draw an outline map of the country and label it with any features that they know. On the back of their map, students should write down anything else they know about the country. Next, students research the country and find out when people came to the United States from that

country and why. Students summarize their research findings on the back of the map. They report their findings to the class, comparing what they just learned with their earlier perceptions.

**Push or Pull?** Students investigate immigration patterns as reflections of “push/pull” factors. They research answers to questions such as the following: What was the compelling factor that brought so many southern and eastern Europeans to New Jersey (or the United States in general) from 1900 to 1915? Was the lure of a better life “pulling” them to America or was the political unrest in Europe “pushing” them out?

**Ellis Island, New Jersey.** Students debate the 1997 New Jersey State Supreme Court decision regarding Ellis Island. The Court ruled that 90% (24 acres) of the present island belongs to New Jersey. Students determine the implications for our state. Do the students agree with the Court’s decision or can some of them defend the New York position?

**Immigration Laws.** Discuss the immigration laws affecting refugees and children of illegal aliens in terms of education and healthcare. Note that different types of laws affecting cities immigration exist in America at the national and state levels. Students reflect on questions such as the following: Should these immigration laws be uniform throughout the country? Is our present ethnic immigration policy too restrictive or is it causing a “brain drain” in developing countries?

**Many Languages Spoken Here.** Bilingual education is a widely debated topic in many states. Students analyze the recent referendum in California that ended funding for bilingual education in California schools. Students discuss questions such as the following: Should there be a national policy on speaking English in public schools? Would the adoption of a national language be consistent with the “melting pot” or “salad bowl” concepts? Is this important?

**Further Exploration.** Students work on group projects preparing language maps and ethnicity maps of New Jersey and surrounding states, including New York, Pennsylvania, Connecticut, and Delaware. They discuss the Immigration Law of 1924, which restricted immigration to the United States to western Europeans, and contrast it with the Immigration Law of 1965, which severely restricted immigration of western Europeans. Students evaluate immigration policy past and present.

**Connections.** Students learn about the major ethnic groups in New Jersey and their contributions to the state. These activities connect with World Languages Standard 7.2 (all indicators). Learning another language involves learning about its culture and its people.

**Resources.** The following resource provides support for the suggested activities:  
Parrillo, V. (1985). *Strangers to these shores: Race and ethnic relations in the United States*. Macmillan.

Handlin, O. (1951). *The Uprooted*. Grosset and Dunlap.

Handlin, O. (1991). *Boston’s Immigrants 1790–1880: A study in acculturation*. Harvard University Press.

---

*Indicator 14: Analyze and compare the functions and spatial arrangement of cities locally and globally.*

---

Urbanization is a major topic in geography and history. The development of settlements—from village to megalopolis—will be studied throughout the grades. Students learn about the original settlements, the six patterns, the development of sites, how cities develop in relation to historic eras such as the industrial revolution, and other aspects of urbanization.

---

**LEARNING ACTIVITIES: Grades 11–12****FROM VILLAGE TO MEGALOPOLIS**

**Overview.** This is the secondary-level continuation of the study of the neighborhood and community. By examining state and local issues, students can easily find appropriate study topics related to the urban subsystems of transportation, business and industry, culture, education, and healthcare. They study, for example, the situation in healthcare today with the growth of managed care systems, which include associations of hospitals, healthcare plans such as U.S. Health Care, HMOs, and so forth. Alternately, students compare the automobile-based transportation system in the United States with the use of high-speed public transit systems in France and Japan. Students study the contrasting systems and make judgments about relative effectiveness. The possibilities are endless for the study of urban systems as are the sources of information—from the daily newspaper to television news to the Internet.

**Researching Urban Areas.** After the library media specialist reviews atlas skills with the students, they use a variety of maps to identify, locate, and describe cities and metropolitan areas in New Jersey and the United States. Each student selects a different city to investigate. Using the resources of the library media center, the students research answers to the following questions:

- What is the latitude and longitude of your city?
- Describe the climate and cite evidence. What causes the climatic conditions?
- What geographic features are significant?
- What transportation features are there?
- What industries are prominent?
- How does the city deal with scarcity (of water or land, for example)?
- What are the major cultures represented? Are there ethnic enclaves?
- What educational and cultural opportunities exist?
- Is your city a capital of the nation or state? If not, what government functions are located there and why?
- What images of your city exist in the media, in music, television, movies etc.?

- What are the relationships between the city and the surrounding suburban and rural areas?
- What demographic shifts have taken place in your city over the past 10, 20, and 50 years?
- What are the prospects for your city's future?

Students share their research and come to some conclusions about the functions and spatial arrangements of cities and their roles in the future. Students should arrive at the following generalizations:

- All cities have been impacted by their physical environments.
- Metropolitan areas that are strong financial and trading participants in the international economy play major roles in their national economy as well, and will prosper and grow as the larger economy grows.
- Cities must overcome challenges, whether their economics are primarily industrial or service based.

**Researching Urban Areas, Part 2.** Each student is given a set of materials on a city other than the one originally selected and researched. In an essay of 1000 words, each student writes an evaluative profile of the city in terms of business, industry, cultural, and population dimensions.

**Further Exploration.** Each student writes to the selected city's Office of Tourism to collect brochures and other information. The students use these materials to embellish their descriptions of the cities. They send for copies of the local newspapers to examine cultural opportunities. They visit their or public library to examine the telephone book from their city in order to study its resources. There are many other possibilities for adding to the description of the city.

**Connections.** There are many potential links to science, visual and performing arts, and language arts literacy standards and indicators as students evaluate the physical, commercial, and cultural aspects of cities.

**Resources.** This is an ideal activity for using the Internet because every major city has its own Web page. The class can develop a composite list containing the address (URL) and description of each Web site and also attach printed samples of any materials they collect.

See the *Journal of Urban History*.

Abbott, Carl. (1993). *The Metropolitan Frontier: Cities in the Modern American West*. Tucson: University of Arizona Press.

<sup>1</sup>Guilfoyle, Timothy J. "White Cities, Linguistic Tours, and Disneylands: The New Paradigms of Urban History" in *Reviews in American History*, Vol. 26 (March 1998), 175-204. He argues that urban history remains a field very much in flux without a "totalizing theory...or...universal paradigm." Includes full bibliography. Also available on the Internet.

---

*Indicator 15: Analyze the processes that change urban structure, and the impact of changes in urban areas.*

---

The focus here is on the concept of “urban structure”—the business, industrial, and cultural infrastructures, the networks of communications, and people transfer. Students learn the meaning of these terms and their application to current events and to their own experiences.

---

## LEARNING ACTIVITIES: Grades 9–12

### THE URBAN LANDSCAPE

**Overview.** The forces that stimulate urban change include movement of population and changes in the economy, such as the modes of manufacturing and the way people work. For example, the first Industrial Revolution created a need for housing for the vast army of workers who came to the cities seeking work. This movement of people led to the row house. The computer revolution has also changed the urban landscape significantly with instantaneous electronic data transmission of billing and banking records and the transfer of funds across vast networks.

