

## Blaine Wetland Sanctuary “Welcome Hike & Belly Biology”

*What’s underground (and under the boardwalk) will surprise you! Come and meet our new neighbor, the Blaine Wetland Sanctuary. Together we will explore how water, land, air, and living things interact with each other in this special place. Throughout the nature hike participants will dazzle the senses with belly biology, systems bingo, and BWS nature trivia. Activities are designed for all ages.*

<b>Engage Key Question</b>	<b>Explore Tour Stop</b>	<b>Explain Basic Concepts, Terms &amp; Skills</b>	<b>Elaborate Activity to extend and practice</b>	<b>Evaluate Assess through discussion or journaling</b>
What’s the story of this place?	Start in parking lot area and walk to the ditch at the beginning of the boardwalk. Students make a large circle for introduction to BWS including welcome, guidelines, and tour overview.	Planet earth is made up of four systems that are interconnected: hydrosphere, biosphere, geosphere, and atmosphere. Define and describe ecology, human impact, succession, and engineering.	Begin BWS Bingo	How might the area close to your home have changed over time? How have humans impacted the land, air, water, and living things in positive or negative ways?
What is alive here today at Blaine Wetland Sanctuary?	Hike the boardwalk to mid-way. Point out differences: human-made ditch vs. unengineered areas, grasses vs. sedges, pond vs. fen, and soil vs. peat.	Share BWS maps of different types to explain habitats and restoration. Discussion on positive human impacts through engineering and restoration of BWS. Share examples of food chain vs. food web at BWS.	Practice “Belly Biology” by lying on boardwalk and peeking under it. Utilize ID cards and signage to list and identify plants and animals that we have seen on the boardwalk. Continue BWS Bingo.	What plants and animals have you and others seen here in the past? What might BWS look like in the future as restoration efforts continue?
Who knows what grows and flows at BWS?	Hike to the end of the first boardwalk where path to islands begins.	Compare and contrast fen, bog, swamp wetlands. Share samples of peat vs. soil vs. dirt. Define carbon sink and carbon cycle.	Use soil-sampling tool to demonstrate soil types, cross section of fen, and sample jar of peat moss. Divide group into	Would you want to be a scientist? What would you research here? Which tools would you need?

		Share most recent research at BWS and the scientists working on it.	“scientist teams” where each team gets to know one of the scientists doing work at the BWS open space and fen.	
Where’s the water at BWS?	Walk on the trail through the islands onto the boardwalk and scenic overlook, looking for signs of water along the way: surface water, water tower, clouds, rain, etc.	Students sing and use sign language for the water cycle song: sun shining down on the ground, evaporation, condensation, precipitation on the ground, percolation, saturation, that’s’ how the water cycle goes around! Define storm water vs. sewage water.	Using maps or BWS signage, show where water flows in the City of Blaine, Rice Creek Watershed District, and Coon Creek Watershed District. Continue BWS Bingo.	Where does the water go at my home? Where does the water go at my school? What can we do to get water to soak into the ground?
What makes BWS special?	Pause at the edge of the boardwalk, near the bridge over the ditch, gather as a group, then continue walk & talk back to the parking lot.	Review terms from BWS bingo card. Q&A.	Play Community Partners Trivia	Students work in groups or individually to create a symbol, dance, song, or sculpture that teaches the uniqueness of the BWS specialized wetland.

# Blaine Wetland Sanctuary

## Welcome Hike & Belly Biology



<b>B</b> iosphere, birds, bugs, plants	<b>I</b> ce, precipitation, Water	<b>e</b> Nergy, heat, food, sun	<b>G</b> eosphere, earth, ground	<b>O</b> xygen, Nitrogen, Atmosphere
sedge	groundwater	insulation	peat	nitrogen
dragonfly	weather	radiation	soil	air
birds	water tower	<b>VALUABLE</b>	glacier	carbon sink
biomass	acidic	food web	island	climate
endangered	ditch	seasons	filter	oxygen

### Materials

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- Magnifying glasses (for a variety of ages + magnification powers)
- Maps of BWS (Water flow, Soil types, Habitat Map)
- Maps showing local water flow CCWD, RCWD, City of Blaine
- Plastic Petri dishes and plastic beakers
- Macroinvertebrate picture ID cards
- Peat and sedge samples
- Plant, animal, birds, track ID cards or books
- Systems bingo cards/ PDF/web link
- BWS nature trivia Q & A
- Soil core tool(s)
- Multi-colored pipe-cleaners for engineering design challenge
- Food chain vs. food web diagram
- BWS Scientist Stories

