

BOOKS FOR STUDENTS

Alter, Judy. *Exploring and Mapping the American West.* New York: Children's Press, 2001.

This book enables students to imagine what it would be like to travel across the West with American explorers. Students will enjoy images of maps from the past made of rocks, dirt and animal hides. More recent boundary, population and vegetation maps and a useful glossary are included.

DiSpezio, Michael, A. *Map Mania: Discovering Where You Are & Getting to Where You Aren't.* New York: Sterling Publishing, 2002.

The humorous text and illustrations in this book will appeal to upper-elementary and middle school students. They can confound their parents by learning how to use traditional wayfinding devices, such as the stars or even the shadow of a stick in the ground.

Erdrich, Liselotte. *Sacagawea.* Minneapolis, MN: Carolrhoda Books, Inc., 2003.

Vibrant, full-page pictures make this story of Sacagawea come alive for elementary students.

Fowler, Allan. *The Nile River.* New York: Children's Press, 1999.

This book takes students on a trip on the Nile River to see what life is like in different parts of Africa. The pictures and short length make it suitable for younger students.

Gibbons, Gail. *Pirates: Robbers of the High Seas.* Boston: Little, Brown, 1993.

Students follow a group of pirates on their quest across the sea in this book that includes sea charts and maps of buried treasure.

Hawass, Zahi. *Curse of the Pharaohs: My Adventures with Mummies.* Washington, D.C.: National Geographic Society, 2004.

In this book for upper-elementary and middle school students, Dr. Hawass describes his life as an archeologist and debunks the myths about ancient curses. Both students and adults will be engaged by the text and beautiful photos.

Holub, Joan. *Geogra-Fleas! Riddles All Over the Map.* Morton Grove, IL: A. Whitman & Co., 2004.

A great starter activity to get kids interested in geography, this picture book includes puns and riddles about continents, oceans and other geographic features around the world.

Howe, Jane Moore. *Amelia Earhart: Young Air Pioneer.* Carmel, IN: Patria Press, 1999.

This book about Amelia Earhart's early life and travels is suitable for upper-elementary students and would provide a good basis for further studies.

Lichtenheld, Tom. *Everything I Know About Pirates: A Collection of Made-Up Facts, Educated Guesses, & Silly Pictures About Bad Guys of the High Seas.* New York: Simon & Schuster

Books for Young Readers, 2000.

This book enables students to take a deeper look at what pirates did and how they lived as they pick their own pirate name and learn how to find buried treasure.

Molzahn, Arlene Bourgeois. *Lewis and Clark: American Explorers.* Berkeley Heights, NJ: Enslow Publishers, 2003.

This story of Lewis and Clark includes a timeline and vocabulary of key words.

Rocklin, Joanne. *The Case of The Backyard Treasure.* New York: Scholastic, 1998.

Students join the search as Liz the Whiz and her friends solve the mystery of a treasure left behind by a friend who moved away. Includes math activities.

Sanders, Scott Russell. *The Floating House.* New York: Macmillan Books for Young Readers, 1995.

In this book, students travel with a family down the Ohio River in 1815 to Jeffersonville, Indiana, where they will build their new home.

Stein, R. Conrad. *Lewis and Clark.* New York: Children's Press, 1997.

Students can imagine being on the expedition from St. Louis to the Pacific Ocean in 1804–1806.

Sweeney, Joan. *Me on the Map.* New York: Crown, 1996.

Even older students will enjoy this introduction to maps. A little girl maps out her life starting in her bedroom and finds her place in the world.

BOOKS FOR TEACHERS

Chancellor, Deborah. *Maps and Mapping.* New York: Kingfisher, 2004.

This comprehensive resource features maps of all types, including flat, 3D, train and street maps, and provides good basic geographic information, such as an explanation of the poles and lines of latitude and longitude. The book is well-illustrated but the amount of text makes it suitable for advanced readers or adults.

