

Millions of learners with print disabilities have trouble understanding and interpreting complex graphics and images in textbooks and journals. The WGBH National Center for Accessible Media (NCAM) offers research-based guidelines and training on how to make science, technology, engineering and math images meaningful and accessible through description.

Explore the Guidelines

[ncam.wgbh.org/experience\\_learn/educational\\_media/stemdx/](http://ncam.wgbh.org/experience_learn/educational_media/stemdx/)

Register for Training

email: [stemdescription@wgbh.org](mailto:stemdescription@wgbh.org)

## Keys to Effective Description

**Brevity** Keep descriptions brief. Reading or listening to long image descriptions creates an unnecessary time burden for learners.

**Clarity** Make descriptions clear and easy to read. Present information in a consistent and logical order.

**Data** Focus on data and don't describe extraneous visual elements. Check the text to assess the importance and meaning of data embedded in images.

**Drill-Down Organization** Provide a brief summary description followed by extended description and/or specific data. This allows a learner to skim the summary or continue on for more information.

**Control** Whenever possible, provide properly formatted digital text and use lists and tables in descriptions. This enables quick and independent access to and exploration of information.

## About the Guidelines

These guidelines were created through a National Science Foundation-funded research partnership between the WGBH National Center for Accessible Media, the American Foundation for the Blind, the American Printing House for the Blind, and Recording for the Blind and Dyslexic.

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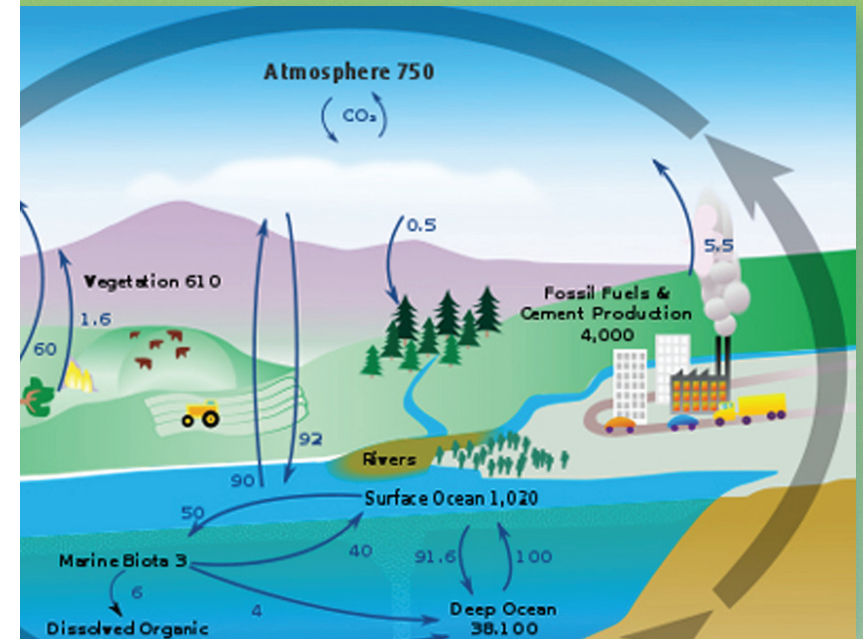
## About NCAM

The Carl and Ruth Shapiro Family National Center for Accessible Media (NCAM) at Boston public broadcaster WGBH is a research and development facility dedicated to addressing barriers to media and emerging technologies for people with disabilities in their homes, schools, workplaces, and communities. NCAM is part of the Media Access Group at WGBH which includes two production units, The Caption Center (est. 1972) and Descriptive Video Service® (DVS®) (est. 1990).

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Carl and Ruth Shapiro Family  
National Center for Accessible Media



# Describing Science Images for Learners with Disabilities

Image credits: *Illustrated timeline:* Courtesy of National Science Foundation, [www.nsf.gov](http://www.nsf.gov). *Line graph:* Courtesy of Centers for Disease Control and Prevention, [www.cdc.gov](http://www.cdc.gov). *Complex diagram:* Courtesy of Teachers Domain, [www.teachersdomain.org](http://www.teachersdomain.org). © 2010 WGBH Educational Foundation 1012004

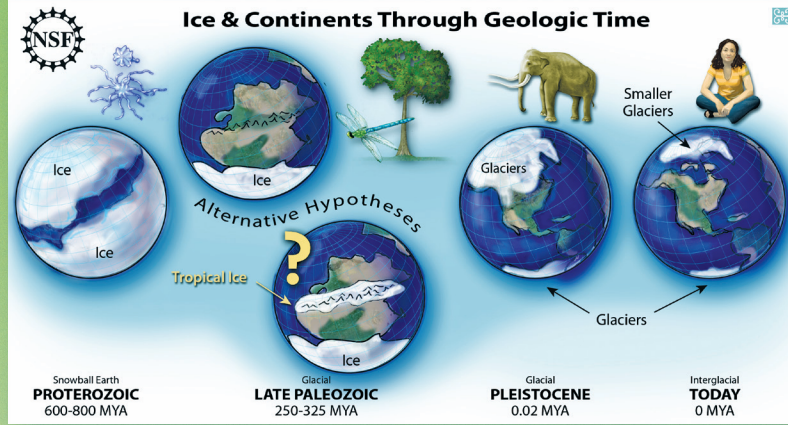


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# Describing Science Images for Learners with Disabilities

## Illustrated timeline



### A timeline titled: Ice and Continents Through Geologic Time

Snowball Earth, Proterozoic 600–800 MYA

- Ice covered the globe except for a narrow band around the equator.
- Microscopic organisms were present.