**Vignette: Gentrification.** The students in Mr. Young’s class were discussing the problems of decaying downtown areas in many American cities. They considered the exodus of many member of the middle class from the cities as well as changes in central business districts and shopping areas. However, an interesting reverse trend is occurring in cities like Hoboken and Jersey City. Because rents are so expensive in New York City, many young professionals are choosing to live on the Jersey side of the Hudson where public transportation offers easy access to Manhattan. This upscale migration to these former working-class cities is bringing prosperity to some individuals and forcing others to move because the demand for housing has increased the rents. By becoming more “upscale,” cities like Hoboken and Jersey City can no longer accommodate some long-time residents and recent immigrants.

After the discussion, the students in Mr. Young’s class create a role-play about the pros and cons of gentrifying cities. They script their arguments once the following parts are assigned:

- A realtor
- A senior citizen who has rented an apartment for 25 years
- The owner of a small grocery store/bodega whose clientele is being forced to move
- The owner of a health food store
- A member of the police department
- A member of the local school board
- An owner of an upscale restaurant
- An owner of a small independent hardware store

- A young professional who works on Wall Street
- Any additional personalities that make up the urban landscape

**Revisiting Main Street.** Students compare the historical downtown/main street functions of their communities (or the nearest city) with present patterns of housing and commerce. Encourage students to request informational materials from community resources such as local and county offices of planning and development. This activity will hone valuable workplace readiness skills as students write letters to planning agencies requesting publication lists and receive and evaluate such materials for their project. Provide appropriate readings throughout this long-range student project.

**Investigating Community Changes.** Students examine such questions as the following:

- What effect has the movement to the suburbs had on the urban infrastructure?
- What advantages do malls have over distributed retail outlets?
- How have local small businesses been impacted by large, national discount stores such as K-Mart, Home Depot, Drug Emporium, or Circuit City? Is this good for the community?
- How have demographics changed in your town? Is it gaining or losing people? What are the issues and the causes of what is happening?
- What is the decision-making structure of the city? How is this related to the accident of birth and/or to personal achievement?

**Further Exploration.** Working individually or in small groups, students attempt to solve a community issue such as low-cost housing in middle-class neighborhoods, road projects, or funding for a football stadium and not the local library. Reports prepared by student groups should include interviews with community and business leaders and letters to relevant government agencies.

**Connections.** This activity relates to Workplace Readiness Standard 1 (career planning indicators) and Standard 4, Indicator 2 (working cooperatively with others).

**Resources.** The following resource provides support for the suggested activities:

Spencer, Lyle M., & Spencer, Signe M. (1993). *Competence at work: Models for superior performance*. New York: Wiley.

*Journal of Urban History* (in its 25th year). Schultz, Stanley K. (1989). *Constructing Urban Culture: American Cities and City Planning, 1800-1920*. Philadelphia: Temple University Press.

Fischer, Claride S. (1976). *The Urban Experience*. San Diego: Harcourt Brace Jovanowitch.

---

**Indicator 16:** *Explain the historical movement pattern of people and goods, and analyze the bases for increasing global interdependence.*

---

A majority of Earth's population occupies a relatively small part of the total area of the planet and people are not evenly distributed. Students study a population density map to draw some conclusions about this phenomenon. They have already been exposed to the concept of global interdependence in earlier grades. This indicator focuses on the historical development of this trend (e.g., the doubling of the world's population from 3 to 6 billion this century).

---

## LEARNING ACTIVITIES: Grades 11–12

### MOVEMENT OF PEOPLE AND GOODS

**Overview.** The growth of commerce and industry is a major topic of history. The steel industry in the United States is a frequently used example of the decline of a major industry in our country. If we could take students on an extended field trip, we could show them the dying cities of central and northeastern Pennsylvania that have been profoundly affected by the decline of the steel and coal industries in that state. Our field trip could then end in New Jersey's capital city, Trenton, with a tour of what is left of the buildings that once housed the steel industry there and a side trip to the sites of the formerly great ceramics industry in that city.

**Effects of Changes in Industry.** With assistance from the library media specialist, students investigate the development of the U.S. coal-mining and steel industries during the late 1700s, the late 1800s, and the late 1900s. How did these industries change during these periods? How did the changes influence the development of the surrounding area?

**New Jersey Industry.** New Jersey has an extensive mining history, from the early bog iron industry of the Pine Barrens to the mines in the northwestern part of the state. Students research this topic and learn how changes in mining operations affected people. Students could use specific industries as examples, including the Stirling Hill Mine in Ogdensburg, the textile industry at Paterson, and the development of the Seabrook Farms in Cumberland County. (*Note:* The Stirling Hill Mine is in the process of developing curriculum materials relevant to mining and earth science.) Students investigate the status of these industries today. They also study the effect of international competition.

**Wanted: A Renaissance.** Recently, Newark has been renamed "The Renaissance City." The city is now home to the New Jersey Performing Arts Center, which is intended to renew the central business district of that city by providing jobs and services to residents of the state. Because of its location, Newark has the advantage of being a rail and air transportation center. The Ironbound section is home to many Portuguese immigrants who have opened shops and restaurants. Students compare the futures of Newark, Trenton, Camden, Paterson, and other New Jersey cities based on what they know

of their history. Can a city have a renaissance and make a comeback? What is needed to make this happen?

**Expand Trade?** Students role-play new employees hired by a U.S. company to analyze the trading relationships with countries around the Caribbean Sea and to identify countries that trade more or less than one would expect by looking at their economies. Students investigate trading factors such as size, population, distance from the United States, resources for export and needs for import, current trade agreements, culture, political animosity, and competition. They rank the countries on the basis of factors such as size and population to see how these factors compare to the current volume of trade, and then make recommendations for expanded trade based on perceived opportunities. Encourage students to research areas of the United States that would benefit from the increased trade, or areas that could be harmed by it. The library media specialist can help students find materials on the Western Hemisphere with information on trade and population patterns.

**Personal Buying Power.** The movement of people is frequently related to the need for resources and the ability to purchase or acquire them. “Shopping at the Global Resource Bank” is a simulation activity developed by the Population Reference Bureau to develop an understanding of how people’s options for meeting their needs are dependent on their personal buying power. Students analyze maps to identify connections among wealth, quality of life, cleaner air, and changes to the local and global environment.

**Further Exploration.** Students study the meaning of the sign on a Trenton bridge, “Trenton Makes, the World Takes.” When was this sign put in place? What does it mean? Is it still relevant today? Are there similar slogans in the school’s community?

**Connections.** Students write an essay (language arts) about an American industry, such as computers, that has flourished in this century. They speculate about the connection to the global economy as they describe how some American industries have done well and some have not.

**Resources.** The following resources provide support for the suggested activities:

Bagli, Charles V. (1998, July 5). Investors bet on revival for troubled Newark. *New York Times*, pp. 1, 18.  
 Wright, John W. (1993). *The universal almanac 1994*. Kansas City & New York: Andrews & McMeel.  
 Bodner, John. (1985). *The Transplanted: A History of Immigration in Urban America*. Bloomington: Indiana University Press.