Clark, John O.E., ed. *100 Maps: The Science, Art and Politics of Cartography Throughout History.* New York: Sterling Publishing, 2005.

A large number of high-quality map images combined with a detailed history of mapmaking.

Cooke, Donald. *Fun with GPS.* Redlands, CA: ESRI Press, 2005.

This book shows how GPS is relevant in the real world and reinforces concepts in science, math and geography.

Davis, David E. *GIS for Everyone: Exploring Your Neighborhood and Your World with a Geographic Information System.* Redlands, CA: ESRI Press, 2003.

This interactive book introduces users to GIS and explains how to explore different parts of the world using a computer.

Dickinson, Rachel. *Tools of Navigation: A Kid's Guide to the History & Science of Finding Your Way.* White River Junction, VT: Nomad Press, 2005.

Discover how people navigated before maps and what kinds of maps are available now. Student-friendly activities are included in each chapter.

Fonda, Suzanne, ed. *National Geographic World Atlas for Young Explorers, Revised & Expanded Edition.* Washington, D.C.: National Geographic Children's Books, 2003.

Large pictures and maps of different areas of the world provide students with a wealth of geographic information.

Johnson, Sylvia A. *Mapping the World.* New York: Atheneum Books, 1999.

Through historical maps and the history of mapping, this book provides new insight into how people viewed the world in the past.

Rhatigan, Joe, and Heather Smith. *Geography Crafts For Kids: 50 Cool Projects & Activities for Exploring the World.* New York: Lark Books, 2002.

This book provides a variety of activities for engaging students, from a dream travel trip to a compass and even a sundial.

Ross, Val. *The Road to There: Mapmakers and Their Stories.* Toronto: Tundra Books, 2003.

Each chapter of this lively, well-written book tells the story of a famous mapmaker in history. Some stories contain colorful details that may not be suitable for students.

Warhus, Mark. *Another America: Native American Maps and the History of Our Land.* New York: St. Martin's Press, 1997.

This book provides detailed information about American Indians and how they used maps in peace, war and many other aspects of life.

WEB SITES

National Geographic Education Guide

For geography teaching resources of all kinds, visit the "School Publishing Teacher Store." To find local teacher organizations, including lesson plans and other information, go to "Educator Favorites" and click on "Geography-Teaching Alliances." See a full listing of National Geographic Tools for Adventure online teacher resources beginning on page 70 or link to the National Geographic Web site at www.childrensmuseum.org

Sacagawea

<http://en.wikipedia.org/wiki/Sacagawea>

Sacagawea

This site provides information about Sacagawea's birth, the origin and meaning of her name, myths about her life and more links on the subject.

National Lewis & Clark Bicentennial Commemoration

www.lewisandclark200.org

This site provides teacher guides and lesson plans, including journals and maps from Lewis and Clark's journey.

Discovering Lewis & Clark

www.lewis-clark.org

This site provides extensive background information on the Lewis and Clark expedition, American Indians they encountered, their journals and the geography of the trail.

National Geographic: Lewis & Clark

www.nationalgeographic.com/lewisandclark

Students can join the journey with Lewis and Clark through maps, journals and other interactive experiences.

Queen Anne's Revenge Shipwreck Project

www.qaronline.org

This site gives information about the artifacts from *Queen Anne's Revenge* and other educational information. Read an expedition log from 2006 and see related maps.

Ndoki: The Last Place on Earth

www.michaelnicknichols.com/gallery/ndoki

This site provides photos from Michael Fay's trek through a part of Africa called "the last wild place on Earth."

Outpost: Congo Trek

www.nationalgeographic.com/congotrek

This site includes an interactive video of Michael Fay's 465-day, 2,000-mile expedition through the forests of Congo and Gabon.

Dr. Zahi Hawass' Web site

www.zahihawass.com

Explore Egypt with Dr. Zahi Hawass through photos, articles, his archives and interviews. This Web site offers a unique look at his lifelong work and achievements.

