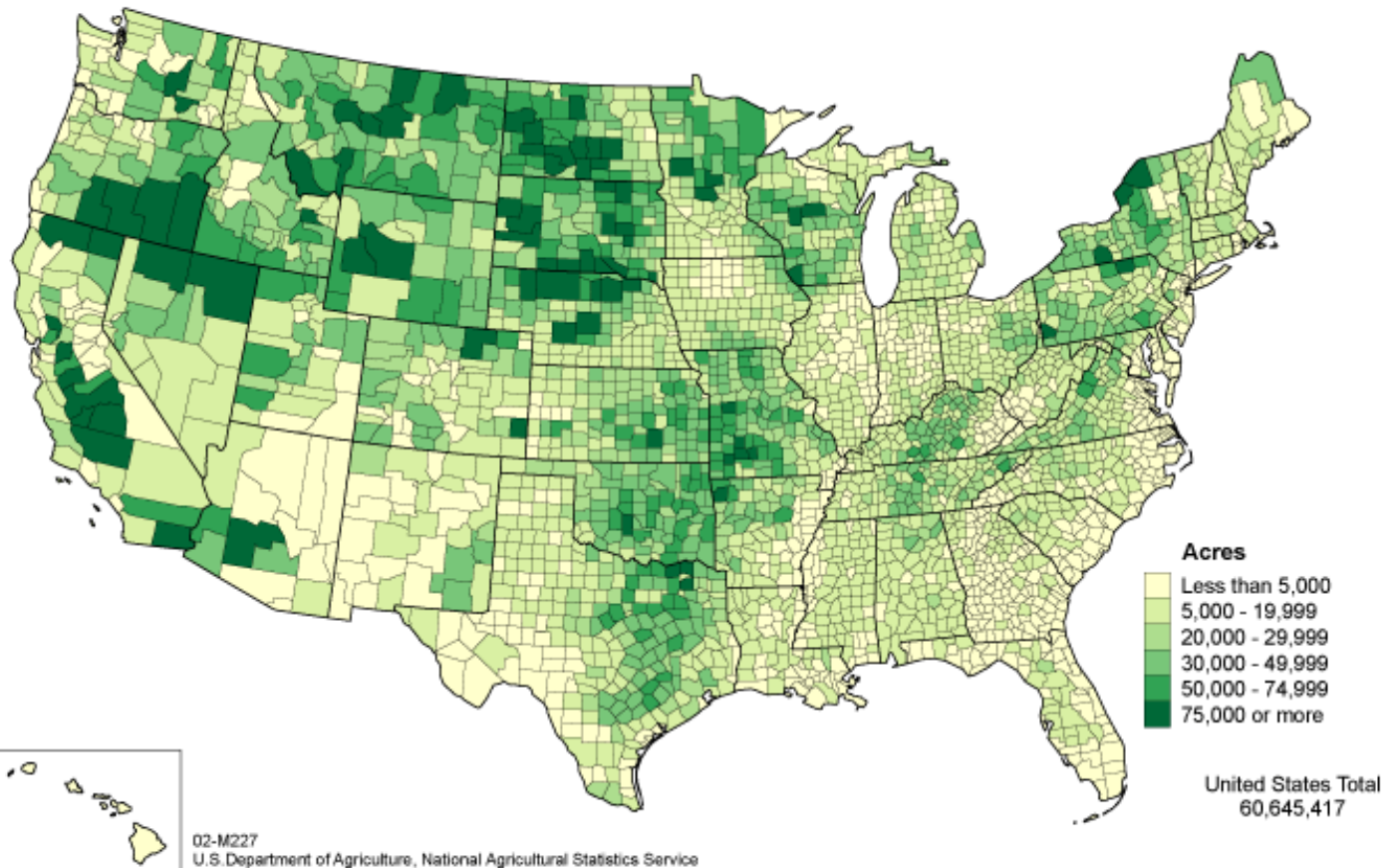


Putting Yourself on the Map



Hay—All Hay Including Alfalfa, Other Tame, Small Grain, and Wild, Harvested Acres: 2002



A choropleth map of the United States.

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An Integrated Curriculum For The Washington Post Newspaper In Education Program

A Word about Maps

A thin line curving across a white surface, cones giving the illusion of elevation, green shading indicating verdant areas. From maps of the stars for navigation to downloadable electronic road maps; from clay tablets to Mercator projections and satellite imaging, maps have influenced emperors, driven explorers and aided the average citizen. Maps have been treasured as works of art and sought as the path to treasure. Maps reflect man's yearning and provide glimpses into the history and culture of a people.

This guide focuses on maps that can be found in *The Washington Post* daily. Use them in your classes to enhance the reading of the newspaper and understanding of international and local events. Use them to help students improve their geography skills, to learn the role of environment in human activity, and to picture historical and political perspectives.

The ability to read, create and use maps, globes and aerial imagery re-enforces geography skills. The National Council for Geographic Education prominently places the study of maps in its standards: "How to use maps and other geographic representations, tools, and technologies to acquire, process and report information" (National Geography Standard 1) and "How to use mental maps to organize information about people, places and environments" (National Geography Standard 2).

Activities in this guide range from lower to upper grades. A lesson gives the steps to creating a personal Handland, study questions take students to Latin America and the leftist leaders who are mapping a new political course, and "Types of Maps" provides examples of a dozen different ways to map the earth.

The online guides provided by The Washington Post NIE program suggest activities to use with Post articles and the reproducibles that we have created for you. Select the ones that are appropriate for the age of your students, time available and curriculum fit.

Lesson: Reading, using and making maps are essential skills. Maps are made for many purposes — to provide navigable directions as well as information about resources, populations and landforms. Through maps we acquire, process and report information.

Level: Low to high

Subjects: Geography, Social Studies

Related Activity: Mathematics, Careers

NIE Online Guide

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Maps

Make a Handland Map

Teachers are provided “Lesson Plan: Handland and B-TODALS.” Following the directions, students will produce very personal maps in the shape of their hands with topographic features that they chose to add. Teachers may wish to follow the suggestion of using art supplies to create glittering mountains and sandy deserts. Hollin Meadows Elementary School Literacy Collaborative Coordinator Sally Chadbourn suggests displaying the finished maps in the classroom or in the hall outside your classroom. Chadbourn also suggests that teachers fill a basket with road maps and other maps in the classroom library as a genre of informational text for students to read during independent reading time.

Read About Maps

Two sidebars, “First Map Book” and “Read About Maps,” suggest books to read. “Where to Find It” provides teachers with some excellent resources to study both cartography and geography.

Go Geocaching

Distribute and read “A Hunting We Will Go ...” and “How GPS Knows Where You Are.” Students are introduced to the technological leap from printed maps to GPS devices. Just as pirates had treasure maps and later explorers used latitude and longitude, the cache hunter is given coordinates to locate a cache. Questions might include:

- What are uses for GPS units? What does GPS stand for?
- What does “cache” mean? What is a cache in this context?

- Where and in what year was the first cache hidden?
- Why do families go geocaching?
- In what kinds of places are caches placed? Why would a hole in a tree in your backyard be/not be a good hiding place for a cache?
- What does “trilateration” mean?
- Give students the following information to see if they can locate Lost Lu and Bewildered Ben. Lost Lu is told by a mail carrier that they are 33 miles from Washington, D.C. Bewildered Ben is told by a police officer that they are 30 miles from Baltimore. When they call Aunt May, she tells them that they are 270 miles from her house in Pittsburgh, Pennsylvania. [They are in Annapolis, Md.]

Find Your Type of Map

“Types of Maps” illustrates some of the various forms that maps can take in order to convey different information. Duplicate and discuss with students the purpose of each. You may wish to discuss distortion and other problems that cartographers face. Which maps require more advanced technology to produce?

After reviewing each one, teachers might ask students to find an additional example of each type of map from the pages of *The Washington Post* and other sources. Students might also be given information to illustrate in a map format. They are to select the best type of map to convey the material and draw it.

Where to Find It

National Geographic Xpeditions

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

Plan to spend time at this site that places the NCGE standards into context. Xpedition Hall provides a fascinating interactive museum. Lesson plans are varied, incorporating maps, activities and geographic knowledge. Xpeditions Atlas provides printable maps.

