Overview:
Physical and human characteristics of places are inextricably intertwined; where people choose to settle and how they perceive and use the land and its resources change that place over time, and, in turn, its continuing settlement and uses—as well as the character and significance of the community it supports. Even before it became the location for the first permanent English colony in North America, the Chesapeake Bay and its watershed—an area on the east coast of the United States that includes Delaware, the District of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia—have played a significant role in U.S. history and are a prime example of the evolving relationship humans have with their environment.

In this lesson, students will conduct research on the Chesapeake Bay, from Captain John Smith's explorations of Native American settlements in the early seventeenth century to the present, and examine how these changes over time can help illuminate the interrelationships between people and places. They will then apply a similar approach to their local area. Through an examination of a timeline of change, students will make connections between the present interaction with place and its future, and consider ways that they can help shape the future course of both the Chesapeake Bay watershed and their own community.

Connections to the Curriculum:
Geography, history, anthropology
Connections to the National Geography Standards:
Standard 4: "The physical and human characteristics of places"
Standard 14: "How human actions modify the physical environment"
Standard 17: "How to apply geography to interpret the past"
Standard 18: "How to apply geography to interpret the present and plan for the future"

Time:
Four to six hours

Materials Required:
- Computer with Internet access
- John Smith's 1612 Map of Virginia
- Chalkboard or whiteboard
- Drawing paper and writing/drawing materials
- Large sheet of mural paper/butcher's paper
- The Private World of Smith Island, by Sally Foster (Dutton Juvenile, 1993)
- Student Questions handout (PDF, Adobe Acrobat Reader required)

Objectives:
Students will
- compare historical maps with modern-day maps;
- explore information about the history of the Chesapeake Bay watershed;
• research various facets of life in the Chesapeake Bay region over time;
• examine the life and culture of one community in the Chesapeake Bay watershed to
describe its interconnectedness with history and current conditions;
• identify patterns of change in the Chesapeake Bay and apply that understanding to their
local communities; and
• make predictions about the future of the Chesapeake Bay and their local watershed based
on current trends and consider the potential impact of community action initiatives.

Geographic Skills:
Asking Geographic Questions
Acquiring Geographic Information
Organizing Geographic Information
Answering Geographic Questions
Analyzing Geographic Information

Suggested Procedure
Opening:
Ask students what a visitor to their local community would find if they explored the area. What
resources would they note? Why might they want to stay and live in the area? Why might they
not want to live there? Then, ask students to consider how their answers might have differed a
hundred years ago. What about hundreds or even thousands of years ago?

Discuss with students how people and places are interconnected and how their relationships
evolve over time. People are attracted to places in part because of the resources they provide, but
their interaction with and use of these resources change over time, which affects the resources
themselves. Offer an example related to your own community. Some examples could include a
local river, used to ship goods from a local industry, that has now become heavily polluted, or an
animal species threatened because of destruction or loss of habitat.

Explain to students that one well-documented example of this interrelationship is the Chesapeake
Bay watershed, an area on the east coast of the United States that includes Delaware, the District
of Columbia, Maryland, New York, Pennsylvania, Virginia, and West Virginia. Show students
the area covered by the Chesapeake Bay watershed using a map of the United States or the map
found on this page of the Chesapeake Bay Watershed Program Web site. The bay was the
location for Jamestown, the first permanent English colony in North America, and it has
continued to the present day to play an important but changing role—culturally, economically,
and environmentally—in the history of the United States and North America. Tell students that
they will explore the history of the Chesapeake Bay and learn about its influence on early
American settlers as well as the present-day condition of the watershed. Explain that students
will use what they learn to springboard research into the ways different features of land or bodies
of water predispose them to certain uses, and in return the ways those uses have an impact on the
environment and, coming full circle, affect the communities that depend on them.

Development:
Activity 1: Introduction to the Chesapeake Bay—Then and Now
Begin by reviewing or introducing the concept of a watershed. Explain that a watershed is an
area of land that is crisscrossed by waterways that drain into a larger body of water. An
information sheet is available on the EPA Web site. (Click "Print Version" for a printable version
of the page.) Show students this map of the Chesapeake Bay watershed. Ask students to point out
on the map and name the major waterways that flow into the Chesapeake Bay. Point out some of
the smaller tributaries that flow into these waterways.

Introduce students to the Chesapeake Bay by viewing the documentary "Voyage of Discovery,"
available online on the National Geographic's Exploring the Chesapeake—Then and Now Web
site. During the video, pause wherever appropriate to check students' comprehension. Have
students answer these questions (PDF, Adobe Acrobat Reader required). A teacher version (PDF,
Adobe Acrobat Reader required) is also available to check for understanding.