Glacial, Late Paleozoic 250–325 MYA

- Ice covered only the south pole. Massive continents and oceans were free of ice. Alternate hypotheses show ice at the south pole and across a mountainous region at the equator labeled “Tropical Ice.”
- Trees and dragon flies were present.

Glacial, Pleistocene 0.02 MYA

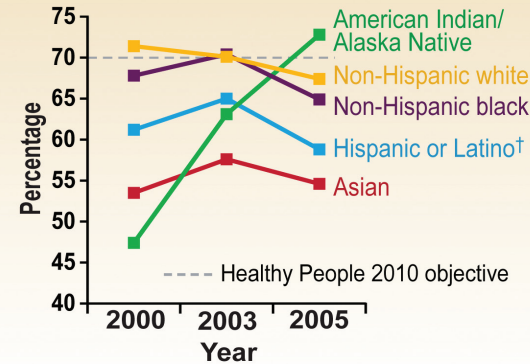
- Glaciers covered only the north and south poles. Continents were shaped as they are today.
- Long-tusked mammoths were present.

### Guidelines Recommend:

- Organize information for ease of use: present the text labels as a nested list in chronological order
- Include brief descriptions of the illustrations focused on the key information: the shrinking of the ice sheet and the appearance of new life forms

## Line graph

**Percentage of U.S. Women Aged 40 Years and Older Who Have Had a Mammogram by Race and Ethnicity**



**A line graph titled: Percentage of U.S. Women Aged 40 Years and Older Who Have Had a Mammogram by Race and Ethnicity**

Between 2000 and 2005, nearly all races and ethnicities rose slightly then fell to below 70%. The exception was American Indian/Alaskan Native women who rose from 47% to 73%. The Healthy People 2010 Objective is 70%.

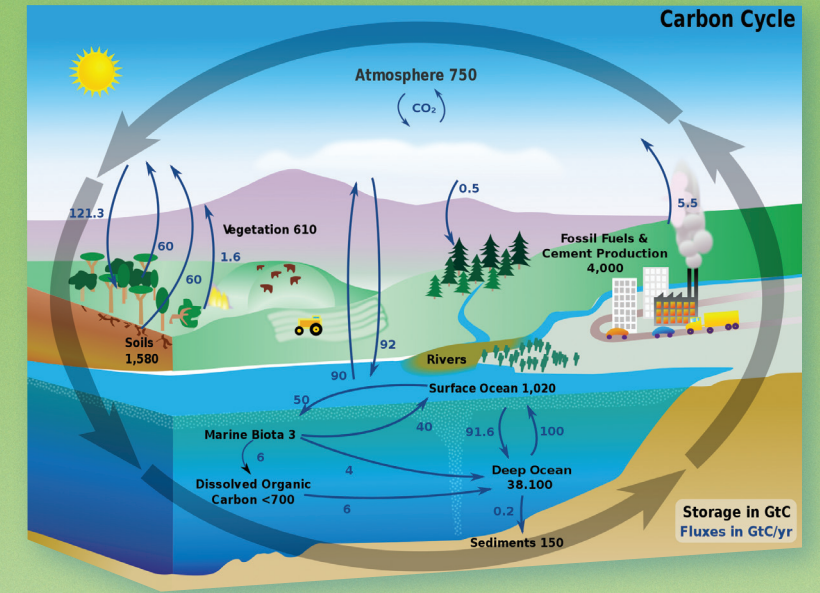
The data are depicted in the following table.

	American Indian/Alaska Native	Non-Hispanic white	Non-Hispanic black	Hispanic or Latino	Asian
2000	47	72	67	62	53
2003	63	70	70	64	57
2005	73	67	65	57	55

### Guidelines Recommend:

- Convert line graph into an accessible HTML table
- Keep descriptions brief: do not describe colors of lines

## Complex diagram



### A diagram titled: Carbon Cycle

Colorful pictures depict farms, forests, rivers, oceans and industry. Carbon Storage and Annual Fluxes in Carbon are depicted in the following tables.

Carbon Storage	GtC
Atmosphere	750
Vegetation	610
Fossil Fuels and Cement Production	4,000
Soils	1,580
Surface Ocean	1,020
Deep Ocean	38,100

### Guidelines Recommend:

- Determine the main purpose of the image: to show the storage and fluxes in carbon
- Briefly describe the image, then present the data in accessible tables