The National Council for Geographic Education

www.ncge.org/

Site provides standards, lessons and publications. Find information about proposed “Teaching Geography Is Fundamental” legislation to improve geographic literacy.

U.S. Geological Survey, Geography

geography.usgs.gov/

“USGS Geography confronts some of the most pressing natural resource and environmental issues of our Nation.” Note the “Featured Science,” “About Geography,” “Links of Interest” and “The National Map.”

McREL Lesson Plan Library — Geography

www.mcrel.org/lesson-plans/geography/geolessons.asp#Mapsglobesandatlases

Lessons on maps, globes and atlases are among the many lesson plans.

Geography Network

www.geographynetwork.com/

Maps, classroom resources, links

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Take a Look at Latin America

By an overwhelming margin, Hugo Chávez was reelected president of Venezuela on Dec. 3, 2006. The following day, *The Post* published an article accompanied by a map, "Latin America's New Leftists." The map and study questions, "Map Study: Latin America's New Presidents," provide an overview of the current political leadership.

Teachers may ask students to write one to three more questions about information provided on the map. Students could trade questions to be answered and discussed. The eight countries that are featured could be studied further — their history, culture, economic situation, and past and current relation to each other.

Express Comparisons

"Children: Too Many, Too Few," a map printed in the December 13, 2006, expanded World section of *The Post*, compares the fertility rates of countries in Europe and Africa. This is an example of a choropleth map. Note: Although color is part of the map's distinction, the word "choropleth" is from the Greek *choros*, meaning place, area or region; not *khloros*, meaning green.

Questions to be considered include:

- What is "fertility rate"?
- Which countries have the highest fertility rate?
- What are the benefits of a low fertility rate? The drawbacks?
- Why is this information important to know?
- What questions would you like to ask about this information? For

example, What are some of the reasons for high fertility?

After reviewing the map and its annotation, discuss the answers to the questions. Have students share their additional questions. Distribute the second page of "Children: Too Many, Too Few" which is composed of graphs. Are many/most of their questions answered? If not, where might they look for the answers? [See "Sources" at the bottom of the page.]

Features to Find

Distribute "Know Your Maps." Using a map found in the current newspaper, have students find one or more of the continents or features listed. In addition to pointing out the example on the map, ask students to define the term. This illustrates the process they will follow in a project that could continue over several weeks or months.

Teachers may wish to use Topographic Map Symbols (erg. usgs.gov/isb/pubs/booklets/symbols/) as a resource.

Read a Travel Article

The Sunday Washington Post includes a *Travel* section. The articles often include a map with inset maps. The mapmaker establishes place and gives more detail of one portion of the locator map. "Inset Map" provides three examples of maps as illustration that make use of inset maps. All three were published on Dec. 10, 2006.

Before giving the handout, discuss maps as illustration. Distribute "Inset Map" and have students answer the four questions. Their

Read About Maps**The Coast Mappers**

Morrison, Taylor.

Houghton Mifflin, 2004. (Grades 6-up)
Award-winning picture book chronicling difficulties encountered by George Davidson and others as they attempted to create nautical charts and complete the U.S. Coast Survey of the West Coast in the mid-1800s.

Mapping the World

Johnson, Sylvia.

Atheneum Books, 1999. (Grades 4-7)

A history of mapmaking beginning with Ptolemy of Greece and moving to contemporary satellite and computer images.

My America: A Poetry Atlas of the United States

Hopkins, Lee Bennett (selected by).

Simon & Schuster, 2000. (Grades 4-up)

Collection of poems organized by region of the United States; each of the 50 poems features landforms, famous areas, or persons associated with that region and is shown on a series of maps.

The Road to There: Mapmakers and Their Stories

Ross, Val.

Tundra Books, 2003. (Grades 6-up)

Chapter book presentation about how mapmakers and their work reflect the times in which they lived beginning with 15th century mapmakers and moving to the 20th century.

Small Worlds: Maps and Mapmaking

Young, Karen R.

Scholastic, 2002. (Grades 7-up)

Learn about map publishing, meet mapmakers who personalize their maps, and study the development of cartography through illustrations and examples.

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knowledge of geography should allow them to place the headlines with the appropriate maps. Have students discuss their evaluation of the usefulness of the information provided.

“Fresh Tracks in Europe” is part of the introduction to three ski destinations that are less expensive than the glamour ones. A comparison is included: “A lift ticket at Les Arcs, a French heavyweight, costs \$50 per day, while just down the road, at powder-endowed and crowd-free Sainte-Foy Station, you’ll pay \$28.” This statement should encourage readers to look at the inset to see how close the two are to each other. With the road indicated, the reader easily sees the proximity. Teachers can point out the benefit of map illustrations being used in conjunction with articles.

If time allows, teachers can download and read, “Plenty of Snow for Everyone” by T.R. Reid. His article introduces readers to two resorts in a secluded corner of Montana.

Make a Map

Students do not need to explore new territories in order to create a map. They need to have a purpose, knowledge of the basics of mapmaking and some tools. Be sure that the scale is true to life.

- Prepare a map of your school to help a new student in your class find the places he or she most needs to know.

- Prepare a map of your neighborhood. The assignment might gain more creativity by requiring it be a choropleth map; the legend would indicate what the colors and shades represent.

- Prepare a map of your home or a portion of your home. Are there “comfort” zones, “danger” areas, and “work in progress” spaces?

General Assignments

Some assignments can be used with many maps and different disciplines. Here are a few suggestions:

- Select a time period in history. Relate a role played by maps.
- If you were a monarch, why would it be important to obtain maps from the explorers you sponsored? Why would the scale of the map be of particular interest to you? Give an example.
- How does the map that accompanies a news article, a science article, or a sports article help you to understand an event or piece of information more than the article alone? Find an example in today’s or this week’s newspaper.
- What kind of information does the key or legend provide the map reader? Select one element in the key and explain why it is helpful to you.

- During the school year, have students look for news articles about a country they have selected or been assigned. At the end of the year, they are to write a Country Update for travelers and include a map.

- Compare and contrast older and more recent maps. Why are most maps today oriented to the north? East was the direction of orientation of early maps found on Babylonian clay tablets. Mapmakers throughout the medieval period continued to orient travelers to the east, the location of the holy lands, toward the Orient from which the root of “orientation” is derived.

Classroom Maps

One teacher shares some of the many ways maps may be included in classroom projects.

Art

Create a physical map of a country using arts and crafts. Students use yarn for the rivers, glitter for the mountains, and glue/sand for deserts.

Make clay or salt dough from flour, water and salt. Then use the dough to make a landscape with mountains. The landscape can be expanded to make a contour map. Teachers must teach about contour maps before this activity.

Social Studies

Younger kids can create classroom or school maps. They need to create a key to help understand each map.

Have students identify the names of countries that compose a continent and color the countries.

To remember the continents use the phrase, Triple A SANE — AAASANE for the first letter of each continent.

Mr. MIMAL created from Minnesota, Iowa, Missouri Arkansas, Louisiana — beginning with his hat (Minnesota) to his boots (Louisiana). Trace Mr. MIMAL’s profile in blue to locate the Mississippi River.

Use HOMES to remember the names of the Great Lakes: Huron, Ontario, Michigan, Erie and Superior

Use the weather map to chart changes for a week. Cut out a map, paste it down on poster paper, and then make observations on fronts and the way they travel across the country. Students can also use the key to identify different weather occurrences in the country. This is a good way to increase vocabulary and integrate social studies and science.

— Steven King, Shepherd Elementary School, Washington, D.C.

Editor’s Suggestion

Weather Wise (May 28, 2002) contains maps and many activities for using the Weather map found in the Metro section. Go to www.washpost.com/nie. Select Lesson Plans and scroll to *Weather Wise*.

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Meet a Cartographer

Richard Furno, Washington Post Director of Cartography, answers questions about the work of Post cartographers. His insights should give students a different way of looking at the maps that appear daily in *The Washington Post*.

