Glossary

average (a **v(ə-)**rij): The usual kind or amount. The number obtained by dividing the sum of two or more quantities by the number of quantities added.

carbon dioxide (**kär-**bən **dī** äk sīd): A gas made up of carbon and oxygen with no color or smell.

conserve (kən **sərv**): To avoid wasteful or destructive use of something.

defecate (**de** fi kāt): To have a bowel movement.

dispersal (**di** spər səl): The scattering or spreading in all directions.

elevation (e lə **vā** shən): The height above sea level.

emitted (ē **mit** əd): To throw out or eject.

fossil fuel (**fä** səl fyü(-ə)l): Fuel, such as coal, petroleum, or natural gas, formed from the fossilized remains of plants and animals.

germinate (**jər** mə nāt): To start growing or developing.

habitat (**ha** bə tat): Environment where a plant or animal naturally grows and lives.

invasive (in **vā** siv): Tending to spread.

species (**spē** shēz): Groups of organisms that resemble one another in appearance, behavior, chemical processes, and genetic structure.

system (**sis** təm): An ordered gathering of facts or processes to form a whole.

topography (tə **pä** grə fē): Detailed, precise description of a place or region. Physical features that make up the topography of an area include mountains, valleys, plains, and bodies of water.

Accented syllables are in **bold**. Marks are from the Merriam-Webster Pronunciation Guide.

FACTivity

Time Needed

2 class periods

Materials needed per student group:

- Tree identification books (and/or Internet access) and other resources about trees.
- Two blank maps of the United States.
- Two pieces of blank white 8.5″ X 11″ paper.
- Markers.

The question you will answer in this FACTivity is: What is the geographic distribution of a particular tree species?

Process for each student group:

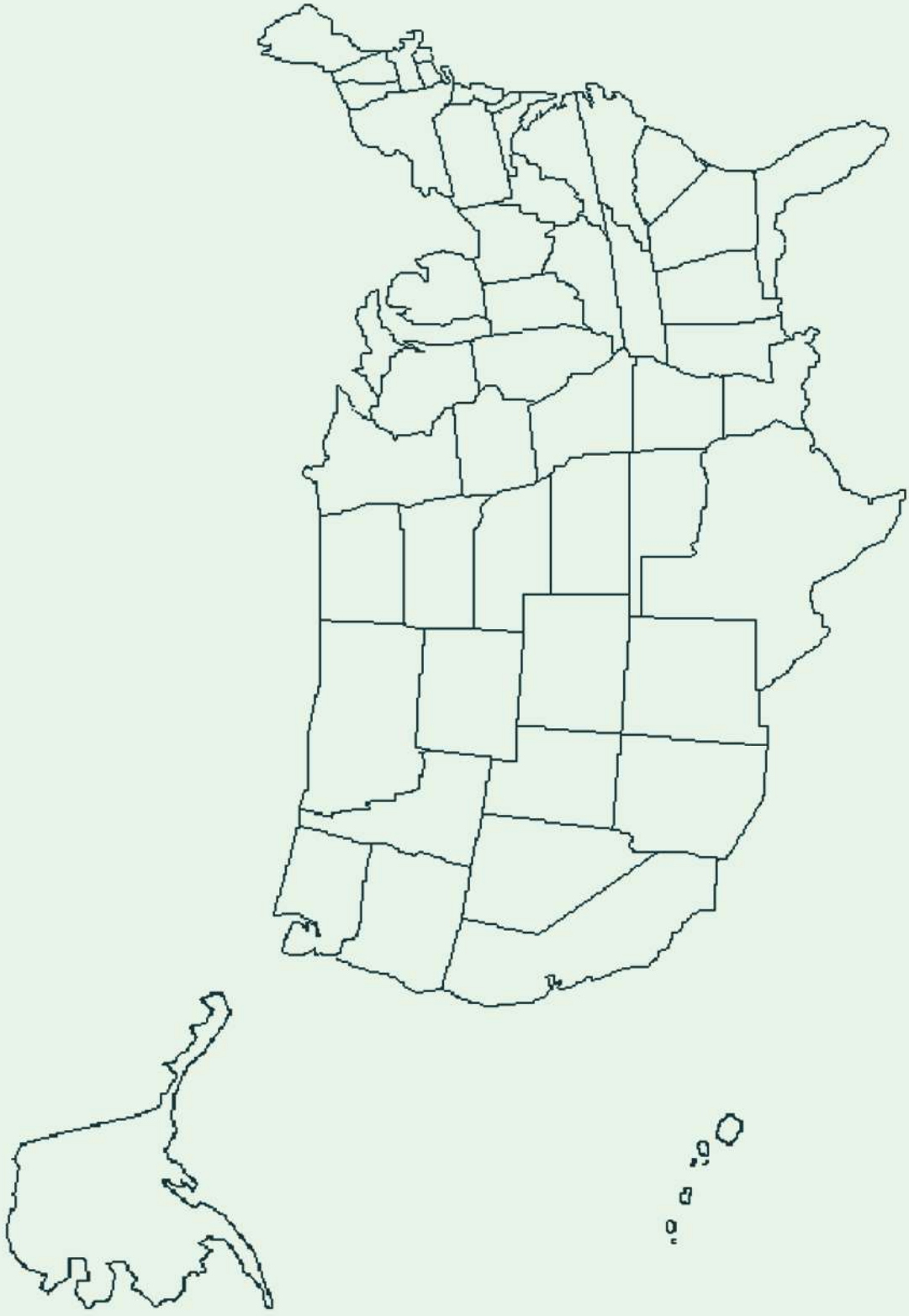
First class period:

