



Ecosystems and biomes

from the Esri GeoInquiries™ collection for Upper Elementary

Target audience – Upper Elementary

Time required – 15 minutes

Activity

This activity provides a broad look at biomes and ecosystems across the globe.

Standards

NGS: ESS2-2. Analyze and interpret data from maps to describe patterns of the earth's features.

C3: D2.Geo.2.3-5. Use maps, satellite images, photographs, and other representations to explain relationships between the locations of places and regions and their environmental characteristics.

CC: CCSS.ELA-Literacy.RI.4.7. Interpret information presented visually and explain how the information contributes to an understanding of the text in which it appears.

Learning Outcomes

- Students will describe an ecosystem/biome.
- Students will distinguish between ecosystems/biomes on the earth.

Map URL: <http://esriurl.com/fourgeo inquiry1>



Engage

What is an ecosystem?

- Click the map link above or type it into your Internet browser.
- Click the button, Show Contents of Map. Hint: Look in the upper left corner, under the Details button.
- Click the Ecosystems/Biomes Elementary layer name to see the legend.
- Compare the colors in the legend to the colors on the map. Hint: Layer visibility can be turned on or off by selecting the check box next to the layer name.
- Zoom in on the continental United States.
- ? What ecosystems or biomes are found in the United States? [*Temperate forest, grassland, and desert. Temperate forests have deciduous trees in them, although they could also have conifers.*]



Explore

What do ecosystems look like?

- Click the Home button (upper-left of the map) to zoom out to the entire map.
- Using the Ecosystems/Biomes Elementary legend, find the map marker located in a Temperate Forest area. Hint: The map marker is located in China.
- Click the map marker to open the pop-up window.
- Ask a student to read aloud the description for Temperate Forests; examine the photo.
- One by one, click the map markers in the other ecosystems, reading their descriptions and examining photos.
- ? How do the ecosystems look different? [*Student answers should reflect different vegetation types, landscapes, and climate.*]

Explain

Where are ecosystems located globally?

- Click the color in Europe that represents a Temperate Forest. Note: Do not click a pushpin this time.
- ? What happens to the map? [*All the Temperate Forests on the map are outlined in blue.*]
- Select the Major Latitude/Longitude Lines layer check box.
- ? Around the world, where else are Temperate Forests found on the map? [*Temperate Forests are located north of the Tropic of Cancer; south of the Tropic of Capricorn; and south and north of the Arctic and Antarctic Circles, respectively.*]

Elaborate

How do ecosystems differ?

- Click the Tropical Rain Forest and Tundra pushpins.
- ? How does the picture of the Tropical Rain Forests compare to the picture of the Tundra? [*Tropical Rain Forests have dense, green, lush tree growth while the Tundra has very short, stubbly scrub covered with snow and ice.*]
- ? What do you think contributes to the differences between the ecosystems? [*Answers may include: amount of rainfall and sun, and location of the ecosystems to the equator and the North and South Poles.*]

CLICK A MAP FEATURE

- Click any feature on the map, and a pop-up window will open with information.
- Links and images in the window are often clickable.

TURN A MAP LAYER ON AND OFF

- Make sure that the Details pane is selected, and click Show Map Contents.
- To show individual map layers, select the check boxes next to the layer names. Hint: If a map layer name is light gray, zoom in or out on the map until the layer name is black. The layer can now be turned on.

Next Steps

DID YOU KNOW? ArcGIS Online is a mapping platform freely available to public, private, and home schools. A school subscription provides additional security, privacy, and content features. Learn more about ArcGIS Online and how to get a school subscription at <http://www.esri.com/schools>.

THEN TRY THIS...

- For an advanced exploration of world ecosystems, see the *Explore a Tapestry of World Ecosystems* story map at <http://esriurl.com/Geo461>.
- Using a free ArcGIS Online organization subscription for schools (see <http://connected.esri.com>), have students modify the map used in this activity and save it to their accounts, sharing it with classmates.

TEXT REFERENCES

This GIS map has been cross-referenced to material in sections of chapters from these texts

- *Science by Macmillan/McGraw-Hill — Chapter A*
- *Science by Glencoe/McGraw-Hill — Unit B*
- *Science by Harcourt — Chapter B*