Discussion of the Q&A might include:

- Furno refers to a "column." Before students read "Meet a Cartographer," explain what a column is. Using today's newspaper, have students count the number of vertical divisions or "columns" into which the page is divided. Into how many columns are most of the pages divided?

You might explain that readability and visual impression both are factors in deciding how many columns to use. How difficult would it be to read sentences that went from one margin to the other? What impact is made when some columns are combined to create a wider one?

Select one article from A1. Ask students to measure the number of column inches the reporter got for the story. (Do this by measuring the total vertical inches of copy.)

- Find examples of maps in the newspaper. Which map is a column? A two-column map? Find other column width examples. Is more information conveyed when a map is many columns wide?

- What is a "simple locator" map? Find an example of one in the newspaper.

- What distinguishes a "simple locator" from a more complex map? Find an example of a more complex map.

- How long are most maps archived at The Post?

- Locate a map for Asian or South American countries in *The Post*. Are the conventional names for countries and cities used? Can you find any



A 1-column locator map by the Post's Nathaniel Vaughn Kelso

exceptions? For example, if the map is of India, is "Mumbai" or "Bombay" used?

- Find three maps in *The Post*. If the names of any countries have been abbreviated, give the full name.

- Look for the credit line on maps. Make a list of *Post* cartographers, the subject of their maps and the dates they appeared in print. This list may be for one day's newspaper or compiled over a week. Do some of the cartographers appear daily? How often do cartographers collaborate on a map?

Read a Map

Select an article from *The Washington Post* that has a map. Answer the following questions about the map(s) on your own paper.

What does the title of the map tell you? If the map is not titled, what does the caption tell you?

What is the name of the mapmaker?

Does the mapmaker work for *The Washington Post*? If not, who?

Is the map dated?

Is it a recent or an ancient map?

Does the map provide a compass? A legend or key? Scale?

What type of map is it?

What kind of information does this type of map provide?

Why was the cartographer assigned to make this map?

Read the article.

What aspect of the article does the map illustrate?

Does the map provide additional information?

Do you think the map makes the article easier to understand? In what way does the map explain what the reporter stated?

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Lesson Plan: Handland and B-TODALS

Introduce primary and middle grade students to text features of a map using the acronym B-TODALS.

STEP 1

Introduce text features of a map using a large-scale world map. Together the class searches for the aspects of the map to illustrate each of the letters in the mnemonic device for what makes a quality map:

B — Border

T — Title

O — Orientation, compass rose

D — Date

A — Author

L — Legend

S — Scale

STEP 2

The teacher and students co-construct a chart describing a map's text features and the purpose for each:

A Map's Text Features

FEATURE	PURPOSE
Border	To frame the map and to distinguish countries and states
Title	Know what it is about
Orientation (Compass Rose)	Know which direction to travel
Date	Know how old or how new the map is
Author	Who made the map
Legend	Symbols: Key to features on the map
Scale	Ratio: How big the land or water is when we shrink it in size to fit on the map and to keep the same proportion

STEP 3

The teacher has prepared Post-it notes inscribed with the map feature terms listed on the chart (for use by collaborative teams in Step 5). Place one of each of the colored notes with its corresponding term on the chart in STEP 2 (as a color code for STEP 5).

First Map Book**As the Crow Flies: A First Book of Maps**

Hartman, Gail and Harvey Stevenson.
Simon and Schuster, 1993. (Grades K-2)
How various creatures view different geographical areas told in picture book drawings.

Geography from A to Z, A Picture Glossary

Knowlton, Jack and Harriet Barton.
Harper Collins, 1997. (Grades 1-4)
A classic with over 60 entries describing the earth's physical features.

Mapping Penny's World

Leedy, Loreen.
Holt, 2003. (Grades K-3)
After learning about maps at school, Lisa draws maps of her dog Penny's favorite places.

Me on the Map

Sweeney, Joan.
Crown, 1996. (Grades 1-3)
A colorful and playful introduction to mapmaking as a little girl draws herself on a map of her bedroom and later on a map of her country.

My Map Book

Fanelli, Sarah.
Harper Collins, 2004. (Grades 1-4)
This map collection of drawings shows a student's bedroom, school, playground, and other sites dear to youngsters.

There's a Map in My Lap

Rabe, Tish.
Random House, 2002. (Grades K-2)
The Cat in the Hat teaches very young readers about cartography and the uses of different kinds of maps.

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STEP 4

Teacher and students co-construct a list entitled “Map Etiquette” prior to beginning collaborative teamwork. Students will itemize how to treat large, fold-out maps:

Map Etiquette

1. Unfold the map carefully and gently
2. Lay the map flat
3. Study the map with your eyes
4. Touch the map with clean hands and fingers
5. Don't harm the map
6. Refold the map carefully and gently when finished

STEP 5

Students work in collaborative teams to study large, fold-out maps of the United States. Supplied with Post-it notes bearing the B-TODALS features on a map and by reviewing the chart co-constructed in STEP 3, team members place the notes on each feature of the map.

STEP 6

Students make Handland maps and include each of the text features on their maps so that when they check the quality of their maps with the acronym B-TODALS, their maps have every feature.

The teacher supplies students with an 8- x 11-inch white paper bearing a 1-inch border. The teacher posts a large chart paper imitative of students' own paper so that each step of making the Handland map is modeled first on the chart.

Teacher Models on Chart

Border

T = Handland

O = Orientation (compass rose)

D = Date

A = Author

Students Write on Their Paper

Note the borders already printed on their papers

Decide what to entitle their own maps

Draw own compass rose to show N-S-E-W

Use today's date

Use own name

Trace hand into center of bordered space

Trace his or her own hand into center of space to create Handland. Students could include wrist so the land looks peninsula-like or could trace only their hand so Handland appears as an island.

L = Legend

Determine physical features to place in Handland such as mountains, rivers, state or country borders (fingers and thumb could constitute five states or perhaps regions of a state). Draw border around space devoted to legend or preprint a boxed space in which students write their own legends.

S = Scale

Preprint scale or have students copy scale from teacher's model chart unless previous lessons have developed sufficient understanding of scale for students to determine their own scale for the Handland map.

STEP 7

Students add the topographic features listed in their legends to their maps.

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A Hunting We Will Go . . .

Sprinting through the woods, Andrew and Sarah Hickey kept their eyes open for thorn bushes, spider webs, animals and hidden treasure.

After an hour spent splashing through a creek, crossing a cemetery and taking several wrong turns, Andrew, 11, stopped at the base of a tree and screamed, "I found it!"

The kids were in Laurel on a high-tech treasure hunt called geocaching. What Andrew found is called a cache (pronounced CASH), and there are about 2,200 of them within 50 miles of downtown Washington. Caches are usually waterproof boxes of varying size, but they can be a statue, building or other landmark.

Since the Silver Spring family began hunting last September, the Hickeys have found 22 caches, including three while on vacation in Arizona in April.

People who hunt for caches use a Global Positioning System device. It's like a high-tech compass. GPS tells the user where in the world he or she is, using longitude and latitude. (Longitude measures how far east or west you are from a place in England called Greenwich. Latitude measures how far north or south of the equator you are. The measurements come in



PHOTOS BY MICHAEL TEMCHINE FOR THE WASHINGTON POST

Hidden caches often include small trinkets and a notebook in which the finders log their names and experiences.

pairs – one for longitude, the other for latitude – that are called coordinates.)

People who hide caches put the coordinates for their treasure online at <http://www.geocaching.com>. Hunters such as the Hickeys enter those coordinates into their GPS devices and follow the directions until they find the caches. Most are in public places. Boxes are hidden so that they aren't too visible or mistaken for trash.

The first cache was hidden in Oregon in May 2000. Before that, GPS units were used by the military and by people who wanted to remember

favorite hunting or fishing spots. As the satellites that send the coordinates became more accurate, people found new ways to use GPS devices, including hiding caches.

The Internet introduced geocaching to a worldwide audience of hide-and-seekers. About 290,000 caches are now hidden, in 222 countries.

Andrew found the Laurel cache after noticing some sticks and logs stacked in an unusual way. "I looked for things that looked out of the ordinary," he said.