Have students spend time exploring the site to learn more about the history of the Chesapeake
Bay. Begin by exploring several dates on the "then" map and several cities on the "now" map.
Demonstrate how the interactive maps work by having students listen to the audio and view the
accompanying video. Have students work in pairs to explore both maps. As they watch the
videos, have students answer these questions (PDF, Adobe Acrobat Reader required). A teacher
version (PDF, Adobe Acrobat Reader required) is also available to check for understanding.

Lead students in a discussion about some of the differences between "then" and "now." What
were the most significant changes between "then" and "now"? What connections can they make
between the past and the present? How do they think the past might influence the present?

**Activity 2: How Did "Then" Lead to "Now"?—A Chesapeake Timeline of Change**
Now that students understand some key points in the Chesapeake story, have them use this as a
basis for further investigation into the bay's complex history. Divide students into small
workgroups and ask each group to investigate an assigned time period in the history of the
Chesapeake Bay. Students should focus on the ways people have used the Chesapeake Bay
watershed throughout its history. Some possible resources for students' research include:

An interactive bay timeline
The Noblest Bay
Chesapeake Bay Timeline from the Chesapeake Bay Gateways Network

Teachers can find additional background resources on the bay by using the Related Links below.

While students are exploring resources, circulate among groups and be prepared to guide
students through the Web sites and answer questions about the material they are reading. After
students have researched their assigned time periods, bring the class back together for a whole-
group discussion. Ask each group to report on the major events during the period which they
explored and record them on the board. Then ask students to predict how changes to the
Chesapeake Bay might continue into the future.

Have the class complete a pictorial timeline of the Chesapeake Bay's history. The timeline
should represent the milestones of every decade, as well as major events that have affected the
Chesapeake Bay's population, fishing, or natural resources.
• Have students go back to their original groups and create a list of major events from their time period.
• Ask students to record each event on a separate piece of paper. They should draw a picture that depicts the event, and then write one to three sentences that describe the event and its significance to the Chesapeake Bay's history. Students can also print out relevant pictures, charts, or maps from the Web to add to a timeline page.
• Have students arrange their events, in order, and tape them together in sequence (horizontally).
• After the individual timelines are complete, combine them to create a complete historical timeline of the Chesapeake Bay.

**Activity 3: A Community Case Study**

Introduce students to Smith Island, a community on the Chesapeake Bay, by visiting the Smith Island Web site or showing pictures of the island you have printed beforehand. You may also wish to read the book *The Private World of Smith Island* by Sally Foster (Dutton Juvenile, 1993) with students.

As a whole group, read the National Geographic News article "The Case of the Vanishing Islands" to learn about this community that has been inextricably linked to the Chesapeake Bay as far back as John Smith's time. Before reading, ask students to listen for information about:

- the people of Smith Island;
- how these people depend upon the Chesapeake for their livelihood;
- how the bay has influenced the community's culture, economics, and history; and
- one current threat to the community and its lifestyle.

After reading, have students offer information about each of these points and write them on the board under a matching heading. Ask students to summarize the information orally, or by writing a paragraph about Smith Island.

Have students learn more about threats to the island by visiting the Martin National Wildlife Refuge Web page. The U.S. Army Corps of Engineers' Baltimore District Report Smith Island, Maryland Environmental Restoration and Protection Project can provide teachers with additional background information.

Assign small groups of students to research the following questions:

- What are some threats to wildlife and the environment?
- How has Smith Island changed because of land use in other areas around the bay?
- How might those changes influence the future uses of the island?
- What is being done to help protect and restore the island's environment?

Have students prepare an educational flyer that describes the actions being taken to preserve the environment within the Martin National Wildlife Refuge.

- Have students visit the Xpeditions Student Print Press, and select the flyer option.
• Brochures should include the threats to wildlife and the steps being taken to minimize those threats.
• After students print their flyers, have them add illustrations, or printed images from the Web.

Activity 4: Timeline Connections
Explain to students that they will be exploring some of the resources provided by the Chesapeake Bay, and:

1. How these resources have affected the area's population and economy for centuries.
2. How growth and development have created drastic problems for the bay and its watershed.

First review vocabulary and concepts, including cultures and lifestyles, population and housing development, transportation, and economy. Write these four topic headings on the board, and then divide the class into four groups. Have each group select a topic to research and prepare a poster that illustrates the change over time in how people have used the resource they are researching, and how use of that resource has affected the watershed.