## Blaine Wetland Sanctuary

### Welcome Hike & Belly Biology

### Community Partners Trivia

1. **Rice Creek Watershed District** partners with Blaine Wetland Sanctuary. More does not equal better when talking about winter salting to deal with ice and snow. It can cause big water quality problems. It also doesn't work below a certain temperature. What is that temperature? (*Answer: It only works when it's above 15° F*)

- A. 15° F
- B. 20° F
- C. 32 ° F
- D. None of the above

2. **Anoka Soil & Water Conservation District** partners with BWS. How many native species have been documented in the Blaine Wetlands Sanctuary since restoration efforts began? (*Answer: over 140! Several are rare including the Lance-leaved violet which is Minnesota-Threatened, and Twisted yellow-eyed grass which is Minnesota Endangered*)

- A. 30 species
- B. 70 species
- C. over 140
- D. only 1, the rest are all invasive species to Minnesota

3. **Ecological Consultants, Inc.** has partnered with Blaine Wetland Sanctuary for ecological restoration. A fen is a specialized wetland. A poor fen has lower mineral content and higher pH. A rich fen has higher mineral content and higher pH. Other types of wetlands include... (*Answer: B. bog & D. swamp. A bog is a land area saturated with water, with water covered in a floating mat of specific plant material. A swamp is land area saturated with water covered in forest.*)

- A. oak savanna
- B. bog
- C. coral reef
- D. swamp

4. **Rice Creek Watershed Management Organization** partners with Blaine Wetland Sanctuary. Public drainage ditches are man-made ditches or small canals that were originally dug to remove water from areas for agriculture to take place. Ditches provide a way for water to get out of farm fields, back yards, and communities when there is too much of it. The oldest ditches in the Blaine Area are \_\_\_\_ years old. (*Answer: B. about 100 to 150 years old.*)

- A. under 50
- B. about 100 to 150
- C. over 500
- D. just 8

5. **Anoka Ramsey Community College** partners with Blaine Wetland Sanctuary. Science students from ARCC conduct research here. Students also created the informational signs along the boardwalk. What are the benefits of supporting native species and removal of invasive species? (*Answer: D. all of the above*)

- A. native animal species have adapted to native plant species for food and habitat
- B. native species work to balance the predator and prey relationship within a system
- C. invasive species can crowd out native species, reducing biodiversity
- D. all of the above

## Resource Page:

### Additional Water Facts Collected From Community Partners

Becky Wonzey, Anoka Water Conservation District, shared these facts:

- The largest prairie restoration in the United States is in Minnesota! In 2000, 24,248 acres of land was purchased and restored by the Nature Conservancy. Eventually, it was transferred to the US Fish and Wildlife Service to create Glacial Ridge National Wildlife Refuge near Crookston, MN. This area is open to the public for hiking, hunting and other day-use opportunities.
- When it comes to flooding, wetlands save the day. According to the National Wildlife Federation, because of wetland's ability to trap and store excess rainfall, one acre of wetland can store over 1 million gallons of floodwater...that's a LOT of water!
- Over 140 many native plant species have been documented in the Blaine Wetland Sanctuary since restoration efforts began including the Lance-leaved violet (Minnesota-Threatened) and Twisted yellow-eyed grass (Minnesota Endangered).

Beth Carreño, Rice Creek Watershed District shared these facts:

- More does not equal better when talking about winter salting to deal with ice and snow. It can cause big water quality problems. It also doesn't work below a certain temperature. It only works when it's above 15 degrees. Try sand or kitty litter when it's colder outside (and remember you only need a little, always shovel before you salt, and sweep up any remaining or extra salt, sand, or kitty litter)!
- Ditches (or small canals) were originally dug to remove water from areas for agriculture to take place. Many of these are 100 or more years old! They are still an important part of our watershed and our communities. These ditches still provide drainage for agriculture and ensure current and future drainage of areas for community needs. In other words, they provide a way for water to get out of farm fields, back yards, and communities when there is too much of it.