Lesson 1 – The Neighborhood, A Wildlife Refuge in Your Backyard

Key Concepts

- Refuge System – what is it, what can you do there (relevance)
- Habitats – food, water, shelter, space and L.A.W.S.
- Build on Washington State eco regions, habitat, maps

Materials

- Hand lenses
- Lesson 1 Workbooks – *Habitat Edition*
- DVD, *America's National Wildife Refuge System: Where Wildlife Comes First*
- Line Drawing of Pacific County with Refuge locations
- Refuge Brochures
- "Refuge Explorer in Training" Stickers
- Habitat samples, cards/maps, photos
- Station boxes with samples, Fast Fact sheets, laminated bird photos
- Timer
- Volunteer nametags

Set –up

- Give workbook to teacher
- Ask Teacher to load DVD and prepare to play
- Ask teacher to turn on camera projector for Refuge map
- Students divided into 5 groups and tables/desks cleared
- Each instructor has the box of props for their station and picks a location to start
- Instructors have bird checklists to hand out
- the box of props for their station and picks a location

1. Intro (5 minutes)

- Introduce self, other volunteers
- Overview of spring program: "We spend time helping to take care of a special place that is right in your backyard – Willapa NWR. Today, we'll introduce you to this special place and you'll start to learn how you can help wildlife, too! We'll bring different items from the refuge to your classroom once each month until May to help you learn about the plants and animals that live there. In May, you'll visit the refuge and help our manager discover what lives on Long Island. We have a lot to learn between now and May, so let's get started! "
- Overview of today's lesson – First we must know what a National Wildlife Refuge is…

2. Lecturette (25 minutes)

a. Intro to Refuge System - video (10.5 minutes)

Willapa NWR is one of over 550 national wildlife refuges in the U.S. That's a lot of places – some are big and some are small – but all these refuges are homes for plants and animals. Let's watch this video to see and hear more about these places. Play video.

Ask, "what makes all these places similar?" They protect homes for wildlife- plants and animals.

"Does anyone here like animals? Good. You are really lucky to have Willapa NWR nearby. It was established in 1937 to protect migratory birds – ducks, geese and shorebirds. It is unique among many refuges because it has so many different plants and animals. So many plants and animals live there because of the diversity of habitats…"

b. What is a habitat? (10 minutes)

- Each plant or animal requires food, water, shelter, space.
- Non-living (abiotic) elements determine what food, water, shelter and space is available for those plants and animals. An easy way to remember what abiotic elements are is to remember the LAWS.

L = Light

Energy from the sun drives most ecosystems through the process of photosynthesis (plants make food from carbon dioxide, water, nutrients and sunlight). The amount of light determines what plants will live in a specific habitat.

A = Air

Temperature and wind shape life. Each organism's body is tuned to a certain temperature. Too hot or cold and the organism will struggle to eat, breathe and move. Wind increases the loss of an organism's heat and water. High winds can shape an organism – think of the trees along a windy coastline!

W = Water

All life needs water to survive. The amount of water an organism varies from a lot to a little – compare a garter snake to a salmon.

S = Soil

It's more than dirt! The amount of sand, silt and clay particles, air space, water, minerals (like nitrogen) and organic material (dead plants and animals) affect what lives there.

In addition - Catastrophic Events like fire, floods, tsunamis and wind storms can change a habitat quickly.

c. **Willapa NWR has lots of Habitats (2 minutes)**
   Project the map of Pacific County and orient the students to their location and key features. Because there are so many parts of Willapa NWR, the different amounts of L.A.W.S. create over 10 different habitats at the Refuge. You'll get a chance to explore the 5 most common:
   - Bay
   - Mudflats and Salt Marsh
   - Freshwater Wetlands, Streams & Ponds
   - Dunes & Grasslands
   - Forest

3. Habitat Learning stations (25 minutes)

Split students into 5 groups and direct each group to one station.

Each station is based on a habitat (has soil and water samples, photos and plant specimens, habitat photos). *see attached information sheets for examples of each station. Note that this lesson is generally taught in January and many plants are dormant. I recommend having a photograph of the plant in leaf to supplement dormant plant samples.

1. Students examine soil and water samples to determine the L.A.W.S. of each habitat. Plant specimens and photos begin the process of understanding what lives in each habitat and that plants can also be habitat for other plants and animals. Instructors provide information about the L.A.W.S., habitat and plants, direct student observations, and encourage students to identify what might serve as food, water, shelter, space.
2. Rotate after 5 minutes at a station until students have been to all five stations.

4. Closing (5 minutes)

1. Recap 5 habitats and the L.A.W.S. of each.
2. Refuges are for people, too. Get outside and experience these habitats. There is a map in your workbook with suggested places to do the following this month:
   - Listen and look for owls in the forests and grasslands
   - Watch shorebirds and waterfowl on the bay, mudflats and salt marsh
   - Search for footprints (tracks) in muddy areas near wetlands and mudflats.
3. On our next visit you'll "Meet the Neighbors" and learn how to identify some of the animals that live on the Refuge
4. Until then – keep a look out for wildlife because you are now a "Refuge Explorer in Training". Pass out stickers and thank the students and teacher.