Next, allow each group time to research the issues related to the theme they've selected. Have students visit the Web sites on this listing of Chesapeake Bay Resources (PDF, Adobe Acrobat Reader required) to gather more background information on the bay and its resources.

Be sure to circulate among groups as they work, reminding students that they are investigating change over time, and answering any questions as they arise.

Have students present the highlights of their research to the whole class, and then lead a discussion about how the various themes are intertwined. Ask students to suggest ways that the health of the watershed and bay has contributed to its history—and possible future.

Finally, have each group create a poster that demonstrates what they have learned. They should include printed images or drawings, maps, charts, etc. along with text that summarizes the effects of the topic they researched on the health of the watershed over time.

Closing:
A Model for Change
Have students consider the possible future health of the Chesapeake Bay by using the information they have gathered in their research. Have them explore some of the efforts being made to improve the health of the Chesapeake Bay and think about how these action projects may alter the bay's possible future. Guide students through pages about the Chesapeake Bay restoration or review the material beforehand and share relevant material with students. Then ask students to make predictions about the bay relevant to their themes (e.g., population, economy, etc.). Have them give reasons for their predictions. Then have students record their forecasts by creating a class mural that depicts the future of the Chesapeake Bay for the next 100 years.
Making Local Connections
Have students research their local communities for watershed and/or other environmental issues. Have students look for maps of and information about their communities' histories to determine what has changed and why. Encourage them to consider factors such as the economy, population changes, resource use, and historical events that both contributed to and resulted from those changes.

As they did in their research on the Chesapeake Bay, have students select one theme (e.g., cultures and lifestyles, transportation, housing and urban development, economy, etc.) which has directly affected and been affected by changes over time in their local watershed. Review terms and vocabulary, as necessary. Then ask each student to draw a picture that illustrates the relationships between their community's uses of the watershed and its resources, and the state of health of the watershed. Students should write two or three sentences that describe their pictures. Students' drawings can be compiled into a class book, if you wish. See the Related Links section for some suggested Web sites for student research.

Suggested Student Assessment:
Just as students did in Activity 4 and A Model for Change, have students illustrate their predictions about what may happen to their local watershed in the next 100 years. Predictions should reflect an understanding of how past or current land use affects the future of that land and should include any anticipated action plans that would be necessary to ensure the successful growth and pattern of change. The following Web sites will help students to conduct their research and to gather action plan ideas:

- Adopt Your Watershed
- Adopt-A-Watershed
- 15 Things You Can Do to Make a Difference in Your Watershed

Extending the Lesson:

- Have students read this Washington Post article about the history of Smith Island's population declines and what some people see as a potential future of ecotourism: "Looking Toward a Reincarnation." Then have students discuss the issues and express an opinion as to whether they would leave the island or stay to build its future.

- Help students access John Smith's 1612 Map of Virginia, available on the Captain John Smith 400 Project Web site. If Internet access is not available, distribute printed copies of the map. Spend some time discussing aspects of the John Smith map. Explain to students that John Smith created the map from notes and observations he made while traveling through the region in a small boat called a shallop. Ask students to reflect on the design of the map, and how accurate the map appears to be compared to the National Geographic's Exploring the Chesapeake—Now map they reviewed. What similarities and differences can they find between the maps?

- Have students further investigate Captain John Smith's explorations of the Chesapeake Bay and then compare and contrast the native settlements he and his crew documented with the new colony he helped establish at Jamestown. Ask students to visit the
Exploring the Chesapeake—Then tour, as well as this page of additional resource links, to get started. After they have conducted research on this topic, have students list some of the ways both the colonists and the Native Americans interacted with the Chesapeake. Then ask students to compare and contrast their findings using the interactive Venn Diagram.

- Join teachers participating in the Chesapeake Bay Foundation's Chesapeake Classrooms to share classroom resources, lesson and unit plans, current watershed information, and best practices. The program online is part of National Geographic's EdNet communities for educators.

Related Links:
- Alliance for the Chesapeake Bay
- Captain John Smith Four Hundred Project
- Chesapeake Bay Foundation
- Chesapeake Bay Gateways Network
- Chesapeake Bay Program
- History Globe
- Jamestown Journey
- National Geographic Magazine: Saving the Chesapeake
- National Geographic News: The Case of the Vanishing Islands
- National Geographic: EdNet—Chesapeake Classrooms Community
- National Geographic: Exploring the Chesapeake—Then and Now
- National Geographic: MapMachine
- National Park Service: Chesapeake Bay Special Resource Study
- U.S. Environmental Protection Agency