---

*Indicator 17: Explain how physical, social, cultural, and economic processes shape the features of places and regions.*

---

This indicator examines human impact on the physical environment. Physical processes such as erosion clearly shape the face of the Earth. Human activities—for example, agriculture, mining and other industries, and migrations—also change the way places look.

---

## LEARNING ACTIVITIES: Grades 11–12

### NATURAL AND HUMAN CHANGES IN THE ENVIRONMENT

**Overview.** Physical changes in the environment can result from natural activity or from human activity. The formation of valleys or slopes over eons of time, the development of riverbeds, weathering, rock breakup (whether through granular disintegration or separation), and the land sculptures resulting from the action of streams are some of the many processes of change in the physical environment. Human activities, primarily farming and hunting, have also altered the environment for centuries. In more recent times, the building of cities, railroads, and highways have also altered the land and water environment. Students need to learn about these processes through a systematic, sequenced set of activities over several grades.

**Researching Environmental Changes.** One group of students researches the various types of natural environmental change occurring throughout history. Another group investigates the effects of various human activities on the planet. For example, this second group investigates the origin of the Sahara desert in the wasteful farming practices of ancient civilizations or the denudation of farmland in Mexico caused by the introduction of sheep into that country by the Conquistadors. (There are many such investigations that the students will find interesting.) Ask the library media specialist to review atlas- and map-reading skills with the class and discuss strategies for finding information in the library media center and elsewhere in the school and community.

**Investigating a Watershed.** Use a watershed (source of water for a river) to investigate the many processes that shape a place or region. For example, students use state highway maps, atlases, and Internet sources to outline a rough map of the Delaware River watershed, including the appropriate parts of Pennsylvania, New Jersey, New York, and Delaware. Next, they compare their map to physical, population, and transportation maps to gain an overview of the region. They prepare retrieval charts to summarize the data and use these charts to develop more elaborate pie and bar charts and line graphs to display these data and to do comparisons.

**Managing a Watershed.** Create a simulated conference for students. Announce that the Delaware River watershed has been selected to be part of the National Estuary Program and that a “Delaware Watershed Regional Planning Conference” will be held in the near future. Inform the students that they will be participants in the conference and will be asked to present their findings and recom-

mendations. Students work in small groups, representing the various states and organizations within the watershed or different areas of investigation (e.g., population, economics). They present the results of their investigations at the mock conference. (*Note:* The Delaware Estuary is part of the National Estuary Program. In 1997 Delaware, New Jersey, and Pennsylvania joined together to host three conferences focusing on implementing a management plan to preserve and enhance the quality of life within the estuary.)

**Further Exploration.** How does population density affect environmental needs and changes that must be made? Students investigate this issue with “Where Are the Gardens in the Garden State?”-a choropleth mapping activity developed by teachers of the New Jersey Geographic Alliance to show existing population densities in New Jersey and predict population trends. (A choropleth is a graphic that displays map-based data for a selected variable.) Students use 1950 and 1990 census data to create choropleth maps of the 21 counties at these two points in time. They then use these two data sources and other relevant data about each county to project future population growth and the resulting need for new schools, roads, and other services. Students speculate how the development of new roads and other services could alter New Jersey population trends. They investigate the potential effect of the trends on politics, the economy, the environment, etc. Students contact their county planning department and other organizations to determine how these organizations are involved in preparing for these changes. They investigate ways in which communities prepare for some of these changes, such as the development of a light train system for serving commuters or the widening of local roads for heavy traffic.

**Connections.** Students make predictions of the populations in the 21 New Jersey counties over the next 50 years by doing a linear projection of the population using lines of best fit to interpolate and predict from data (Mathematics Standard 4.13, Indicator 12). By plotting the data for the past 50 years they can define the function that will work in creating the line of best fit. They then speculate on the need to change the physical environment in terms of the need for new roads, new housing developments, schools, shopping centers, etc., by doing a feasibility study.

**Resources.** The following resource provides support for the suggested activities:  
Strahler, Arthur N. (1967). *Introduction to physical geography*. New York: Wiley.  
Chen, Doris. (1998). *Where are the Gardens in the Garden State?* Union, NJ. Global Learning Inc. (908-964-1114).

See also the *County Data Book* available in the reference section at local libraries. The Population Reference Bureau in Washington, DC, is the source of census data. Its Web site is <http://www.census.gov>

Visit ENN.COM on the Web for environmental education materials.



---

## Standard 6.9

### ENVIRONMENT AND SOCIETY

*All students will acquire geographical understanding by studying the environment and society.*

---

#### INTRODUCTION TO STANDARD 6.9

This standard focuses on the way in which people change the environment to improve their lives and their societies. Geography requires that students develop the higher-order thinking skills of analyzing, inferring, predicting, hypothesizing, judging, generalizing, and decision-making to ask and answer geographic questions (Geography Education Standards Project, 1994). Students learn how people are able to live in various kinds of physical environments by creating settlements. They learn that these settlements follow definable patterns in the process of growth from village to town to metropolis.

Standard 6.9 deals with that part of the physical world we call *natural resources* and the importance of renewable and nonrenewable resources. Students learn the significance of both types of natural resources to the life of countries and people. They investigate components of the natural and constructed environments in the activities included in this section of the framework.

Students learn about both natural and human modifications to their environment. They study the history of technology as the human means of controlling the physical world from the beginning of humankind until modern times. Students also engage in activities and projects that enable them to see how new technologies, or inventions, have changed the lives of people—sometimes for good, sometimes for ill.

**Descriptive Statement:** Students should learn how people are able to live in various kinds of physical environments by developing patterns of spatial organization that take advantage of opportunities and avoid or minimize limitations.

**Cumulative Progress Indicators:*****By the end of Grade 4, students:***

1. Explain the characteristics of renewable and nonrenewable resources and their distribution, and the role of resources in daily life.
2. Explain how people depend on the physical environment and how they modify the environment.
3. Identify the consequences of natural environmental changes and crises and human modifications of the environment, and explain how an event in one location can have an impact upon another location.

***Building upon knowledge and skills gained in the preceding grades, by the end of Grade 8, students:***

4. Describe world patterns of resource distribution and utilization, and discuss the management and use of renewable and nonrenewable resources.
5. Explain and predict how the physical environment can accommodate, and be affected by, human activity.

***Building upon knowledge and skills gained in the preceding grades, by the end of Grade 12, students:***

6. Evaluate policies and programs related to the use of resources locally and globally.
7. Draw conclusions regarding the global impact of human modification of the environment.
8. Evaluate the environmental consequences of technological change in human history.

