



## Native and Invasive Plants Lesson Outline

**Grades:** 4-6

**Time:** 45-60 minutes

### **NGSS Connections:**

LS1.A: Structure and Function- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

ESS3.C: Human Impacts on Earth Systems- Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)

LS2.A: Interdependent Relationships in Ecosystems-Growth of organisms and population increases are limited by access to resources. (MS-LS2-1)

**Essential Question:** *How do native plants increase the health of streams and habitats in our watershed?*

### **Lesson Materials:**

- Plant clues and photos
- Student worksheet
- Plant characteristic and vocabulary visuals for overhead projector

### **Learning Objectives:**

1. Students will be able to identify the key features of invasive plants: they reproduce quickly; lack natural predators; grow in disturbed areas.
2. Students will understand the benefits of native plants including their habitat value for wildlife.
3. Students will understand how native plants contribute to water quality (cool, clean, clear).

**Vocabulary:** Native, introduced, invasive, habitat

### **Introduction (~15-20 min):**

- Engage prior knowledge: If they received the introduction to watersheds class, remind students of the animals that call their watershed home. For this class, students will be discovering another important piece of their watershed...plants!
- Discuss how plants are crucial for habitat (animals depend on them for food and shelter). Plants also help to keep our rivers healthy (*cool, clear* and *clean* by providing shade and filtering pollutants).
- However, not all plants have the same value for healthy rivers, watersheds, and animal habitat.
- This lesson will help students learn why native plants create the best habitat for wildlife and are important for healthy rivers.
- Introduce the essential question. Students can brainstorm answers now or wait until after the activity to answer.

Ideas for discussing and defining native, introduced, and invasive plants:

- Introduce the concept of native, introduced, and invasive plants by making a 3 column list on the board using student generated content. Scientists agree that a **native** species is any living thing that has been here since before the first Europeans arrived. Have students list any native plants they might know. **Introduced** plants are those that were brought over either intentionally or accidentally. This includes most of our food crops. Have students list a few introduced plants. You may choose to discuss the reasons people have brought plants from other places (they're tasty, make good building material, remind them of home etc.). **Invasive** plants are a special group of introduced plants that take over by out-competing native plants.
- For each category, ask students if those plants are good or bad, do we like/need them, why? What point of view (animal or human) are they thinking about? Have students give them either a thumbs-up or thumbs-down. This will likely generate some good discussion. After discussing, show the thumbs-up/down visual associated with each. Students may choose to disagree (for example, maybe introduced should be a thumbs down or thumbs sideways).
- Discuss how invasive plants are so good at being invasive...secrets to success. Use the visuals to highlight the following information briefly:



**Tough** (hard to kill; hard to remove; can grow anywhere even in polluted and disturbed places such as the side of a highway)



**Power in numbers** (they multiply fast via unique/varied methods like cloning or making lots of seeds and generally have more than one method of reproduction)



**No predators** (can spread and spread with no natural controls because local wildlife don't prefer to eat them)

Blackberry is a great example of an invasive plant. It was introduced because its fruit is delicious. However, once planted it can take over and is hard to remove. Blackberry has thick, hardy roots that are hard to dig out and the thorny canes are really hard to chop down. Blackberry can spread by wildlife eating its fruit, via roots underground or by overland vines/canes. Blackberry can also clone itself (grow new roots when branch has contact with soil). While some animals will eat the berries, blackberry only provides fruit for a couple months and if it has taken over an area, there will be limited food sources available to wildlife during the rest of the year. If a streamside forest gets replaced by blackberry, it will no longer have shade to keep it cool and the deep roots of the forest trees will be replaced by shallower roots that don't filter as well.

**Activity (25 min.):**

- Students can work in teams of 2 for the activity.
- Students are going to be plant detectives and will decide if a plant should be pulled from or planted in their watershed by reading clues, answering questions and giving a watershed score for each plant.
- Pass out an activity worksheet to each student and walk them through an example (typically Himalayan Blackberry or Ivy). Alternatively, student pairs can share one activity sheet and fill it out together.
- Pass out a plant packet to each group.
- Create 2 column headings on the board: Plant it, Pull it
- As students finish a plant packet, they write the plant name on the board under Plant it or Pull it. It's ok to have the same plant multiple times or in differing columns.
- When students finish with one plant, they repack their packet, return it and a new plant is selected.
- Students will have time to finish between 2 and 3 plants.

**Wrap-up (10-15 min.):**

- Have students return all plant packets to the bin but keep their worksheet on their desk.
- Begin discussion with a question: "Did you find any plants that surprised you by how helpful they were to wildlife or stream health?" or "What was your highest scoring plant? How was it helpful to wildlife?" As students answer, discuss habitat benefits and stream health benefits. Emphasize cool, clean and clear by asking, "Which plants keep the water **clear** by holding soil back and reducing erosion?" Or "Which plants keep the water **cool** by shading streams and rivers?"
- Go through the Plant it/Pull it lists and check which plants are correct and incorrect (optional).
- Review essential question and have students reflect and answer.
- Discuss field trip goals and how students will be helping to make their watershed healthier.

**Online Resource:** <http://www.weedinvasion.org/>

**Worksheet Answer KEY**Native Plants

Ash (Oregon)  
Black cottonwood  
Camas  
Indian plum  
Nootka rose  
Pacific willow  
Red alder  
Red elderberry  
Salal  
Snowberry  
Western Red Cedar

Invasive Plants

Clematis  
English Ivy  
Foxglove  
Himalayan blackberry  
Morning glory  
Reed canary grass  
Scotch broom