So what hidden treasure did he and Sarah, who is 7, find?

Inside the cache was a logbook and some small toys. They each picked out a toy and left one of their own; their parents wrote a note in the logbook. Then they put the cache back where they found it for future fortune hunters to discover.

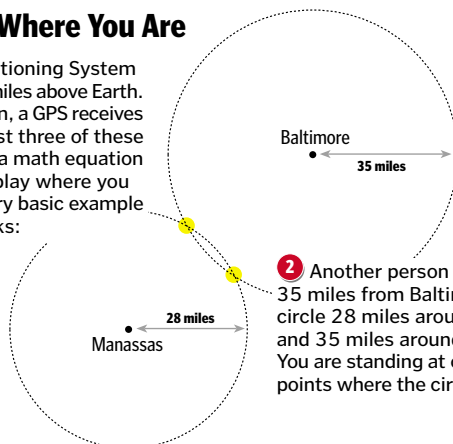
After a day of hunting, Andrew and Sarah had a key chain and a stuffed toy to show for their efforts. But the real treasure, they said, was exploring the woods. Sarah said her favorite part is "probably the search, because you can see a lot of things along the way."

— Amy Orndorff

How GPS Knows Where You Are

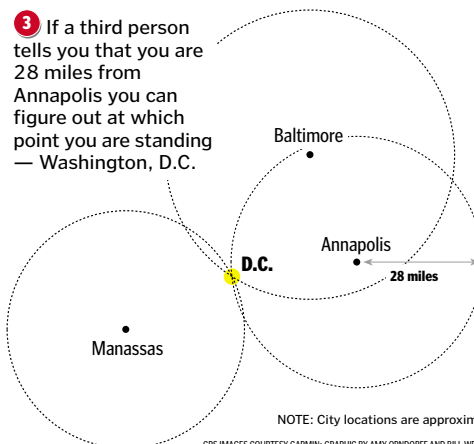
There are 24 Global Positioning System satellites about 12,000 miles above Earth. To determine your location, a GPS receives radio signals from at least three of these satellites and computes a math equation called **trilateration** to display where you are standing. Here's a very basic example of how trilateration works:

1 Suppose you are lost and you ask a police officer where you are. She says you are 28 miles from Manassas.



2 Another person says you are 35 miles from Baltimore. Draw a circle 28 miles around Manassas and 35 miles around Baltimore. You are standing at one of the two points where the circles intersect.

3 If a third person tells you that you are 28 miles from Annapolis you can figure out at which point you are standing — Washington, D.C.



Trilateration is a basic principle of GPS, which also can tell you your elevation, your speed and how soon you'll get back home.

NOTE: City locations are approximate and not to scale.

GPS IMAGES COURTESY GARMIN; GRAPHIC BY AMY ORNDORFF AND BILL WEBSTER — THE WASHINGTON POST

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Previous Post Guides with Maps

Eras in the history of Washington, D.C., were featured in KidsPost in the 2003-04 school year. Each monthly installment provided a map and narrative about the life of children at that time. "The Unboring, Illustrated Story of the Washington Area, from 1600 to Now" may be downloaded at www.washingtonpost.com/wp-srv/kidspost/orbit/kidspost.html.

Each NIE online guide (Volume 3, September 2003-June 2004) that accompanied the KidsPost page contains a map of the time period and a "Map It" activity.

September 23, 2003	"Our First Families"
October 21, 2003	"Hogs Wild"
November 18, 2003	"Our Nation's Capital Created"
January 27, 2004	"Technology Shapes the Capital City"
February 24, 2004	"Civil War and the Capital City"
March 30, 2004	"The Capital Transformed"
April 27, 2004	"D.C. Renaissance"
May 25, 2004	"Boom and Brown"
June 29, 2004	"Decades of Pursuit"

Some of the other Post INSIDE program guides available online (www.washingtonpost.com/nie) with maps are:

"Should the Electoral College Count?" November 23, 2004: Proportional map of the U.S. by electoral vote as well as map with vote designation per state and charts.

"Force of Freedom," February 21, 2005: "The Voters" circle graph and map present the ethnoreligious groups in Iraq and where they live.

"The Way the Winds Blew," November 30, 2005: A map reflecting the paths taken by the record number of hurricanes in the U.S., chart and satellite photograph of Hurricane Katrina approaching the Louisiana coast on August 28, 2005.

"Endemic, Epidemic or Pandemic?" July 1, 2006: World map documents outbreaks of avian flu in 2004, 2005 and 2006. A second map presents the wild bird flyways.



M-A-P! Go Team!

National Geographic Bee

www.nationalgeographic.com/geographybee/index.html

Study Corner, quizzes and materials prepared by the National Geographic Society "to spark student interest." National Challenge is designed for grades 4-8.

GeoBee Challenge

www.nationalgeographic.com/geobee/

Five new geography-based questions are posted each day

MapMachine

<http://plasma.nationalgeographic.com/mapmachine/>

A KidsStuff feature, allows access to the National Geographic online atlas of road, satellite, physical and theme maps

Dorset Coast Digital Archive

www.dcta.org.uk/index.html

Although a British site, the archives and image library provide a rich storehouse for use. A modern map of the Dorset area might be compared with a 16th Century estate map, for example.

Cartography History

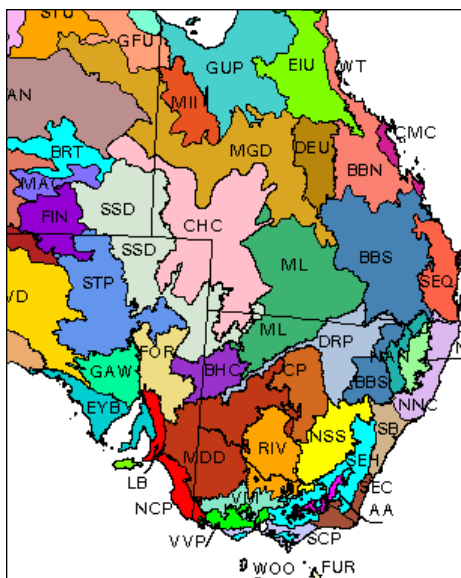
www.dcta.org.uk/Cartography/3detailed.html

Good overview of the history of mapmaking

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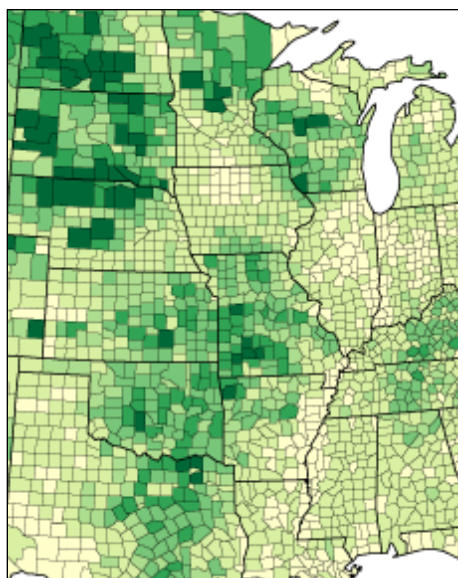
Types of Maps

The mapmaker cannot present all the details that the human eye captures or a photograph reveals. Once the items to be included have been selected, the cartographer has several types of maps from which to select to best convey information.