**LIST OF LEARNING ACTIVITY TOPICS FOR STANDARD 6.9**

---

**Grades K–4**

- Indicator 1:** *Resources: Distribution, Types, and Role in Our Lives*
- Indicator 2:** *Introduction to the Environment (Grade 4)*
- Indicator 3:** *Consequences of Human Modification of the Environment (Grades 3–4)*

---

**Grades 5–8**

- Indicator 4:** *World Distribution and Management of Resources*
- Indicator 5:** *How We Adjust to or Change the Physical Environment*

---

**Grades 9–12**

- Indicator 6:** *Evaluating Environmental Programs—New Jersey Issues (Grade 12)*
- Indicator 7:** *The World Environment*
- Indicator 8:** *The Environment and Technology (Grades 11–12)*

---

**Indicator 1:** *Explain the characteristics of renewable resources and their distribution, and the role of resources in daily life.*

---

This indicator focuses on renewable and nonrenewable resources. Renewable resources, such as plants and animals, can replenish themselves (or be replenished) after use and if their physical environment has not been destroyed or the populations have not been reduced beyond a certain acceptable level. Nonrenewable resources, such as minerals and fossil fuels, can be extracted and used only once. The location of resources influences the distribution of people and their activities on Earth. It is essential that students have a grasp of the different kinds of resources, the ways humans use and compete over the resources, and their distribution across the Earth's surface.

---

## LEARNING ACTIVITIES: Grades K–4

### RESOURCES: DISTRIBUTION, TYPES, AND ROLE IN OUR LIVES

**Overview.** The presence of oil in Kuwait, Saudi Arabia, Brunei, and other countries has created great wealth for a small group in those countries. It has not benefited the average citizen. Resources like the coffee in Brazil and Colombia, the uranium and diamonds in South Africa, the potatoes in Idaho, and the tomatoes in our own state have a great impact on the standard of living of those places. Mexico has large oil deposits but a generally rocky soil that is not good for farming. As students learn more about natural resources, they begin to see the relationship of the resource to the standard of living and quality of life for the place. It is important for students to distinguish between renewable and nonrenewable resources. They will become aware of the abundance of some resources and the scarcity of certain other resources as they investigate the role of natural resources in their daily life.

**Resource Identification.** Students begin by studying resources in general. They learn that the utility of specific resources is related to the surrounding context. The diamond mines in South Africa have not in general benefited most of that country's people. Other kinds of resources are the source of values-laden arguments. For example, is a rain forest a resource? What is the value of certain wetlands? After developing a list of resources and where they are found, students compare the availability of the resources to the economy of the country or region to define that relationship.

**A Resource's Impact on the Economy.** When identifying renewable and nonrenewable resources, students think about resources that can be used and that will still be available (like the wheat fields of Kansas) and those that can be used but will eventually be used up (like the diamond mines of South Africa). They then choose a resource and explain whether it is renewable or nonrenewable and why. Students begin to make lists of both types of resources, adding the location for each. Next, each student chooses a state or country and begins to research the impact of the chosen resource on the place selected—for example, the impact of tomatoes on the New Jersey economy, oil on Saudi Arabia's economy, coffee on Brazil's economy, sugar on Cuba's economy, and so forth. Do students

know that South Africa has the largest deposits of uranium in the world? What effect does this have on social conditions in that country? What are our country's greatest resources? Are people a resource?

**Global Distribution of Resources.** Students study resource maps regarding issues like United States and worldwide use of land for various kinds of agriculture, oil and coal deposits, gold and silver, and so on. They may be surprised to learn the locations of major oil deposits (e.g., in Russia, Mexico, Africa, and the Arab countries). Students research the answer to questions such as the following: Given the distribution of oil deposits, why do we hear only about problems in the Arab countries?

**Further Exploration.** Students design and conduct a survey of students, family, and other members of the community to document the use of resources in school, at home, and in the community on a typical day. They classify the resources as renewable or nonrenewable.

**Connections.** This activity will allow students to recognize that natural resources are not always renewable (Science Standard 5.12, Indicator 3), illustrate the balance between economic growth and environmental preservation (Standard 6.6, Indicator 5), and explain how improvements in transportation and communication have resulted in global interdependence (Standard 6.8, Indicator 4).

**Resources.** The following resources provide support for the suggested activities:

- Duffy, Robert J. *The renewable resources curriculum*. New York: Global Learning.
- Geography Education Standards Project. (1994). *Geography for life: National geography standards 1994*. Washington, DC: National Geographic Society.
- Benson, L. (1994). *This is our earth*. Charlesbridge.
- Brown, B. (1998). *Energy and resources*. Franklin-Watts.
- Kahaner, E. (1991). *Fourth grade loser*. Troll Books. (Fiction)
- Kalman, B. (1997). *Water resources*. Crabtree.
- Knapp, B. (1996). *Elements encyclopedia*. Grolier Educational Corp.
- Miller, J. (1998). *If the earth were a few feet in diameter*. Greenwich Workshop.
- Randle, D. (1993). *Natural resources*. Thomson Learning.
- Twist, C. (1990). *Facts on fossil fuels*. Franklin-Watts.
- Duffy, Robert J. *The Renewable Resources Curriculum*. New York: Global Learning, Inc.
- Simpson, N. (1995). *Environmental Awareness Activities: 20 Interactive Units for Grades 2–8*. McFarland and Co.

Visit <http://eelink>, the link to environmental education resources on the Internet.

---

**Indicator 2:** *Explain how people depend on the physical environment and how they modify the environment.*

---

The *National Geography Standards* describe the physical environment as “characterized by large-scale processes such as the atmospheric jet streams that snake across its surface, and large-scale landforms, such as the Ring of Fire surrounding the Pacific Basin” (p. 32). We study the importance of the natural environment—whether hot or cold; desert, jungle, or plain—to everyday life and the way our lives are shaped by these factors. We also study “intricate patterns of environmental modification...as well as varied patterns of land use.”

---

## LEARNING ACTIVITIES

### Grade 4

#### INTRODUCTION TO THE ENVIRONMENT

**Overview.** Literature is an important vehicle through which children can grasp environmental issues that have historical, current, local, and/or global importance. Two excellent books by Lynne Cherry provide rich resources for student discovery in geography. The library media specialist can provide alternatives for further reading.

**Making a Difference.** As they study the book *River Ran Wild*, students follow the relationship between a physical resource, the river, and the people who used it over time. Pictures of artifacts—from the early human inhabitants to present-day peoples—help students make historical connections. The difference in environmental philosophy between the Native Americans and the Europeans is a thread woven throughout the story, as the river becomes more and more polluted with industrial development. The actions of one woman to save the river show how individuals can make a difference. The story is true, which adds interest and credibility.

**Understanding the Rain Forest.** *The Great Kapok Tree* is a story of the rain forest. This story has great potential for science, language arts/reading, social studies, and art connections. Use the map in the book to assist students in identifying the Amazon rain forest and making connections between locations of the world’s rain forests and the equator. Using the map key, students reach conclusions concerning the difference between today’s rain forests and the original extent of rain forests. They then share what they already know about the rain forest. Assign parts of the story to each student to read aloud. After the reading is completed, use graphic organizers to help students summarize the main ideas. Follow-up activities could be any of the following:

- Students select rain forest animals and create drawings or posters.
- Select activities from the World Wildlife Fund's *Take Action: An Environmental Book for Kids* (Anne Love & Jane Drake, 1992, Beech Tree paperback).
- Select readings and activities from the *Educators' Guide for National Wildlife Week, 1993* (National Wildlife Federation, 1400 16th Street NW, Washington, DC 20036).
- Select activities from the World Wildlife Fund's *Vanishing Rain Forest Education Kit* (P.O. Box 4866, Hampden Post Office, Baltimore, MD 21211; 410-516-6951).
- Select activities from the thematic unit *Jungle* (Teacher Created Materials, Inc., P.O. Box 1214, Huntington Beach, CA 92647). Note reference to all the items that originate from the rain forest. Students should reach a conclusion concerning the potential for future discoveries in the field of medicine.
- Students view the NGS video, *Totally Tropical Rain Forest*. (Use progress indicators for Language Arts Literacy Standard 3.5)
- Students play "Jungle Lotto."