National Geographic Speakers Bureau: Zahi Hawass

www.nationalgeographic.com/speakers/profile_hawass.html

This site includes links to multimedia resources and a complete biography on Zahi Hawass and his work.

Additional Explorer Web Sites

Nathalie Cabrol

www.extremenvironment.com/2002/team/cabrol.htm

www.space.com/searchforlife/mars_cabrol_seti_030605.html

<http://zipcodemars.jpl.nasa.gov/biocontribution.cfm?bid=129&cid=125&pid=125>

<http://www-space.arc.nasa.gov/~ncabrol>

Michael Fay

www.megaflyover.org

www.nationalgeographic.com/speakers/profile_fay.html

http://news.nationalgeographic.com/news/2005/08/0817_050817_africa_video.html

Zahi Hawass

www.nationalgeographic.com/council/eir/bio_hawass.html

www.guardians.net/hawass

www.zahihawass.com

Phil Masters

www.intersalinc.com/business.htm

www.ah.dcr.state.nc.us/sections/maritime/Blackbeard/qar.htm

http://news.nationalgeographic.com/news/2005/07/0712_050712_pirateship.html

Claire Parkinson

http://aqua.nasa.gov/about/team_parkinson.php

www.gsfc.nasa.gov/bios/Parkinson.html

www.nasa.gov/audience/forstudents/k-4/home/F_Claire_Parkinson_Interview_K-4.html

Nainoa Thompson

www.pbs.org/wayfinders/index.html

www.pvs-hawaii.com/newsletters/nl_finding_a_way.htm

www.ifa.hawaii.edu/tops/nainoa.html

NATIONAL GEOGRAPHIC MAPS: TOOLS FOR ADVENTURE EDUCATORS PAGE

www.mywonderfulworld.org/toolsforadventure

Maps

- MapMachine
- MapMachine Student Edition
- Outline Maps
- WildWorld Conservation Atlas

Lesson Plans

Grades K–2

- Explore Your State With Maps
- Getting Lost
- Greeting Friends From Other Places
- Introduction to Latitude and Longitude
- Mapping What Matters
- Over the River and Through the Woods: Traveling by Memory
- Using Maps to See Regions
- Where in the U.S. Would You Want to Live?

Grades 3–5

- Comparing the Continents
- The Geography of Pizza
- How Crowded Are Our States?
- Locator Booth: Mapping South America
- Make State Maps With MapMachine
- Mapping Your State's Culture
- Mental Map of Your Classroom
- Pirate Map
- What We Can Learn From Maps
- Which Direction Should I Go?

Grades 6–8

- Contour Maps With DOGTAILS
- Famous Boundaries
- Geography and Your Dream Job
- How Can Maps Help?
- How Do We Find Our Way?
- Investigating Central Asia Through Maps
- Latitude, Longitude, and Mapmaking
- Mapping Mars
- School Space: An Analysis of Map Perceptions
- Spatial Organization: Identification of Functional Regions
- Using Maps in Ocean Research
- Where in the World Would You Like to Live
- Which Way Did They Go?

Grades 9–12

- Defining Regions of the United States
- Genographic: Mapping the Human Journey
- A Look at the Population Density of the United States
- Map Projections
- Map Projections and Careers in Geography
- Maps and Current Events
- Regional Layers: Low-Tech Geographic Information Systems
- Sprawl: The National and Local Situation
- The Technology of Mars Exploration
- What Can We Learn From Satellite Images?