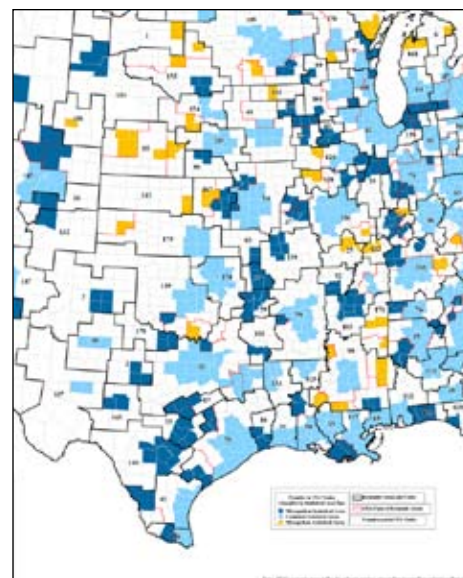
Biogeographic

Indicates distribution of living organisms



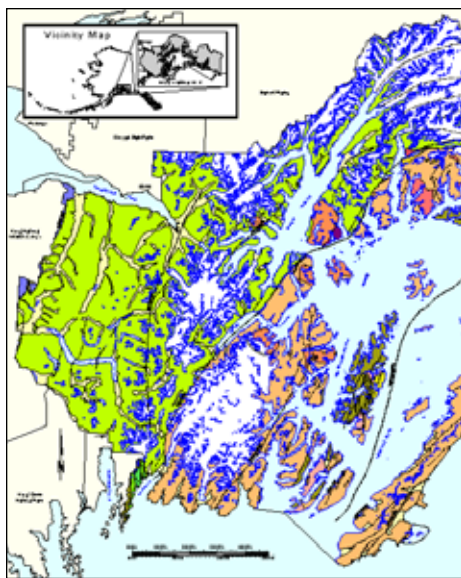
Choropleth Map

A map that makes quantity distinctions between items through color



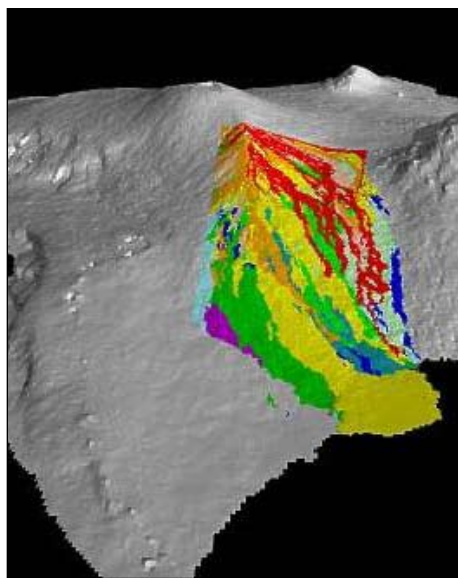
Economic/Resource

Symbols show natural and economic resources



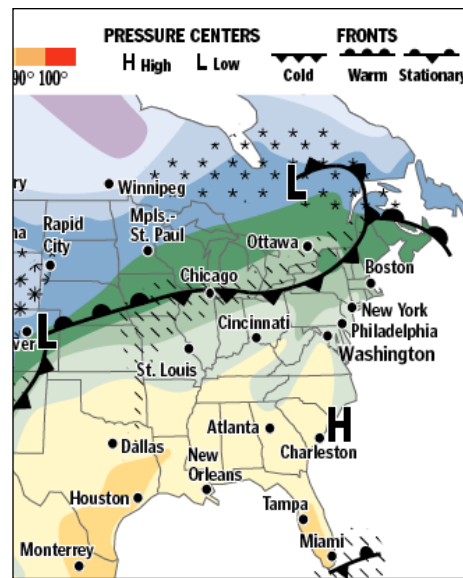
Geologic

Shows the types of rocks on the Earth's surface



Geographic Information System (GIS)

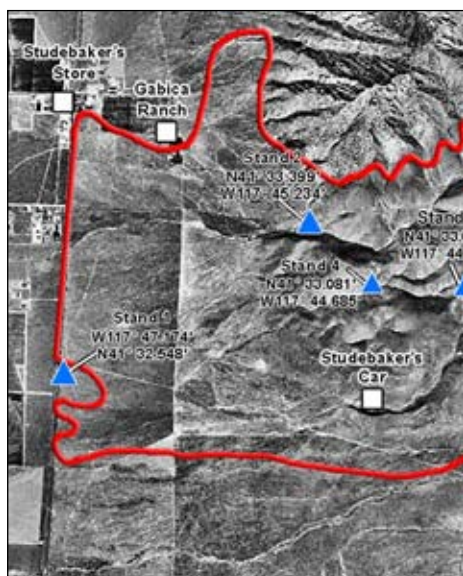
Computerized system that plots information on a map



Meteorologic

Precipitation, climate, weather conditions

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Orthophoto

Color-enhanced photographic images show detail in a true-to-life manner; often used for agricultural and natural areas. Because they are adjusted for topographic relief, lens distortion and camera tilt, they are of uniform scale.



Physical

Earth's landforms and bodies of water; lines, shading, spot elevations and different colors present view of land surface



Political

State and national boundaries, capital and major cities



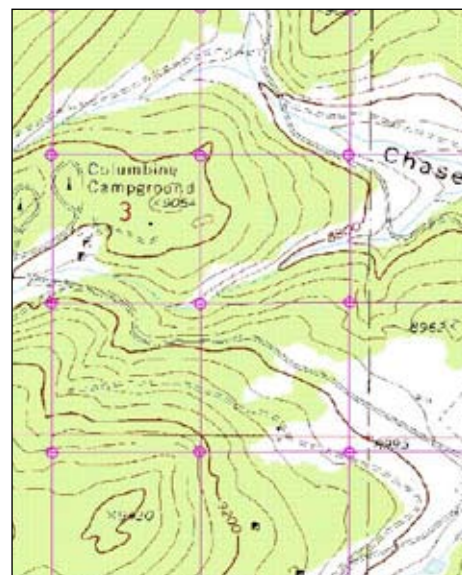
Relief

Elevations, terrain shown through contour lines and shading



Road

Highways, roads, airports, railroad tracks, cities and points of interest; first published by Michelin in France and Gulf Oil in U.S.



Topographical

Contour lines to show shape and elevation

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Latin America's New Leftists

Venezuela's Hugo Chávez, reelected to another term Sunday, belongs to a new generation of Latin American leaders who say they represent the poor and powerless. Here is an overview of some of the leaders who have come to power around the region in the past few years:



SOURCES: World Bank, Population Reference Bureau, staff reports, news services

NOTE: Gross National Income per capita represents all the goods and services produced by residents in a specific country and their net receipts from abroad, calculated per person.

THE WASHINGTON POST

Map Study: Latin America's New Presidents

What can you learn from the December 4, 2006, map? The Washington Post cartographers prepared the map of Central America and South America and included information to present current Latin American leaders.

1. What does GNI stand for? What does it mean?
2. Which country has the largest population? Which has the smallest? What is the range? Answer in complete sentences.
3. Make an inference. Which country is probably the poorest, and how did you decide this?
4. Which president makes current U.S. leaders mad because of his friendship with Cuban leader Castro?
5. Which country has a female president? What is her former occupation?
6. What is the median age of the presidents listed?
7. Which president is returning to the office of president?
8. Read the map.
 - Name the large mountain chain on the west coast of the continent.
 - Where did the mapmakers get the information for this map?
 - As the crow flies, how many miles are there from Quito to Montevideo?
9. How is the capital of a country indicated?
 - What is the capital of Paraguay?
 - Which is the southernmost Latin American capital?
 - What country appears to have two capital cities? Why is this?

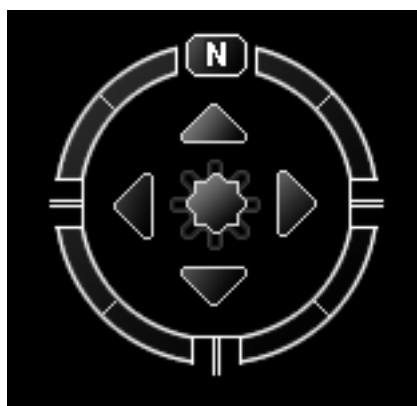
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Know Your Maps

Using today's newspaper find examples of five or more of the following on maps. Begin a collection of these examples in which each page is given a headline followed by a definition of the term and the example that was neatly clipped from The Washington Post. Identify the item on the map with an arrow, a symbol or color code.