**Further Exploration.** Students work in cooperative groups to make a diorama of a rain forest. They draw what the rain forest looks like now and what it will look like if people continue to destroy it. Develop a rubric to evaluate the group work with criteria based on the quality of their projections based on realistic forecasts. Alternately, students write an essay on why the rain forest should be saved.

**Connections.** These activities can be related to Social Studies Standard 6.7, Indicators 1, 4, and 5; Standard 6.8, Indicators 3 and 5; and Standard 6.9, Indicators 1 and 3. The activities can also be related to Cross-Content Workplace Readiness Standard 2, Indicator 4 (computer databases); Standard 2, Indicator 6 (accessing information); Standard 3 (critical thinking); and Standard 4, Indicator 2 (working cooperatively with others to accomplish a task).

**Resources.** The following resources provide support for the suggested activities:

*Amazing Tropical Birds*. New York: Alfred A. Knopf.

Dorros, Arthur. *Rain forest secrets*. New York: Scholastic.

Krensky, Stephen. *Four against the odds: The struggle to save our environment*. New York: Scholastic.

Landau, Elaine, & Watts, Franklin. *Tropical rain forests around the world*.

Pratt, Kristin Joy. *A walk in the rainforest*. Dawn Publications.

Seuss, Dr. *The Lorax*. (Video available.)

Cherry, Lynne. (1995). *River Ran Wild: An environmental history*. (A Gulliver Green Book) Houghton-Mifflin College Division.

Cherry, Lynne. (1990). *The Great Kapok Tree: A Tale of the Amazon Rainforest*. Harcourt-Brace.

---

**Indicator 3:** *Identify the consequences of natural environmental changes and crises and human modifications of the environment, and explain how an event in one location can have an impact upon another location.*

---

The indicator focuses on natural and human changes to the environment. These changes can have positive and negative effects and may cause reactions far away from their source. These activities provide students with opportunities to increase their awareness of environmental issues and make informed decisions concerning actions that may modify the environment.

---

### LEARNING ACTIVITIES: Grades 3–4

#### CONSEQUENCES OF HUMAN MODIFICATION OF THE ENVIRONMENT

**Overview.** When thinking about the environment, most students think about how humans have modified the land and water to meet their own personal needs. It is important for students to understand that natural forces are constantly at work reshaping the Earth's surface. Students learn about changes in the Earth that resulted in the formation of mountains and deserts, and they learn about changes in the oceans, seas, and lakes. These are basic, traditional geography topics for the early grades.

**Natural Forces and Changes.** Provide students with a list (and definitions) of natural forces that change the environment (e.g., volcanoes, earthquakes, storms, floods, erosion, weathering). Discuss how these forces create changes in the environment and the effect they have on the land and people. Students then collect pictures from newspapers and magazines showing these natural changes and bring them to class for discussion.

**Human Modifications of the Environment.** Students study their own communities for instances of human-initiated changes such as housing developments, constructed lakes, seaports, seawalls (at the shore), remedies for beach erosion, and so forth. This type of community study combines traditional geography with environmental issues.

**Further Exploration.** Using the setting of a town council meeting, students role-play the developer and environmental groups debating whether to cut down part of the New Jersey Pinelands to create a "model city." Students study topographic maps and other types of maps (available from the U.S. Geological Survey in Denver) to get an idea of the extent and nature of the Pinelands area. They study land-use maps to understand the potential of that unique area.

**Connections.** This activity allows students to investigate the interdependence of living things and their environment (Science Standard 5.12, Indicator 1) and explain how meeting human requirements affects the environment (Science Standard 5.12, Indicator 2).

**Resources.** The following resources provide support for the suggested activities:

Geography Education Standards Project. (1994). *Geography for life: National geography standards 1994*. Washington, DC: National Geographic Society.

Makower, Joel (Ed.). (1986). *The map catalog: Every kind of map and chart on Earth and even some above it*. New York: Vintage Books.

Tuffy, B. (1987). *1001 questions answered about earthquakes, avalanches, floods, and other natural disasters*. Dover.

*Disaster! Series*. (1982+). Children's Press.

Gross, V. (1991). *The day it rained forever: A story of the Johnstown flood*. Viking.

Hammer, T. (1985). *The growth of cities*. Franklin-Watts.

Kehret, P. (1999). *The blizzard disaster*. Minstrel. (Fiction)

Knapp, B. (1989). *Drought*. Stech Vaughn. (Aso Earthquake and Flood.)

London, J. (1998). *Hurricane!* Lothrop, Lee & Shepard.

Thompson, G. (1997). *Cities: The building of America*. Children's Press.

---

**Indicator 4:** *Describe world patterns of resource distribution and utilization, and discuss the management and use of renewable and nonrenewable resources.*

---

Humans are dependent upon the Earth's natural resources. Everything that we have or use is made of natural resources, or raw materials and energy obtained from the environment. This indicator focuses on the Earth's renewable and nonrenewable natural resources. Activities should provide students with opportunities to learn how these resources are distributed worldwide, how they are utilized by Americans and by citizens in other countries and regions, and how these resources are managed.

## LEARNING ACTIVITIES: Grades 5–8

### WORLD DISTRIBUTION AND MANAGEMENT OF RESOURCES

**Overview.** Natural resources are the raw materials that people use to survive. Natural resources can be divided into three categories: *perpetual resources* (those that can last forever and include solar, wind, and hydrologic energy), *nonrenewable resources* (those that exist in fixed amounts, take millions of years or special conditions to develop, cannot be replaced for millions of years, and include oil, natural gas, coal, minerals, and metals), and *renewable resources* (those that can be replenished through natural and/or human processes, require special management practices, and include plants and animals). Students investigate the natural resources found in New Jersey and neighboring areas. They also learn about some of the world's major resources, including oil, iron, coal, wheat, corn, gold, and silver: where they are, how they have influenced life in those places, and how we get them here for our use.

Three Kinds of Natural Resources. On the chalkboard, write the following three key terms: *perpetual resources*, *nonrenewable resources*, and *renewable resources*. Divide the class into smaller groups. Each group writes its own group definition for each of the three terms. Later, as a class, students determine the most suitable definition for each term. Next, they determine which category each of the following resources belong to.

