

PROTECT PRIVATE AND PUBLIC WETLANDS

7th-10th Grade Discussion Guide

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SCIENCE CATEGORIES

Conservation, Wildlife Science

TIMEFRAME

3-5 Lessons

MATERIALS

Butcher paper, markers, talking objects, technology for research and recording a podcast

KEY WORDS

Prairie Potholes Region, Ducks Unlimited, tillage, clutch, forb, invertebrates, microbes, fungi, bacteria, carbon sink, erosion



LEARNING OBJECTIVES

Students will be able to:

- Determine the similarities and differences of conservation on public and private wetlands.
- Explain why wetland habitats are important for wildlife, the environment and people.
- Write an explanatory text and develop it into a podcast.

ACTIVITY SUMMARY

In this lesson students will consider wetland conservation and how it looks similar and different on public and private lands. They will also consider the critical question of why wetland preservation is important to both humans and other species.

First students will collaboratively compile some methods of wetland conservation that are being implemented on currently using a 1-2-4 discussion activity. Then students will engage with a text outlining the various roles wetlands play as an ecosystem. Using the text as a point of reference, students will engage in a conversation cafe to expand upon their knowledge of wetland conservation.

Finally, small groups will choose a wetland role to more deeply research and construct a podcast to share their findings.



VOCABULARY

PRAIRIE POTHOLE REGION: A mix of grass and wetlands that runs through the midwest up into Canada and supports a large amount of wildlife including waterfowl.

DUCKS UNLIMITED: conserves, restores, and manages wetlands and associated habitats for North America's waterfowl. These habitats also benefit other wildlife and people.

TILLAGE: is the agricultural preparation of soil by mechanical agitation of various types, such as digging, stirring, and overturning.

CLUTCH: clutch is the total eggs a bird lays per each nesting attempt.

FORB: Any non-woody flowering plant that is not grass.

INVERTEBRATES: any animal that lacks a vertebral column, or backbone.

FUNGI: any of a group of spore-producing organisms feeding on organic matter, including molds, yeast, mushrooms, and toadstools.

BACTERIA: single-celled, or simple, organisms that are invisible to the naked eye.

CARBON SINK: anything that absorbs more carbon from the atmosphere than it releases.

EROSION: Earthen materials are worn away and transported by natural forces such as wind or water.

BACKGROUND INFORMATION

Public lands are an important piece of wetland conservation but it can't sustain duck populations on its own. For example, the prairie potholes region is a unique mix of grasslands and wetlands stretching across the US and into Canada. This land was formed as the glaciers melted and formed tiny pools and now serves as a home for hundreds of species. While much of the region is protected, a lot is also owned by private landowners as well.

Some threats to privately owned wetlands include tillage, or the digging and turning of prairie sod to grow crops and draining pools to create more farmland. To preserve these wetlands it is important to understand what farmers, ranchers, conservationists and wildlife have in common; a shared interest in grass and water.

By tilling the land the soil loses its microbes which provide nutrients to plants. One example of a microbe is bacteria which live on or inside plants and help them absorb nutrients. They can even protect plants from disease and drought. We're all connected to soil because everything we need to survive: food, air and water, originates in the soil.

LEARNING PROCEDURE

INTRODUCTION:

What are some ways to conserve both public and private wetlands? You may use examples from the video and prior knowledge.

1-2-4 Activity

Instruct students to individually and silently list as many conservation examples as they are able. (5 min)

At the end of the five minutes ask students to find a partner to share their conservation ideas. After each partner has shared, the dyad should choose one conservation idea that resonated with them. It could be one they think is the most innovative, important or interesting. (8 min)

Instruct dyads to partner with another dyad to form a group of 4. Each dyad will share the conservation idea they selected, why they chose it and if it was a conservation effort used mostly on private or public wetlands. After each dyad has shared, the group of four should choose from the two which idea resonated the most. (8 min)

Each group of four will share whole class their chosen conservation effort, why they chose it and if it was mostly practiced on public or private wetlands. The teacher should capture ideas visually (whiteboard, projector, anchor chart).

ACTIVITY 1: Conversation Cafe Activity

This is most likely an activity that will take place over two class periods. The first part of the activity could be done following the Introduction activity.

Part I: Instruct students to read the article *Why are Wetlands Important* from the National Park Service. As they read, students should consider this critical question: *Why is preserving wetland habitats important for wildlife and humans?*

Instruct students to interact with the text in whatever format they have been exposed to and/or are comfortable with (sticky-notes, journaling, highlighting if printed out).

Part II (day 2) Conversation Cafe. For this activity desks should be arranged in table groups of about five students each. This activity should feel like a cafe. Some options to consider are using butcher paper as tablecloths and setting a small vase with a flower or LED candles at the table. Place a talking object (talking stick, stone or art object) at each table. Add a collection of markers to each table.

