

3-D window into Wisconsin's geology

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Concepts to learn

This activity is designed to engage students in asking questions about the shape of the land surface in Wisconsin using the *3-D Wisconsin* map.

Students will:

- Describe features in maps.
- Identify topographic features and understand geologic process that affected their formation.
- List observations and interpretations, and draw conclusions about processes that shaped the land surface.

Background

Look at the *3-D Wisconsin* map wearing 3-D glasses. What do you notice? What makes you wonder? What do you hope your students will want to know more about?

The *3-D Wisconsin* map can be a portal to understanding Wisconsin's geologic story. The landscape that jumps off the page of the 3-D map was shaped by geologic processes that started around 3 billion years ago and that continue today—with some pretty spectacular events along the way.

Details often noticed (numbers refer to numbered descriptions from the map):

- Ridges parallel to Lake Michigan in southeast Wisconsin (#10 and #13)
- The flat area in central Wisconsin (#5)
- A mound in northern Wisconsin (#4)
- The different topography and drainage in southwestern Wisconsin (#14)
- A “sinking canoe” shape in central southern Wisconsin (#6)

The locations of the major landscape features are highlighted in figure 2. This is the inset map from the



Figure 1. The 3-D Wisconsin poster, available at wgnhs.org.

3-D Wisconsin map. The map has text that describes each of the numbered features; the website that supports the map contains additional information about each feature. That site is at wgnhs.org/wisconsin-geology/major-landscape-features.

There are many more features on the landscape beyond the 14 described on the map. We include additional resources for you or your students to further investigate how Wisconsin was shaped.

Duration

Observations of the *3-D Wisconsin* map: **10 minutes**

Discussion (identifying features and discussing how they formed): **20 minutes**

Materials needed

- *3-D Wisconsin* map and glasses (red-blue anaglyph)
- Student description sheet (attached)
- Additional resources (optional, see list)

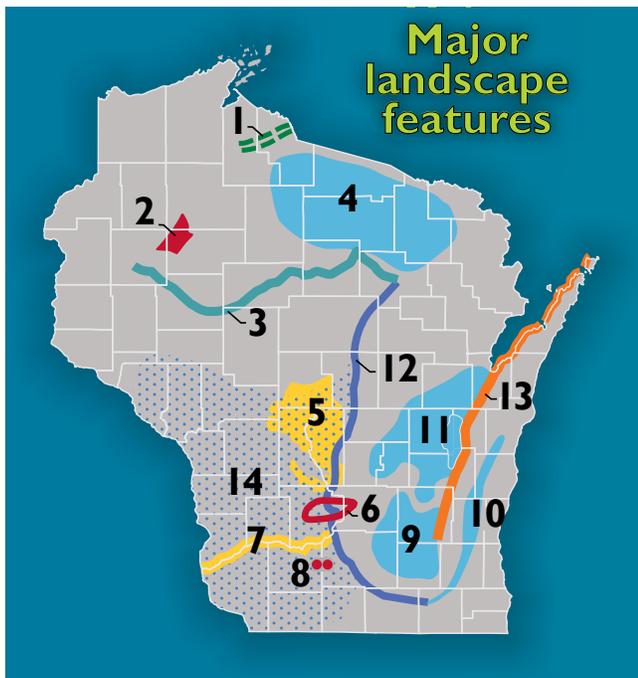


Figure 2. Map key identifying locations of major landscape features of Wisconsin. Numbers correspond to descriptions on the map.

Activity describing map features

- Have students wear 3-D glasses to view the map
- Imagine you are in a plane or a satellite high above Wisconsin—what do you see on the map?
- Students should view the map from different angles and distances
 - ▮ Have 3–4 students get up close to the map (take turns, be sure to view from left, right, and center)
 - ▮ Have 3–4 students view from the back of the room (take turns)
 - ▮ All students should view from their desks

- Ask students to write down the landscape features (shapes of the earth) that they see
- Working from the list, use the map key and anything you know about Wisconsin geology to put names on the features the class identified

Additional resources

(for teachers and advanced students)

- **Geology of the Ice Age National Scenic Trail**, by David M. Mickelson, Louis J. Maher, Jr., and Susan L. Simpson, 2011, The University of Wisconsin Press, 395 p.
- **Roadside Geology of Wisconsin**, by Robert H. Dott, Jr., and John W. Attig, 2004, Mountain Press Publishing Co., 345 p.
- **Wisconsin’s Foundations: A Review of the State’s Geology and Its Influence on Geography and Human Activity**, by Gwen Schultz, 2004, The University of Wisconsin Press, 211 p.

Note: If someone in your classroom does not have binocular vision (cannot see in 3-D), many of the features can be seen on the *Landforms of Wisconsin* map and the *Landscapes of Wisconsin* map. Both are available from our website at wgnhs.org.

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Or look on our website at wgnhs.org.

ANSWER SHEET

Teachers—before beginning this activity, you may want to cover the key in the upper corner of the map. For more information about numbered items, visit wgnhs.org and search for “Major Landscape Features.”

Landscape feature	Explanation (what do you think it is?)
Two large parallel ridges on northern edge of map	1. Gogebic and Trap Ranges
High spot in the center of northwestern Wisconsin	2. Blue Hills
Line that looks like a swooping ribbon across northern part of the state (<i>difficult to see</i>)	3. Margin of the Northern Ice Lobes
Mound in the north (next to the Upper Peninsula)	4. Northern Highlands
Big flat spot in the middle of the state	5. Central Sand Plains
Hills just below the flat spot—looks like a sinking canoe	6. Baraboo Hills
Long curved lizard in dark area	7. Lower Wisconsin River Valley
Two little mounds (“pimples”) in the southwest	8. Blue Mounds (<i>can you spot them?</i>)
Stripes or “fur” in southern Wisconsin	9. Drumlins of the Southern Green Bay Lobe
Long bumpy ridge parallel to Lake Michigan shore	10. Kettle Moraine
Flat area going from Green Bay to the southwest	11. Green Bay and Fox River Lowland
Ridge to the right of the big flat area	12. Marginal ridge of the Green Bay Lobe
Ridge to the right of Lake Winnebago (and left edge of Door County)	13. Niagara Escarpment
Darker area to the west and southwest	14. Driftless Area
Narrow white “path” from Blue Mounds (the two little hills) west to the state line	Military Ridge—a dolostone cuesta or escarpment
Dark area north of Military Ridge (and south of La Crosse)	Coulee region of the Driftless Area—narrow steep-sided valleys (coulee is French Canadian for gully)