- |                   |                        |                    |
|-------------------|------------------------|--------------------|
| ■ Coal            | ■ Oil                  | ■ A field of corn  |
| ■ Sunshine        | ■ Wind over the plains | ■ Water in a river |
| ■ Natural gas     | ■ Tides along a shore  | ■ A forest         |
| ■ Copper          | ■ Phosphates           | ■ Hot springs      |
| ■ Gold and silver | ■ Tuna and salmon      | ■ Aluminum         |

The students brainstorm uses for, or products of, each of the resources listed above. Discuss the following questions:

- What renewable resources have been or can be used to replace nonrenewable ones?
- What advantages and disadvantages might there be in using renewable or nonrenewable resources? Provide specific examples or situations.
- When is a renewable resource not renewable?
- Which resources will continue to be available no matter how much they are used?

Afterward, students list common objects in the classroom as examples of each resource type.

**Resource Management.** Present the following scenario to the students:

Pretend that you are a manager of one type of resource. What factors are most important in determining how fast a natural resource is being used? If you needed to assure that you would have a supply of your resource available for a specific number of years, what information do you need to plan this supply? What guidelines might you need? How would the conservation or preservation of the environment weigh into your decision making as a manager?

Throughout this activity, students identify examples of perpetual, renewable, and nonrenewable natural resources; ways in which these resources are used; the consequences of substituting one resource for another; and concerns, issues, guidelines, and planning needs that are related to the management of a natural resource. Students extend this activity by researching how natural resources are utilized in other countries and regions and how natural resources are managed, both in the United States and abroad.

**Simplifying a Complex Relationship.** As citizens and consumers, students should be aware of the use and consumption of natural resources as well as the flow and use of energy throughout the environment. Every raw material and form of energy used to make the products they buy comes from perpetual, renewable, and/or nonrenewable natural resources. The use of these natural resources, consumerism, and global economics are closely woven together in very complex relationships. The following activity helps to simplify these relationships.

Hold up a pencil and tell the students that the class will work together to determine the life cycle of the pencil, its “cradle to grave” sequence. Use this example to help them to determine similar steps. List them in a circular pattern, to represent a “cycle.”

1. Cedar tree is harvested; truck hauls tree to mill.
2. Mill prepares lumber; lumber is shipped to factory.
3. Graphite is mined, clay is collected, and gums are tapped and shipped to factory; all are used to create the “lead” of the pencil.
4. Pencils are manufactured, packaged, and boxed.
5. Trucker hauls pencils to warehouse or railroad.
6. Trucker hauls pencils to retail stores.

7. Consumer drives to store to purchase pencils.
8. Consumer uses and discards pencil stub.
9. Pencil stub is hauled to landfill or incinerator.

Ask each student to identify a simple item at home that he or she would like to research for the same information (e.g., a sports item, a toy, a food item). Students identify the steps necessary to produce each finished product from natural resources as well as the steps needed to recycle it back to nature or into a new product. They draw and label the steps in a “cycle of life” diagram, like the above example. Students also draw the life cycle of the raw materials used to create the product as smaller circles attached to the large, main one. Encourage the students to learn as much as possible about the source of the raw materials, where energy is being used and what energy source is tapped, where the object is distributed, how the product is transported, who purchases and uses the product, whether the product or parts of the product can be reused or recycled, how it is disposed of, etc.

**Further Exploration.** Put each student “in charge” of manufacturing the selected product. For example, if they were presidents of companies that manufactured the objects that they researched, what pleased them regarding the companies’ environmental considerations and benefits? What would they investigate and change in order to serve unmet environmental protection needs, if any? For each consideration or change, have them list the benefits, risks, and costs involved in making the change.

**Connections.** Using natural resources as the theme, students would be able to explain and predict how the physical environment can accommodate, and be affected by, human activity (Standard 6.9, Indicator 5); evaluate a decision about the balance between economic growth and environmental preservation (Standard 6.6, Indicator 10); and evaluate the impact of personal and societal activities on the local and global environment (Science Standard 5.12, Indicator 4).

**Resources.** The following resources provide support for the suggested activities:  
Jackson, Richard H., & Hudman, Lloyd E. (1990). *Regional geography*. New York: Wiley & Sons.  
Economics America. (1996). *Focus: Middle school economics*. New York: National Council on Economic Education.

Visit [www.century.org](http://www.century.org) for educational materials on the nature of resources.

Frederick, Kenneth (Ed.) (1992). *America's Renewable Resources: Historical Trends and Current Challenges*.

---

*Indicator 5: Explain and predict how the physical environment can accommodate, and be affected by, human activity.*

---

This indicator includes two basic understandings for students: (a) People are part of the environment, not separate and apart from it; and (b) the environment is *dynamic* (always changing).

## LEARNING ACTIVITIES: Grades 5–8

### HOW WE ADJUST TO OR CHANGE THE PHYSICAL ENVIRONMENT

**Overview.** There are many connections between people and the environment. These connections affect and frequently determine the nature of agriculture and food production, water supply, housing and development, manufacturing and industry, land use and management, transportation, waste production and disposal—to name but a few. This indicator focuses on ways in which the environment provides for the needs and conveniences of people, and how it is, in turn, impacted by human needs and activities. These activities provide students with opportunities to study an array of relationships that exist between people and the environment, as well as to decide upon additional options or strategies and predict the resulting consequences.

The local community provides teachers and students with a most convenient laboratory for study and observation. Ask students to identify any changes that they have noticed in their community recently, or within the past 5 years, such as new developments or malls, closed or restored buildings, innovative forms of transportation and communications, and new parks or protected areas. Students discuss how those specific changes made them feel as well as the pros and cons of changes (in general) that are made within a community.

**Oral History Research: Change in the Local Community.** Individually or in teams, students identify an older person to interview—someone who has lived in the community for at least 20 years or more (e.g., a parent, grandparent, neighbor, other local resident). Before the actual interviews, the class works together to create a list of questions that each student will use. Consider the following examples:

- How long have you lived in this community?
- Identify ways in which the community has changed during this time period.
- How have these changes helped the community at large?
- Have any changes harmed you in any way? Which ones—and how?

Give the students time to conduct one or more interviews. Encourage them to ask additional questions, take notes, and record the interview, if feasible. Students may visit local libraries, museums, and historical societies and sites to obtain copies of photographs, maps, and newspaper articles that support their findings. Each student (or team of students) presents findings to the class.

**Timeline of Community Changes.** Using the chalkboard and mural paper, make a basic road map of your community on the paper and a 50-year timeline on the chalkboard. The students use “Post-its” to document all major occurrences within the community—putting site-specific changes and dates on the map, and overall occurrences and dates the timeline. Students discuss the following questions:

- What types of changes have occurred during the past 20 years or so?
- Which changes seemed well received by community residents? Which seemed ill received?
- What areas of the community have been left in a natural state, and why?
- Which areas have been restored or improved? Which areas have been altered?
- How have some changes improved the quality of the environment?
- Which changes may have harmed the quality of the environment?
- What are the consequences of each type of change?