Classroom Activities

- Crack the Code
- Creative Climates
- The Power of Fire
- Preserving Biodiversity
- The Riddle of the Russian Lights
- Spice World
- Tell a Migration Story ... With Maps

See all National Geographic Xpeditions lessons

www.nationalgeographic.com/xpeditions/lessons/matrix.html

Search the MarcoPolo curriculum consortium for lessons

www.marcopolosearch.org/MPSearch/Basic_Search.asp

See all National Geographic Xpeditions activities

www.nationalgeographic.com/xpeditions/activities/matrix.html

Other Educator Resources

- **Education Guide**
www.nationalgeographic.com/education
- **Geography Action! Curriculum Program**
www.nationalgeographic.com/geographyaction
- **EdNet**
www.ngsednet.org
- **My Wonderful World**
www.mywonderfulworld.org

GLOSSARY

absolute location — the position of a point on Earth's surface, expressed by a grid reference or latitude and longitude.

aerial — anything related to the air, atmosphere or aircraft.

aerial perspective — an overhead view.

astrolabe — an ancient instrument used to determine latitude based on position relative to the sun, planets and stars.

cardinal directions — the four main points of the compass: north, south, east and west.

cartographer — a person who designs and creates maps and other geographic representations

chronometer — an instrument that measures time. The marine chronometer measures time based on the prime meridian and allows a ship's navigator to determine longitude.

climate — long-term trends in weather elements and atmospheric conditions.

compass rose — a symbol on a map that indicates the map's orientation in relationship to the cardinal and intermediate directions.

constellation — stars that appear, from our perspective on Earth, to form a pattern or grouping.

coordinates — a set of numbers used to locate a point on a line, on a surface or in space.

cultural features — features on the Earth's surface that have been created by humans, such as roads, buildings, farms, cities, etc.

data — factual information, such as measurements, used as the basis for reasoning, discussion or calculation.

Earthcaching — an outdoor activity or game using the Internet and a GPS unit to find and record natural features and resources.

environment — the natural surroundings created by the complex interaction of physical, chemical and biological factors, such as geographic conditions, soil, microorganisms and animals.

equator — an imaginary circle around Earth that divides the globe into two equal parts: the Northern Hemisphere and the Southern Hemisphere.

expedition — a journey taken for a specific purpose, such as exploration.

geocaching — an outdoor activity or game using the Internet and a GPS unit to find and record hidden objects or information.

Geographic Information System (GIS) — a computerized geographic database that allows information about physical and human characteristics of places and areas to be layered on maps and analyzed for patterns and relationships.

Global Positioning System (GPS) — a system of 24 Earth-orbit satellites that transmit radio signals to receivers on the ground. To determine an exact location, a GPS receiver must pick up the signals from at least three satellites.

globe — a scale model of Earth in the form of a sphere. A globe correctly represents the position, shape and size of land and water areas.

grid — a pattern of lines on a chart or map, such as the ones representing latitude and longitude, which helps determine absolute location.

hemisphere — half of a sphere. Geographers divide the Earth into the Northern and Southern hemispheres at the equator, and the Eastern and Western hemispheres at the prime meridian and 180° meridian.

intermediate directions — northeast, southeast, northwest and southwest.

latitude — imaginary lines that run horizontally around the Earth parallel to the equator. They are used to measure location north or south of the equator.

layer — a set of information on a map, such as information about roads, buildings, water features or land use. A map is usually made up of several layers of information.

legend — a description or key to the symbols used on a map.

GLOSSARY

location — A point or position on Earth's surface or in geographic space that can be defined by coordinates, such as longitude and latitude, or by a physical address.

longitude — imaginary lines that run vertically around the Earth through the North and South poles. They are used to measure location east or west of the prime meridian.

map — a graphic representation of all or part of an area, such as Earth, usually drawn to scale on a flat surface.

map projections — mathematical formulas that cartographers use to transfer geographic features from a globe to a flat surface.

mental map — a mental image that a person has of a place or area, including his or her perceptions and attitudes about the place.

navigator — a person who steers or travels a course, usually by ship or airplane.

pattern — a natural or human-made grouping or arrangement of things, such as sounds, images, objects, data or characteristics.

physical features — geographic features that occur in nature, such as land and water forms, natural vegetation and wildlife.