The format of the Conversation Café helps people have calm and profound conversations in which there is less debating and arguing, and more listening. Sitting in a circle with a simple set of agreements and a talking object, small groups will engage in rounds of dialogue with little or no unproductive conflict.

As students sit at their cafe table explain that there will be four rounds of conversation at each table around the critical question: *Why is preserving wetland habitats important for wildlife and humans?*

Note, except for the third round, only the member with the talking object should be speaking. Encourage other members, who are listening, to jot down notes and draw images on the “table cloth” when they hear things that they find interesting or would like to explore further.

- First round with the talking object: each person shares what he, she or they are thinking, feeling or wondering about the critical question. (1 min per person)
- Second round with the talking object: each person shares thoughts and feelings after having listened to everybody at the table. (1 min per person)
- Third round: open conversation, no talking object used. (15 minutes)
- Fourth round with the talking object: each member shares “takeaways” (1-2 min per person)

Consider inviting students to hang their tablecloths and conduct an informal gallery walk so all groups’ thinking and conversation is exposed.

ACTIVITY 2

In groups of 2-4 students, choose one of the reasons preserving wetlands is important to humans and animals. Investigate the reason more deeply and construct a podcast to further develop the topic. Prior to recording the podcast, the team of students must present a script. Some example formats for the podcast include, but are not limited to:

- an explanatory format providing details and facts
- a children’s program
- an interview
- a call-in show with questions from audience members
- a narrative piece which includes facts

The instructor may want to consider developing or co-developing a rubric for this project.





CONCLUSION:

Invite students to individually choose another student's podcast to listen to and share one new thing they learned about how humans and animals benefit from wetland conservation.

EXTENDING THE LESSON (Options for extended/additional activities and lessons)

- Visit a wetland and document and identify plants and animals you encounter there. Choose one of special interest and research it.
- Research wetland conservation efforts in your city, county and/or state. As a class, determine how you could volunteer in conservation efforts.
- As a class, take your newfound knowledge of wetlands and develop an introductory lesson for grades K-3.
- Use the links provided to research Ducks Unlimited farther. What are some projects of interest that they are supporting?
- Research the principal threats to wetlands. What can we do to mitigate these threats?

RELATED LINKS:

- [Habitat Conservation](http://habitat.sd.gov) (habitat.sd.gov)
- [Land Protection](http://ducks.org/conservation/land-protection) (ducks.org/conservation/land-protection)
- [How DU Conserves](http://ducks.org/conservation/how-du-conserves-wetlands-and-waterfowl) (ducks.org/conservation/how-du-conserves-wetlands-and-waterfowl)
- [Waterfowl Research and Science](http://ducks.org/conservation/waterfowl-research-science) (ducks.org/conservation/waterfowl-research-science)
- [Types of Ducks](http://ducks.org/hunting/waterfowl-id/) (ducks.org/hunting/waterfowl-id/)
- [Duck Hunting Field Tips](http://ducks.org/hunting) (middle of the page) (ducks.org/hunting)



The following National Common Core Standards can be met teaching;

PROTECT PRIVATE AND PUBLIC WETLANDS

4TH GRADE:

- CCSS.ELA-LITERACY.RI.4.1** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- CCSS.ELA-LITERACY.RI.4.2** Determine the main idea of a text and explain how it is supported by key details; summarize the text.
- CCSS.ELA-LITERACY.RI.4.9** Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.
- CCSS.ELA-LITERACY.W.4.2** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- CCSS.ELA-LITERACY.W.4.4** Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3 above.)
- CCSS.ELA-LITERACY.SL.4.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
- CCSS.ELA-LITERACY.SL.4.1.A** Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
- CCSS.ELA-LITERACY.SL.4.1.B** Follow agreed-upon rules for discussions and carry out assigned roles.
- CCSS.ELA-LITERACY.SL.4.1.C** Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
- CCSS.ELA-LITERACY.SL.4.1.D** Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
- CCSS.ELA-LITERACY.SL.4.2** Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- CCSS.ELA-LITERACY.SL.4.5** Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.

5TH GRADE:

- CCSS.ELA-LITERACY.RI.5.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
- CCSS.ELA-LITERACY.RI.5.2** Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
- CCSS.ELA-LITERACY.RI.5.9** Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
- CCSS.ELA-LITERACY.W.5.2** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- CCSS.ELA-LITERACY.W.5.4** Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.



CCSS.ELA-LITERACY.SL.5.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.5.1.A

Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.

CCSS.ELA-LITERACY.SL.5.1.B

Follow agreed-upon rules for discussions and carry out assigned roles.