**Predicting Changes.** Students choose a topic about their community (e.g., housing, transportation, heat and light, religion, education) and write an essay discussing the current situation in the community. They include a prediction about the changes that may take place in their community during the next 10 years. What information is needed by the students (and is available to them) in order for them to make that prediction? What effects or consequences would these predicted changes have on the local environment and environmental protection? What recommendations do they have for the community’s planners and decision makers? Students visit the school library and/or public library to obtain relevant information with the help of the library media specialist.

**Further Exploration.** Invite a local municipal or county planner, developer, government employee, and environmental consultant to the classroom individually or as part of a panel. Students present to each professional their study, predictions, and recommendations for the community’s future planning. The professionals respond to each student’s presentation.

**Connections.** These activities will assist students in explaining the causes and effects of urbanization (Social Studies Standard 6.8, Indicator 8); evaluating the impact of personal and societal activities on the local and global environment (Science Standard 5.12, Indicator 4); describing people, places, things and events with some details (World Languages Standard 7.1, Indicator 9); accessing and assessing information on specific topics using both technological and print resources available in libraries or media centers (Cross-Content Workplace Readiness Standard 2, Indicator 6); identifying and accessing resources, sources of information, and services in the school and the community (Cross-Content Workplace Readiness Standard 3, Indicator 4); and identifying patterns and investigating relationships (Cross-Content Workplace Readiness Standard 3, Indicator 9).

**Resources.** The following resource provides support for the suggested activities:  
 Lenski, Gerhard, Lenski, Jean, & Nolan, Patrick. (1991). *Human societies: An introduction to macro-sociology*. New York: McGraw-Hill.  
 Rosenbluth, V. (1996). *Keeping family stories alive: Discovering and recording the stories and reflections a lifetime*. Hartley & Marks.  
 Burgeson, N. (1992). *My family history*. Troll Books.  
 Ehrlich, A. (1996). *When I was your age: Stories about growing up*. Candlewick. (And Volume 2)  
 Tate, E. (1994). *Front porch stories at the one-room schoolhouse*. Yearling. (Fiction)

---

*Indicator 6: Evaluate policies and programs related to the use of resources locally and globally.*

---

Students learn about resources—what they are and how important they are to a community. This indicator helps students understand different perspectives regarding the allocation and use of resources and how decisions are made on environmental issues.

---

**LEARNING ACTIVITIES: Grade 12****EVALUATING ENVIRONMENTAL PROGRAMS**  
**New Jersey Issues**

**Overview.** New Jersey is an excellent state in which to study the physical environment, the impact of the environment on human systems, and controversies and decisions involving human modification of the environment. New Jersey's location and its variety of physical features (mountains, rivers, ocean, etc.) continue to influence human settlement patterns and the use of resources. Most environmental decision making regarding local or state issues is reflective of global environmental controversies. Students have a stake in, and an identification with, the areas in which they live. Given opportunities to study environmental issues that directly impact them, they will in turn better understand the broader context of issues involving human/environment interaction. Given appropriate activities, they are also more likely to develop citizenship skills.

**Home.** Students first identify the regions, physical features, and natural resources of New Jersey, highlighting the region in which they live and its natural resources. They use a variety of geographic resources, including road maps, topographic maps, satellite maps, physical maps, and computer databases. Using demographic information obtained from the United States Census Bureau, students compare spatial population distribution in New Jersey and in the city, county, or region in which the students live.

**Environmental Issues Close to Home.** Discuss the relationship between New Jersey's human settlement patterns and the state's physical features and distribution of resources. Brainstorm a list of environmental issues that are relevant to specific areas in the state. (Responses may include availability of clean air and water, land availability, solid waste disposal, need for open space, recreation, roads, species endangerment/extinction, wetlands issues, flooding, effects of seasonal population changes, and farmland preservation.) Students then identify and research current environmental issues relevant to their own town, city, or region. Their goal is to develop a plan to solve the problem and justify it by citing different perspectives and solutions and their possible consequences. Additional activities could include persuasive letters to government officials or the editor of the local newspaper; student interviews; a student debate representing varying points of view on the topic; role-playing; volunteer commitment to a group involved in the issue; attendance at meetings of governmental bodies and environmental groups concerned with the issue; proposal of an ordinance or law to solve the problem; student photography, artwork, or video presentation.

**Assessment.** Students demonstrate detailed knowledge of New Jersey geography, including landforms, bodies of water, and natural resources. Assessment can be based on the submission of individual issue papers, small-group presentations of research and conclusions, a written test, recitation, evaluation interview, project, or other performance assessment. Whatever the means, the expectation is that students learn a lot about these subjects.

**Further Exploration.** Encourage students to obtain information and multiple perspectives on the problem(s) from local resources such as city, county, or state governmental officials; local business or industry representatives; and local environmental groups. Students investigate how the use of local resources has impacted the region's economy and identify historic land/water use patterns. They research local ordinances and state laws as well as municipal, county, and/or state master plans (as applicable). They summarize the impact of the problem on the region and the state and explain its application to national and global environmental issues.

**Connections.** This activity addresses Standard 6.1, Indicators 15 and 16, which require the student to analyze the roles of the individual and the government in promoting the general welfare of the community under the Constitution and to analyze the functioning of government processes; Standard 6.4, Indicator 10, in which students evaluate how individuals, groups, and institutions influence solutions to society's problems; Standard 6.5, Indicator 18, in which they evaluate the mutual influence of technology and culture; Standard 6.6, Indicators 11 and 16, in which students apply economic concepts and reasoning when evaluating historical and contemporary developments and issues, and analyze and evaluate economic growth in the context of environmental conditions and sustainable development; Standard 6.7, Indicator 11, which requires students to use and interpret maps and other graphical representations to analyze, explain, and solve geographical problems; and Standard 6.9, Indicator 7, in which students draw conclusions regarding the global impact of human modification of the environment.

**Resources.** The following resource provides support for the suggested activities:  
Corson, Walter H. (Ed.). (1990). *The global ecology handbook*. Boston: Beacon Press.

See resources for CPIs 1 and 6 above.

---

**Indicator 7:** *Draw conclusions regarding the global impact of human modification of the environment.*

---

Students examine major environmental issues such as changes in world climate based on human modification or the limits of growth in relation to the world's population and the worldwide supply of resources. Students collect and analyze the evidence, and based on findings, they evaluate the utility of various proposed solutions to these problems.

---

## LEARNING ACTIVITIES: Grades 9–12

### THE WORLD ENVIRONMENT

**Overview.** Worldwide industrialization and technological progress, increases in world population, and the development of a world economy have resulted in a new focus on global environmental issues. More than any other historical era, the 20th century has had environmental issues extending beyond national boundaries. Acid rain, ozone depletion, global warming, deforestation, desertification, and the decline in biodiversity are global concerns that will face us in the 21st century as well. The 1997 treaty signed by the United States and other nations in Kyoto, Japan, is an example of the global impact of human modification of the environment. Students examine the issues to determine both the science and the politics of the agreement to set standards in the United States for voluntary reduction of greenhouse gases produced by Americans.