Compass Rose/Compass Points

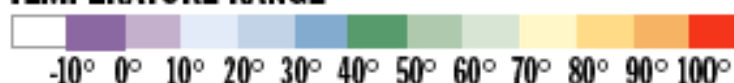
Used to indicate the direction of north



Key/Legend

Boxed information that tells what different symbols or colors represent

TEMPERATURE RANGE



Africa

Antarctica

Asia

Australia

Europe

North America

South America

Archipelago

Atoll

Bird's eye view

Cardinal points

Coast

Continent

Eastern Hemisphere

Elevation

Equator

Eurasia

Graticule/Parallels/Meridians

Greenland

Greenwich/Prime Meridian

Hemisphere

International Date Line

Latitude

Longitude

Mercator projection

Northern Hemisphere

North Pole

Oceania

Peninsula

Pictorial map

Relief

South Pole

Southern Hemisphere

Transportation routes

Tropic of Cancer

Tropic of Capricorn

Topography

Western Hemisphere

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Children: Too Many, Too Few

Whether a nation's population is growing or shrinking depends to a large degree on the fertility rate — how many children each woman bears. That rate influences a country's future. Here is how countries in Africa and Europe compare:

Fertility rates per woman ages 15 to 49

- 0 - 1.9 children
- 2 - 5 children
- 5.1 - 7.9 children
- not shown

U.S. rate: 2

Population growth in sub-Saharan Africa overall surpasses that in other world regions despite the effect of AIDS and high mortality from other diseases, such as malaria. In several countries, including South Africa, Botswana and Lesotho, population growth has slowed dramatically or stopped because of AIDS.

Fertility rates in other parts of the world are more balanced. Some exceptions:

Very high rates: Yemen, Iraq, Afghanistan and the Palestinian territories

Very low rates: Cuba, Singapore, Japan, South Korea, Taiwan, China

AFRICA Too many young people

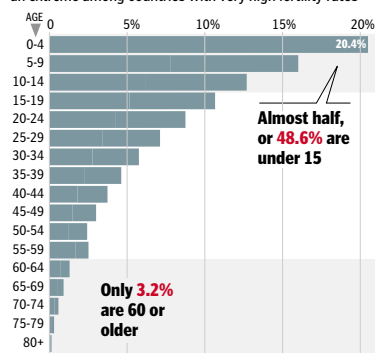
In many sub-Saharan countries, women on average bear six or more children each. Development specialists had hoped the fertility rate would decline, but progress in family planning and female education has been slower than anticipated. Economies of poor countries cannot sustain the tide of young people, many of whom try to reach other countries in search of work. That immigration pressure—particularly on Europe—is likely to increase.

EUROPE Too few young people

In Europe, the number of children born does not make up for the number of people who die, in spite of longer life spans. The replacement rate is 2.1 children born per woman. Demographers say that if this trend continues, Europe will experience a serious labor shortage. Immigration would be one answer, but many immigrants do not have sufficient training or education to fill available jobs.

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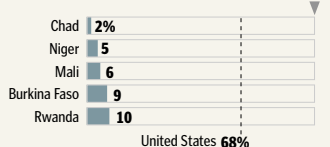
Population breakdown by age group in **NIGER**, an extreme among countries with very high fertility rates



Some reasons for **HIGH FERTILITY**

- Low use of modern birth control methods; in some countries, lack of availability

Percentage of married women ages 15 to 49 who use **modern birth control methods***



- Continued desire for large families.

Traditional family structure, particularly in rural areas, gives women little say over their role, in particular how many children they will bear.

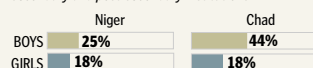
Chadians wanted the highest average number of children, among surveyed African countries:



The earlier women enter into their first marriage, the more children they tend to bear. **41.8%** of women in Chad ages 20 to 24 have been married.

- Education of girls** often lags far behind that of boys.

Combined school enrollment ratio in primary, secondary and post-secondary institutions:



Government Intervention

- Many governments do not take a strong role in family planning programs.

The Effect

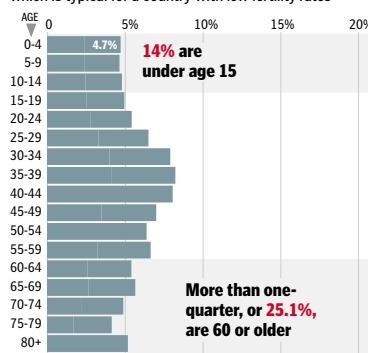
The growing number of young people increases pressure on a limited education system and a poor economy. With good jobs scarce in most poor countries, dissatisfaction grows and hopes for economic and social development fade.

* Modern contraceptive methods include pills, injectables, patches, IUDs. Traditional methods are understood to include rhythm methods, periodic abstinence.

** Education of women is associated with a reduced fertility rate.

SOURCES: Population Reference Bureau 2006 world population data sheet, World Bank, Macro International latest available data (2002-2004), U.S. Census Bureau, U.N. Human Development Report

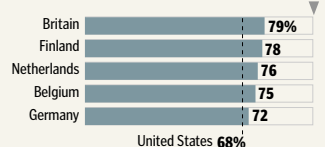
Population breakdown by age group in **ITALY**, which is typical for a country with low fertility rates



Some reasons for **LOW FERTILITY**

- Wide availability and high use of modern birth control methods

Percentage of married women ages 15 to 49 who use **modern birth control methods***



- Desire for small families.

Women's roles in the family and society have changed. More women are part of the workforce and generally decide when to have children — and how many. Child care availability is also a factor.

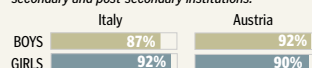
Percentage of women in the workforce:



Many Europeans delay marriage for careers, reducing the number of childbearing years. **6.1%** of women in Italy ages 20 to 24 have been married.

- Education of girls is high, sometimes higher than boys.

Combined school enrollment ratio in primary, secondary and post-secondary institutions:



Government Intervention

- Many European governments offer subsidies for each child, generous leave policies for parents and help with day care. Still, birthrates remain low.

The Effect

As the number of older people no longer in the workforce increases with rising life expectancy rates, government budgets are strained by the rising cost of social services, such as pensions and health care.

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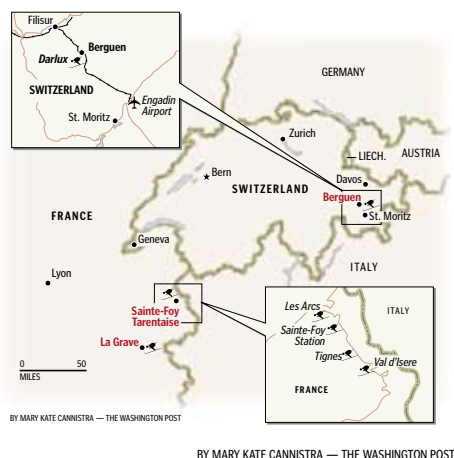
Inset Maps

Especially when maps are used to illustrate an article, the cartographer will present a wide-angle, less detailed map to help establish location. One or two other maps will provide more detailed information.

You are not provided the articles that the three examples illustrate. Use the maps alone to determine the following:

1. On the blank, write the title that best relates to the map.

- “Two Montana Resorts Team Up to Offer Big Runs”
- “Boston’s Seaport District”
- “Fresh Tracks in Eurovpe”



2. Which map conveys the least information about activities in the designated destination? Explain your selection.

3. Which inset (smaller) map is the most useful? Explain your selection.

4. Two of the three indicate airport locations; two of the three indicate roads. Why is this useful information to the traveler?

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Meet a Cartographer

What is your typical day?

Our work is determined largely by the work requests we receive. These come in from *The Post's* Graphics Editors — reporters/editors who are assigned by a Desk and determine which stories should have a map for the paper. They write up a request and send it into our database of assignments.

Some of our work must be done for the same day's paper, some are for "advanced." Typically about 30% to 60% of the work is for daily depending on the season and the current type of stories coming in.

Each of us takes an assignment, puts our name on it and starts the map. We assess how much work we can put into a map by looking at the time we have and the size of the map required, whether one column or six columns.

How closely do you work with reporters?

We work closely with the Graphics editors — one step removed from the reporter. This arrangement might seem odd, but it evolved over time to be the best way to get the job done. Often, reporters are totally absorbed in getting the story (as they should) and might not even give a thought to a graphic. The Graphic Editor sees stories develop and decides that a graphic or map should be made far in advance of when a reporter might think of it. But it's common for us to work directly with the reporter when we need to. Simple maps don't require it, but the more complex the job, the more likely we will be calling on the reporter.