CCSS.ELA-LITERACY.SL.5.1.C

Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.

CCSS.ELA-LITERACY.SL.5.1.D

Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.

CCSS.ELA-LITERACY.SL.5.2

Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

CCSS.ELA-LITERACY.SL.5.5

Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

6TH GRADE:

CCSS.ELA-LITERACY.RI.6.1

Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-LITERACY.RI.6.2

Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

CCSS.ELA-LITERACY.RI.6.7

Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

CCSS.ELA-LITERACY.W.6.2

Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

CCSS.ELA-LITERACY.W.6.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.SL.6.1

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.

CCSS.ELA-LITERACY.SL.6.1.A

Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.

CCSS.ELA-LITERACY.SL.6.1.B

Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.

CCSS.ELA-LITERACY.SL.6.1.C

Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.

CCSS.ELA-LITERACY.SL.6.1.D

Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.

CCSS.ELA-LITERACY.SL.6.2

Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

CCSS.ELA-LITERACY.SL.6.5

Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.



7TH GRADE:

- CCSS.ELA-LITERACY.RI.7.1** Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- CCSS.ELA-LITERACY.RI.7.2** Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.
- CCSS.ELA-LITERACY.W.7.2** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- CCSS.ELA-LITERACY.W.7.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- CCSS.ELA-LITERACY.SL.7.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- CCSS.ELA-LITERACY.SL.7.1.A** Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
- CCSS.ELA-LITERACY.SL.7.1.B** Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.
- CCSS.ELA-LITERACY.SL.7.1.C** Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
- CCSS.ELA-LITERACY.SL.7.1.D** Acknowledge new information expressed by others and, when warranted, modify their own views.
- CCSS.ELA-LITERACY.SL.7.2** Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.
- CCSS.ELA-LITERACY.SL.7.5** Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

8TH GRADE:

- CCSS.ELA-LITERACY.RI.8.1** Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
- CCSS.ELA-LITERACY.RI.8.2** Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.
- CCSS.ELA-LITERACY.W.8.2** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- CCSS.ELA-LITERACY.W.8.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- CCSS.ELA-LITERACY.SL.8.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
- CCSS.ELA-LITERACY.SL.8.1.A** Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.



- CCSS.ELA-LITERACY.SL.8.1.B** Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.
- CCSS.ELA-LITERACY.SL.8.1.C** Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
- CCSS.ELA-LITERACY.SL.8.1.D** Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.
- CCSS.ELA-LITERACY.SL.8.2** Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.
- CCSS.ELA-LITERACY.SL.8.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.

9TH-10TH GRADE:

- CCSS.ELA-LITERACY.RI.9-10.1** Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- CCSS.ELA-LITERACY.RI.9-10.2** Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
- CCSS.ELA-LITERACY.W.9-10.2** Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- CCSS.ELA-LITERACY.W.9-10.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- CCSS.ELA-LITERACY.SL.9-10.1** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- CCSS.ELA-LITERACY.SL.9-10.1.A** Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
- CCSS.ELA-LITERACY.SL.9-10.1.B** Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.
- CCSS.ELA-LITERACY.SL.9-10.1.C** Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.
- CCSS.ELA-LITERACY.SL.9-10.1.D** Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.
- CCSS.ELA-LITERACY.SL.9-10.2** Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
- CCSS.ELA-LITERACY.SL.9-10.5** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.



11TH-12TH GRADE:

- CCSS.ELA-LITERACY.RI.11-12.1** Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
- CCSS.ELA-LITERACY.RI.11-12.2** Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
- CCSS.ELA-LITERACY.W.11-12.2** Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- CCSS.ELA-LITERACY.W.11-12.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- CCSS.ELA-LITERACY.SL.11-12.1** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- CCSS.ELA-LITERACY.SL.11-12.1.A** Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
- CCSS.ELA-LITERACY.SL.11-12.1.B** Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed.
- CCSS.ELA-LITERACY.SL.11-12.1.C** Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.
- CCSS.ELA-LITERACY.SL.11-12.1.D** Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
- CCSS.ELA-LITERACY.SL.11-12.2** Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
- CCSS.ELA-LITERACY.SL.11-12.5** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

NEXT GENERATION SCIENCE STANDARDS:

4TH GRADE

- 4-ESS3-2** Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. Performance Expectation Grade: 3-5 4

5TH GRADE

- 5-ESS3-1** Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. Performance Expectation Grade: 3-5 5



6TH-8TH GRADE

- MS-LS2-5** Evaluate competing design solutions for maintaining biodiversity and ecosystem services. Performance Expectation Grade: Middle School (6-8)
- MS-ESS3-3** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. Performance Expectation Grade: Middle School (6-8)

9TH-12TH GRADE

- HS-LS2-7** Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. Performance Expectation Grade: High School (9-12)