**Economic Priorities and the Global Environment.** Obtain a copy of *Choices for the 21st Century*, a unit on Global Environmental Problems developed by the Brown University Center for Foreign Policy Development. Prepare excerpts for study from this publication and empower students to explore the major global environmental problems and evaluate alternatives for U.S. foreign policy through role-play. Students then develop their own options for U.S. policy. In the process, they learn the distinctions between the industrialized, or developed, world and the nonindustrialized, or developing, world. (These comparisons can be obtained through other sources such as the World Bank, computer software, atlases, and the Population Reference Bureau). In the process, students develop an understanding of the effects of competition in the global economy and the relationship between national economic priorities and global environmental problems.

**Further Exploration.** At any grade level, students can select a local problem that has global implications, such as availability of clean water and air, land availability and use, pesticide use, solid waste disposal, species endangerment/extinction, wetlands issues, flooding, effects of seasonal population changes, or farmland preservation. With the help of the library media specialist, students obtain information and multiple perspectives on the problem by contacting city, county, and state government officials; local business and industry representatives; and local environmental groups. Students should examine the causes of the problem, weigh differing points of view, and propose solutions.

Additional activities could include persuasive letters to government officials or to the editor of the local newspaper; student interviews; a student debate representing varying viewpoints on the topic; role-playing; volunteer commitment to a group involved in the issue; attendance at meetings of governmental bodies and environmental groups concerned with the issue; proposal of an ordinance or law to solve the problem; and/or student photography, artwork, or video presentations.

**Assessment.** Students write 500-word policy statements to be introduced in the House of Representatives for a vote. These statements are evaluated by a teacher-developed rubric with these dimensions: quality of thought, coherence, reality-base, practicality, and apparent knowledge of government process.

**Connections.** In this activity, students will locate, access, analyze, organize, and apply information about public issues in order to evaluate the validity of different points of view (See Standard 6.1, Indicator 14) and Workplace Readiness Standard 3, Indicators 1, 3, 6, 11, and 13-15. They will evaluate economic decisions (Standard 6.6, Indicator 15) and analyze and evaluate economic growth in the context of environmental conditions and sustainable development (Standard 6.6, Indicator 16). Additionally, students will evaluate policies and programs related to the use of resources locally and globally (Standard 6.9, Indicator 6) and evaluate the environmental consequences of technological change in human history (Standard 6.9, Indicator 8).

**Resources.** The following resources provide support for the suggested activities:

Brown University Center for Foreign Policy Development. *Choices for the 21st century*. (Box 1948, Providence, RI 02912).

Geography Education Standards Project. (1994). *Geography for life: National geography standards 1994*. Washington, DC: National Geographic Society.

---

**Indicator 8:** *Evaluate the environmental consequences of technological change in human history.*

---

This indicator continues studies initiated under several previous indicators. It focuses on the variety of ways that technology (all kinds) has enabled humans to modify their physical environment. Students are given the opportunity to judge whether these modifications were good or bad.

---

**LEARNING ACTIVITIES: Grades 11–12**

**THE ENVIRONMENT AND TECHNOLOGY**

**Overview.** In a broad sense, the term *technology* refers to any adaptations of nature—from the early use of iron for tools and weapons, to the bow and arrow, to the printing press, the factory system, in-vitro fertilization, fax machines, and the space shuttle. In evaluating the environmental consequences of these technological changes, students look at the ethical dimension as well as the practical dimensions.

**Researching the March of Technology.** With the assistance of the library media specialist, students consult encyclopedias, magazine indices, the Internet, and other resources to research examples of technological advancement. As they explore the issues surrounding one or two major technologies (preferably one from the past and one from recent times), students should begin to see connections between geography, history, culture, economics, and political forces. Discuss these connections with the class. This general topic, “The Environment and Technology,” presents opportunities for the development of thematic units combining several disciplines. For example, students can focus on issues surrounding the invention of the automobile.

**The Automobile’s Impact on America.** Prepare several readings for students selected from standard histories of automobile culture. After these readings have been assigned and discussed, the class brainstorms the ways the automobile has changed American culture and the physical environment from Henry Ford’s Model T invention in 1908 to the present time. Examples include changing housing patterns and the development of the suburbs; the building of roads, highways, and malls; the development of ancillary industries such as tire production, assembly plants, and advertising; and the movement of goods through trucking. Students discuss the economic impact of this invention, including American dependence on fossil fuel and on parts that are supplied by other countries. The crisis in American foreign policy emanating from the oil shortage in 1973 and the causes of the Gulf War show students the economic and political effects of uneven global distribution of resources.

**Style Preferences.** Students examine pictures of the changing models of automobiles showing both changes in technology and in style reflective of American tastes. Students discuss current tastes in automobiles and the increasing economic implications and trade policies.

**The Automobile's Impact on the Environment.** Air pollution is the major adverse environmental consequence of automobile use. Students research the extent of the problem and identify the areas particularly prone to air pollution, explaining the reasons why. They examine and evaluate governmental policies to mitigate the problem, such as antipollution devices, stipulations on the miles per gallon of gasoline, taxation on gasoline consumption, mandated speed limits, and high vehicle occupancy incentives. Students compare U.S. policies with those of other countries. The study could include research on mass transportation networks and their viability in solving transportation problems in the United States and other countries.

**Further Exploration.** Conduct a series of lessons on logical argumentation in which students learn the elements of a good argument and how to detect faulty reasoning (Damer, 1995). Suggested topics include the impact of population increases in the United States and worldwide, and future transportation choices as countries continue to develop. Information can be found through Internet research, and interpretation of graphs supplied by *Motor Vehicle Facts & Figures*, published in *World Eagle*. Students can compare U.S. passenger car efficiency or the ratio of passenger cars to population in selected countries. They can access articles on transportation alternatives, such as the Norwegian electric car, as a basis for further study. Students should be encouraged to make predictions based on their research. In so doing, they should explain national and global environmental and economic effects of their choice. Employ a wide variety of strategies such as student debate, essays, and cooperative projects (e.g., developing models of future transportation systems).

**Assessment.** Given several brief readings on automobile culture, students summarize the argument in each and identify logical fallacies in the chain of reasoning. A teacher-prepared rubric includes the ability to discern the elements of the argument and identify the logical fallacies.

**Connections.** Students analyze the mutual influences among different cultures throughout time (Standard 6.5, Indicator 13) and evaluate the mutual influence of technology and culture (Standard 6.5, Indicator 18). They apply economic concepts and reasoning when evaluating historical and contemporary developments and issues (Standard 6.6, Indicator 11); evaluate principles and policies associated with international trade (Standard 6.6, Indicator 12); and predict trends in world population numbers and patterns (Standard 8, Indicator 12).

**Resources.** The following resources provide support for the suggested activities:

Damer, T. Edward. (1995). *Attacking faulty reasoning*. Belmont, CA: Wadsworth Publishing. (A good, very practical text for teacher use on the basics of argumentation and detecting fallacies.)

Salter, C. L. (1988). *Site and insight: Learning from the landscape*. National Geographic Society. *World eagle*. (Monthly social studies resource data, maps, graphs, 111 King St., Littleton, MA 01460-1527.)