



LESSON 5

Understanding why Nature Matters

Learning Objectives

Students will explore local ecosystems and examine the relationships between living and non-living and natural and unnatural factors that they record in order to identify the different ecosystem services present.

Students will analyze different perspectives of environmental issues facing people and shorebirds and use prior knowledge of shorebirds, conservation and ecosystem services to develop an opinion on conservation action. Students will then communicate their stance on the issue in a debate format.

Activity 1: Know-Wonder-Learn about People and Natural Resources

Time: 10-15 min

Provided: None

From your Classroom: Large paper, whiteboard, or chalkboard

Create a K-W-L chart on large paper or on the classroom whiteboard or chalkboard. Write 'People and Natural Resources' at the top.

Ask students "What do you **KNOW** about how people use natural resources?" Encourage them to draw on their existing knowledge about the value of ecosystems for people. Why is it important to them? Why might it be important to someone who is different from them? If needed, encourage them to think about drinking water, land for farming, energy, etc. Write their ideas down in the 'Know' section of the chart, OR give each student a sticky note and have them add what they know to the chart themselves.

Ask students "What do you **WONDER** about how people use natural resources?" If they are having trouble coming up with ideas, encourage them to wonder about those natural resources that both people and birds need, where are the overlaps? What is more important a bird's needs or people's needs? Record their questions in the 'Wonder' section of the chart using sticky notes or by writing them there yourself, then set it aside. Resist the temptation to answer their questions now - they will discover the answers themselves during the lesson! Return to the chart at the end of the lesson.

** This K-W-L brainstorm could also be done in a discussion format with the teacher writing down student ideas in the chart. Adapt terminology as needed for the age of students.*

Activity 2: Town Hall

Time: 45-60 min | **Student Level:** Grades 6-8

Materials:

Provided: Character Cards (Activity Sheet 5.1)

From your Classroom: whiteboard or projector to display problem description; Board or large paper for vote tally

Select one of the following problems for students to debate (choose one of the three)*:

1. At the Sandpiper Beach WHSRN site, there has been a proposal to close the entire beach to protect it for nesting American Oystercatchers. Sandpiper Beach will be completely closed to people between April 1 and July 30 each year. Tourism is an important part of the economy here with many people visiting to explore the beaches. They usually stay for multiple days, eat at restaurants, and buy souvenirs. This beach is ten miles long with multiple entry points staggered throughout the beach. The best habitat for nesting is clustered around three different sections of the beach. Should Sandpiper Beach be closed from April 1-July 30?
2. The Rainbow River WHSRN site is a delta where a river estuary flows into a large bay. The rocky coastline is under the influence of tides, so at low tides mudflats and small beaches are visible and accessible, making great habitat for shorebirds. There is a proposal to build a port that will provide many jobs for the local community, an area that is in great need of jobs. It will also add lots of boat and vehicle traffic to the area. There is research at another similar site that this type of facility can have water and sediment flow changes that have negative impacts on the invertebrate prey of several key shorebirds. Tourism is not common, but many



local residents like to enjoy the natural areas by hiking, kayaking, and bird watching. Should the port be built in this location?

3. The Pink Lake WHSRN site is a large saline lake that receives its inputs from several large rivers that drain nearby mountains as the snow melts. The surrounding area is semi-arid but highly populated. With limited access to groundwater, the majority of the freshwater coming down from the mountains is diverted for use for the communities including drinking water, household water, landscaping, ranching, and agriculture. As the suburban communities have expanded, the use of the freshwater water has increased and the lake level is getting lower and lower, impacting available habitat for shorebirds, waterfowl, and other wildlife. Should some water be left to flow to the lake?

**Note: For advanced students or a large class, more than one scenario can be used.*

Establish characters:

1. Divide students into groups of 3-4 or pairs. Students can also work individually. Younger students will find it especially useful to work in groups or pairs.
2. Provide each student or group with a Character Card (Activity Sheet 5.1). Each scenario has 6-7 essential characters, noted on the cards. If there are not enough students to cover all of the characters, be sure that at least all of the essential characters are included for a balanced representation.
3. Tell students to review their cards to understand their character's perspective. Characters represent the stakeholders at that site. In addition to the Character Cards, encourage students to use their own knowledge and experience to get into character as their stakeholder. If working in groups, give students time to discuss the character together.
4. Have students prepare their official opinion of the proposed action 1) continue, 2) be discontinued, or 3) a compromise created. Tell students that their opinion can be either an endorsement of the proposed action OR a practical rebuttal/compromise to the proposed action. Ask them to address the following questions in their opinion:
 - Why are the natural resources at this site important to you?
 - What will happen to your use of these natural resources if the project goes forward?
 - Do you agree with the proposal? Why or why not?
 - If you don't agree, what are possible alternative solutions?

Explain the town hall rules:

1. You will be the mayor and will be responsible for managing the debate, but will not have a vote. It is recommended to provide basic ground rules for students: respect each other, no interrupting, stick to the permitted time, etc.
2. Each stakeholder will have two minutes to present their ideas, opinions, and potential solutions.
3. Rebuttals and further discussion can be allowed if time permits.
4. After the debate is completed, conduct a vote as a class (still in character as stakeholders) on the proposal. Students are permitted to change their opinion if the debate changed their opinions, however they should still be realistic to the needs of the character.
5. If the vote is in favor of a compromise, options for a compromise can be discussed



Discuss: After the vote is completed, discuss the results as a class. Discussion prompts to consider:

- What are the benefits for the natural resources that people use?
- What will happen to wildlife/shorebirds with this proposal?
- Will this solution work over the long term?
- Are any stakeholders losing completely with this proposal?
- In the real world, is each stakeholder 'vote' worth the same? Or will some stakeholders be able to influence leadership disproportionately?
- How was the indigenous community considered in this process?



Optional: *These are fictitious examples of WHSRN sites. However, they are based on situations at real sites. Challenge students to find sites with similar problems and write a proposal for a balanced compromise solution for that site. The proposal should include: key shorebirds, habitat at the site, land use, and key stakeholders and their perspectives. The WHSRN news section frequently highlights issues at sites and may be a good place to find real threats at sites.*

Activity 3: Know-Wonder-Learn about People and Natural Resources, Revisited

Revisit the Know-Wonder-Learn chart created at the beginning of the lesson. Students should work in pairs to brainstorm things they have about how people use natural resources to add to the chart. Have them share by adding sticky notes, or by writing their responses onto the chart. Follow up on their 'wonder' items to see if we can now answer some of their questions.