What do you think maps add to news coverage? To features?

I've always considered myself an informational reader. I'm interested in getting the information in the best and fastest way possible. A story might best



The Washington Post's Richard Furno

"There's no limit to the ways you can make a map or the maps you can make."

be told by text, photo, graphic (map) or combination. I'll stick my neck out and say that *The Post* doesn't do a good job of judging this balance. I've seen many stories try to explain where it occurred, often with more text than a map would take, and, in the end, would leave more questions in the reader's mind than a simple map. The same applies to graphics and charts.

Maps and graphics supply a hook to stories that people who are less inclined to read or use newspapers can pick up. They should be used to that advantage.

What are your main sources to remain current for U.S. maps? For maps of the world?

As little as five or ten years ago, the main source for geographic information was printed maps. Today, we rely on the Web — Google Earth, Mapquest (just as you do) — and on data files that can also be found on the Web or bought from the agencies or NGOs that produce them.

The magic word for today's cartographers is "data." These are files that are simply made up of long lists of numbers — usually of geographic coordinates with attached "attributes." Special software is used to read those lists and turn them into maps and to use the attributes to cut and slice the list into useful parts.

For large areas such as the U.S. and world, there are companies that produce standard data for purchase. But another source could be an agency such as the EPA that might produce specialized world data that, for example, might show where CO₂ is being produced or where kinds of fish are concentrated in the ocean. With today's software and the Internet, data can be found in a multitude of places and from turning over that unexpected leaf.

If a map of locations of new businesses in an area in the city or of fireworks displays in the Metro area is to appear in the newspaper, how long do you have to prepare it?

Preparation takes anything from a couple of hours to a few days, determined entirely by the complexity of the map required. We have maps we call "simple locators." "Locator" because the map will just locate something rather than, for example, analyze areas. "Simple" because it locates only one or two things.

All of the maps we've produced are on file on a server. If we have already created a map that encompasses the area we need, the map will go fairly quickly. If we need to create a brand new map, we'll have to take more time. If it has to be made in a day and the map is complex, something's got to give. Perhaps we put a lot less background material on the map. Perhaps we make it smaller so much less information ends up being shown and locations become much more generalized. Locating

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business often requires time to see if it appears quickly on a Web application. If not, we have to juggle the time we've got with the information we need to show.

A fireworks map is a known quantity. Often, we dig up last year's map that we know has passed muster. But sometimes these get tired and we decide to create a new one. A fireworks map done from scratch takes us two or three weeks as it goes through all the editing processes.

What if a series of robberies takes place in one day, how long does it take to prepare the map for the next day's paper?

A "series" of robberies calls for a detailed map, probably three or more columns wide. If we can spare more than one cartographer, we'd split this between two who would work the whole day – about 5 or 6 hours each. At the same time, the Metro Graphics Editor would also spend the day on it. So figure three people working the whole day.

How long does The Post archive its maps?

The archive is stored on a server that dates back to 2003. As storage gets tight, we offload a year. The archive is entered about a week at a time and every few weeks, a DVD is written of the latest work, so the entire archive is also backed up to CD and DVD.

What do you do if readers write that you have the name of a country, mountain or lake wrong? Where do you verify the correct name to use?

It's great when a reader writes in. It means someone out there cares about it, especially if they are finding an error. We answer each one. Most often, because the person has written in about an error it's because we really are wrong. So we say so and thank them for straightening us out.

We use a couple of authorities to make decisions on maps. The Board on Geographic Names makes decisions on spellings of all names in the United States and the world, so if someone doesn't like it, we've got a great excuse.

For foreign maps, there are many exceptions to the rule and there is plenty of room for disagreement. In general, we follow what's in the National Geographic Atlas.

Do you always use the U.S. names for countries and international cities?

Good question. We've gone back and forth on Mumbai and Bombay (India). The U.S. name for a foreign city is referred to as the "conventional" spelling. Frankly, we go back and forth on it, but usually follow the conventional – especially with countries – e.g., we call it the "Ivory Coast" not "Cote d'Ivoire." (You would expect French atlases to call us their usual "Etas-Unis," not the "United States.")

What do you do when one country's name is much longer than all others that are shown?

Abbreviate. And if it's still too long, we abbrev. the abbreviations. Any good cartographer will tell you that Bosnia and Herzegovina was misnamed. It should be called "Bos."

How do you determine the scale to use when preparing a map?

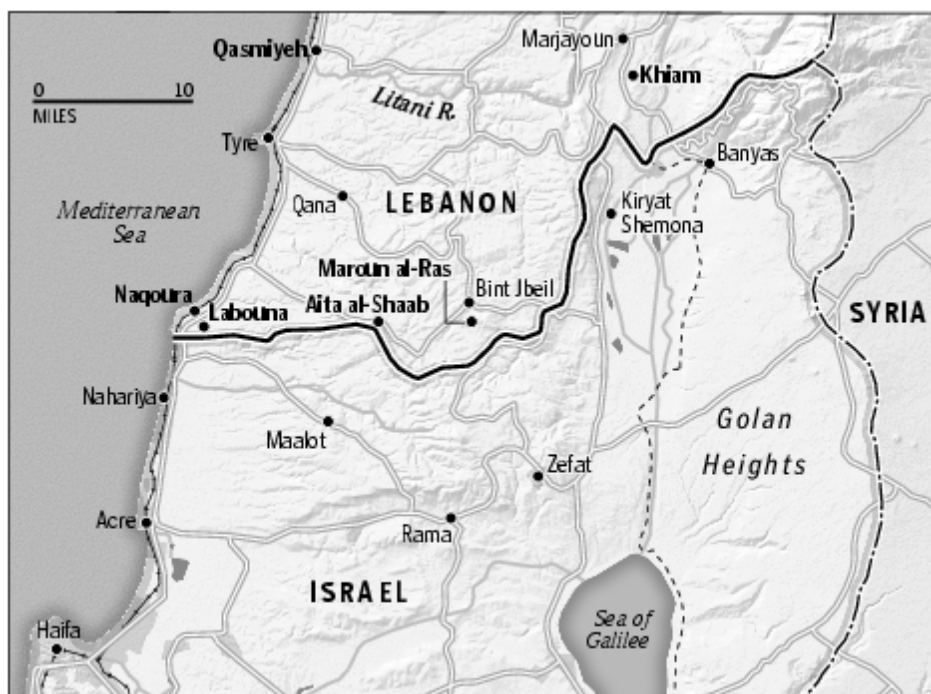
Simple. We figure out how much room we've been given in the paper (2 cols, 3 cols, etc.) and the most extreme points on the map that we have to show. That determines our scale.

Do you have a favorite map that you have created or part of the world to present?

My favorite map was the "Silk Route" which I made for the Food Section. I did it in the style of the 18th century. Generally, I like to make maps of foreign countries. I learn more.

What is most rewarding about your job?