Polaris — the star that appears to remain stationary above the North Pole. Also called the North Star.

reference map — a map showing physical and cultural features that are usually used to locate places or for finding the way from one place to another.

relative location — the location of a place in relationship to other places.

remote sensing — information gathering about Earth's surface from a distance, using aerial photography, satellite images or other technology.

represent — to depict or serve as a sign or symbol of something.

satellite — an unmanned spacecraft placed in orbit around Earth or another celestial body.

satellite image — an image produced by a variety of satellite-based sensors, such as radar, microwave detectors and scanners. The collected data are turned into digital form and converted into pictures.

scale — the relationship or ratio between a linear measurement on a map and the corresponding distance in reality.

sextant — An instrument that measures the angular distance between two objects or the angle of elevation of a celestial object above the horizon.

spatial — the three-dimensional characteristics of something located in physical space, including geographic features.

symbol — a shape or small picture on a map that represents an actual geographic feature.

system — anything that is made up of linked and interrelated parts or elements that perform a specific function or that produce certain effects, such as the hydrologic cycle or a computer.

thematic map — a map representing a specific distribution of data related to a theme or topic, such as population distribution, land use or climates.

waypoints — the GPS coordinates of places on the globe, usually provided in terms of latitude and longitude.

NATIONAL ACADEMIC STANDARDS

The experiences in this unit of study address the following National Academic Standards:

Geography — Grades K–4

Standard 1: The World in Spatial Terms

How to use maps and other geographic representations, tools and technologies to acquire, process and report information from a spatial perspective

By the end of Grade 4, the student knows and understands

- the characteristics and purposes of maps and globes, graphs and diagrams
- the characteristics and purposes of geographic tools and technologies
- how to display information on maps

Standard 2: The World in Spatial Terms

How to use mental maps to organize information about people, places and environments in spatial context.

By the end of Grade 4, the student knows and understands

- the locations of places within the local community and in nearby communities
- the location of Earth's continents and oceans in relation to each other and to principal parallels and meridians

Standard 3: The World in Spatial Terms

How to analyze the spatial organization of people, places and environments on Earth's surface

By the end of the Grade 4 the student knows and understands:

- the spatial concepts of point, line, area and volume
- the spatial concepts of location, distance, direction, scale, movement and region
- that places and features are distributed spatially across Earth's surface

Language Arts — K–12

Standard 1

Students read a wide range of print and non-print texts to build an understanding of text, of themselves and the culture of the United States and the world.

Standard 5

Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

Standard 8

Students use a variety of technological and informational resources to gather and synthesize information and to create and communicate knowledge.

Mathematics — Grades 3–5

Standard 4: Measurement

Apply appropriate techniques, tools and formulas to determine measurements

In Grades 3–5 all students should:

- Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature and the size of angles
- Select and use benchmarks to estimate measurements



National Geographic's net proceeds support vital exploration, conservation, research, and education programs.

About the National Geographic Society

Founded in 1888, the National Geographic Society is one of the largest nonprofit scientific and educational organizations in the world. It reaches more than 280 million people worldwide each month through its official journal, *National Geographic*, and four other magazines; the National Geographic Channel; television documentaries; radio programs; films; books; videos and DVDs; maps; and interactive media. National Geographic has funded nearly 8,000 scientific research projects and supports an education program combating geographic illiteracy. For more information, log on to nationalgeographic.com; AOL Keyword: NatGeo.



The Children's Museum
of Indianapolis

The Children's Museum of Indianapolis is a nonprofit institution dedicated to providing extraordinary learning experiences for children and families. It is one of the largest children's museums in the world and serves people across the United States and other nations. The museum provides special programs and guided experiences for students as well as teaching materials and professional development opportunities for teachers. Field trips to the museum can be arranged by calling (317) 334-4000 or (800) 820-6214. Visit the Teacher page at **The Children's Museum** Web site, www.childrensmuseum.org.