Choose a tree species that you would like to study that lives in the United States. Use a tree identification book, the Internet, or the library.

Research information about this tree species. Find the following information about the tree:

Where is the tree species' habitat? When you find out about the areas in which it lives, mark those areas on one of the blank maps provided. Label this map "Current Geographic Distribution of [tree species]."

- What is the climate of the current habitat for the tree species?
- What is the average size of a tree of that species?
- What does the tree look like?
- What is the expected life span of the tree species?
- Do any invasive plants or insects threaten the tree species?



Second class period:

Use this information and any other interesting facts to create a Tree Fact File. The Tree Fact File should be displayed on two 8.5- X 11-inch pieces of paper.

One map should have already been filled out with the current areas where the tree species is found. You will use the other map to make a prediction about where you think the tree species will live as the climate becomes warmer. Think about what you read in the article to help you make this map. Label this map "Predicted Geographic Distribution of Tree Species."

As you make this map, think about your own predictions about how much fossil fuels will be burned in the future.

Once all of the groups have created a Tree Fact File and completed the two maps, the files and maps can be compiled into a class book.

After answering the question posed at the beginning of this FACTivity, consider and discuss this question: "Why is it important to predict the future condition of our natural resources?"

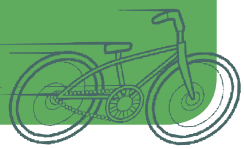
Extensions

If you have already read or will read "There's Snow Place Like Home," compare your maps of the tree species geographic distribution with the wolverine article animal geographic distribution.

- How are the maps similar?
- How are the maps different?
- What conclusions can you draw from comparing these maps?

What You Can Do:

Because keeping carbon emissions down will help the environment, maybe you could ride your bike or walk to school. Make sure it is safe to do so. If you can't walk or ride your bike, take the school bus or have your family carpool with other families in the neighborhood.



If you are a PLT-trained educator, you may use Activity #22: "Trees as Habitats," Activity #77: "Trees in Trouble," and Activity #85: "In the Driver's Seat."

National Science Education Standards

Standards addressed in this article include:

Science as Inquiry:
Understandings About Scientific Inquiry

Life Science:
Regulation and Behavior,
Populations and Ecosystems,
Diversity and Adaptions of Organisms

Science in Personal and Social Perspectives:
Risks and Benefits

Additional Web Resources

U.S. Environmental Protection Agency's Carbon Cycle Movie
http://www.epa.gov/climatechange/kids/carbon_cycle_version2.html

World Almanac for Kids' Carbon Cycle
http://www.worldalmanacforkids.com/WAKI-ViewArticle.aspx?oldpin=xca041350a&pin=x-ca041350a

The Great Plant Escape- Seed Germination
http://urbanext.illinois.edu/gpe/case3/index.html

Student Conservation Association
http://www.thesca.org

Adapted from Iverson, L.R.; Prasad, A.M.; Matthews, S.N.; and Peters, M. (2007). Estimating potential habitat for 134 eastern U.S. tree species under six climate scenarios. *Forest Ecology and Management*. 254: 390-406.