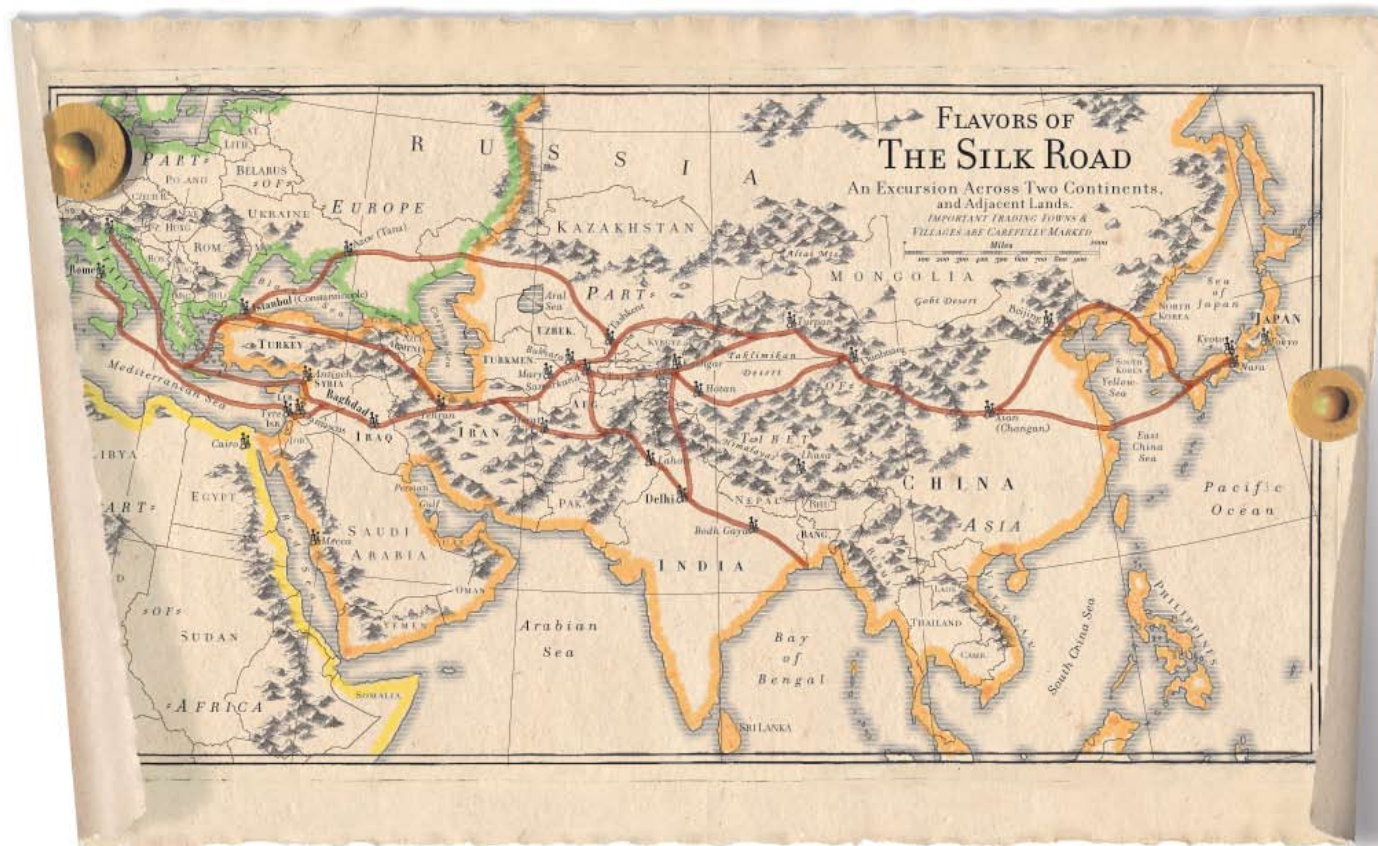
Learning. Also, mapmaking technology is exploding with changes.



BY RICHARD FURNO — THE WASHINGTON POST

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New software, new data, new capabilities. It used to take months for an artist to make a topographic (relief) plate for a wall map. Because of new technology, we can now make such topography in a couple of days or even fewer. And it will be more accurate. It's up to the cartographer to make it look good and to give it the correct emphasis. Color topography is especially fun to work with. Every cartographer will do it differently.

If students want to be cartographers, what would you suggest they study and do now to prepare for the job?

Colleges often have schools in geography or cartography. If not, take all those courses that the college offers and go on to a new university. Many of our local universities offer good programs in

cartography. Remember the difference. Geography is learning about the world or parts thereof. Cartography is about making maps. Learn your strength and go for that.

Is there something not covered in the above questions that you would like to share about your job and being a cartographer?

Some folks think that surely, all maps should already have been made. All we should have to do is hit the "m" key and out comes the map we need.

In one sense, there's reason to think so. We've mapped virtually every place in the world, right here in News Art! The problem comes when we need a map of, say, British Columbia, Canada. So we look in our archives and maybe we've mapped western Canada — but the assigned map is to be only one column. So it's new map time.

You'd think that we've made every possible map of the D.C. area imaginable. When I get a new Metro assignment, I might very well think, certainly we've made a map like that? Then I look in our archives and there's nothing that quite fits — it's almost perfect except I need a bit more of Montgomery County. We've all learned that if we need to make too many changes to an existing map, it's better to start over.

There's no limit to the ways you can make a map or the maps you can make.

Richard Furno, Washington Post Director of Cartography, has worked at The Washington Post since 1978. Furno grew up on Long Island, attended Cornell University for three years until his "brain took a vacation." He began work as a cartographer for National Geographic in 1963. He worked briefly as a general contractor with his brother in Connecticut in 1977.

An Integrated Curriculum For The Washington Post Newspaper In Education Program

Academic Content Standards

This lesson addresses academic content standards of Maryland, Virginia and the District of Columbia.

Maryland

Social Studies: Students will use geographic concepts and processes to examine the role of culture, technology, and the environment in the location and distribution of human activities and spatial connections throughout time. (Standard 3.0 Geography)

Social Studies: Use geographic tools to locate and construct meaning about places on Earth (Grade 3, Geography, Indicator 1)

Social Studies: Use geographic tools to locate places and describe the human and physical characteristics of those places. (Grade 4, Geography, Topic: Using Geographic Tools)

Social Studies: Analyze interrelationships among physical and human characteristics that shape the identity of places and regions around the world. (Grade 7, Geography, Topic: Geographic Characteristics of Places and Regions)

Geography is integrated into K-8 social studies with a course in World Geography often taught in Grade 7. Geography learning is a strand within U.S. History, World History and Government.

The Maryland Voluntary State Curriculum Content Standards can be found online at <http://mdk12.org/mspp/vsc/index.html>.

Virginia

History and Social Studies: The student will describe our nation as composed of states and locate the following on a map of the United States: Washington, D.C.; the states of Virginia, Maryland, West Virginia, North Carolina, Kentucky, and Tennessee; and major rivers, mountain ranges, and lakes in the United States. (Geography, Grade 2, 2.4)

History and Social Studies: The student will distinguish between meridians of longitude and parallels of latitude and use the equator and prime meridian to identify the Northern, Southern, Eastern and Western hemispheres and the locations of the ancient civilizations, European nations, and American colonies which the student is studying. (Geography, Grade 3, 3.5)

World Geography: The student will use maps, globes, photographs, and pictures to analyze the physical and human landscapes of the world in order to

- recognize the different map projections and explain the concept of distortion;
- show how maps reflect particular historical and political perspectives;
- apply the concepts of scale, orientation, latitude and longitude;
- create and compare political, physical, and thematic maps of countries and regions; and
- identify regional climatic patterns and weather phenomena and relate them to events in the contemporary world.

“The goal of **Geography** instruction is to provide an understanding of the human and physical characteristics of the earth’s places and regions, how people of different cultural backgrounds interact with their environment, and how the United States and the student’s home community are affected by conditions and events in distant places.” The Grade 10 elective World Geography course draws on *Geography for Life*, the national standards.

Standards of Learning currently in effect for Virginia Public Schools can be found online at www.pen.k12.va.us/VDOE/Superintendent/Sols/home.shtml.

Washington, D.C.

Social Studies, Geography: Students use map and globe skills to determine the absolute locations of places and interpret information available through a map or globe’s legend, scale, and symbolic representations. (2.1)

Social Studies, Geography: Students trace the routes of early explorers and describe the early explorations of the Americas. (4.3)

Social Studies: Trace on a map the Great Migration of African Americans that began in the early 1900s (and lasted through many decades) from the rural South to the industrial regions of the Northeast and Midwest, and examine how this mass migration initiated the change from rural to urban lifestyle for many African Americans (G, E, S). (The Progressive Era, 1890-1920, 11.4)

Geography is one of the four major disciplines integrated into the standards. For example, K-Grade 2 (Geographic Skills); Grade 3 (Geography and History of the District of Columbia); Grade 4 (U.S. History and Geography: Making a New Nation); Grade 7 (World History and Geography: Ancient World); and Grade 10 (World History and Geography II: the Industrial Revolution to the Modern World).

Learning Standards for DCPS are found online at www.k12.dc.us/dcps/Standards/standardsHome.htm.