SEED Curriculum
Grade 2
Winter: Visit 4

Title: Adaptations for Habitat Changes

Materials: poster(s), 4 signs for activity, acorns

I. We are going to talk about the relationship between plants, animals and different habitats. Sometimes plants and animals have to adjust their behavior in response to a changing habitat.
   Adaptation: a change in 1) behavior or 2) body structure that helps a plant or animal survive.
   Habitat: the environment that a plant or animal lives in.

   Q: Here are a few habitats we have talked about before: agricultural, riparian, urban, desert, wetlands. How are these habitats different?
   A: Different amounts of light, temperatures, types of plants and animals, food sources, amounts of water, etc.

II. Adaptations help an animal to survive
   Q: What do plants and animals need to survive?
   A: Plants: food, water, land to grow, sunlight
      Animals: food, water, a home, warmth
      So, if a plant or animal doesn't have one of these things, they are forced to adapt, changing their behavior or habitat.

   Use a poster of a raccoon:
      Let's pretend you are a little animal, like this raccoon. You live in a forest next to a field of tall grass with a pond in the middle. Every morning, you scamper to the pond to get water. Suddenly, the weather gets hotter and the pond dries up. But you still need water.
      Q: What would you do?
      A: Move to a new location.
      Q: What kind of adaptation is this?
      A: A behavioral adaptation. The raccoon moves to a new location so that he can survive. He changes his behavior by moving somewhere else.
Q: Can you think of other animals that have to move to a new location to survive?
A: Butterflies, birds, whales - they all migrate during the winter. They swim or fly to a warmer location so that they can survive. This is a behavioral adaptation. A body adaptation might be bears who build up layers of fat and then hibernate to stay warm.

III. Use a poster of a forest that is developed into a city or farm:
Q: Let’s imagine another situation. What kind of animals and plants do we have living here?
A: Elaborate extensively on the poster, showing the interrelation of all animals and plants on each other. Animals and plants need each other to survive.
Q: What happens to the animals when humans turn it into a farm?
A: migration/death
Q: What do humans do to the land?
A: They start growing more plants. These plants bring in different kinds of animals and insects. They use the wood for paper and buildings. They use the water for their food. So, the plants and animals were forced to adapt and move to different environments because of other animals (humans). Their habitat changed and the animals had to adapt to those changes. Yet, this may be a good adaptation for some animals. If there are humans living nearby, there will be trashcans full of leftovers.
Q: What kind of animal likes to search through trashcans?
A: Raccoons! When the land is changed, some animals like raccoons will be able to get more food. So when one habitat changes, many animals are forced to adapt to the changes in order to survive.

IV. Competition
It’s not always the temperature or season that affects the habitat for a plant or an animal. Sometimes it is the presence of other plants or animals. Sometimes the habitat for a species is chosen by competition.

**Competition:** the relationship between species who need a limited resource. (the resource is in short supply) Let’s say you are on the soccer team. What are all the teams hoping to get? The trophy...right? Because there is only one trophy, all the teams are competing amongst each other for that one trophy.
If there are a lot of trophies, the team doesn’t need to compete. How does this relate to animals and plants? When there is only a little bit of water or food, animals and plants will compete with each other for that resource.

**Competition between animals:**
(Elaborate on any/all of these depending on amount of time left)

1. **For space:** Birds in trees - some birds attack and peck at other birds that try to live in their trees. Humans and animals - the humans wanted to live in the forest in the same space as the animals, so they competed for the space by cutting down trees.

2. **For food:** There is a field of animals and all the animals eat grass. In this field are rabbits, cows, and grasshoppers. Do you think there is enough grass for all of them? Maybe. But if rabbits make a lot more babies and there are more rabbits, those rabbits are going to eat more grass. When there is less grass, then the grasshoppers and cows can’t eat as much. These animals are competing for the same grass. They have to adapt by moving to a new place, eating other kinds of food or not having as many babies.

**Competition between plants:**

1. **For water:** If there is a tree with long roots, then that tree gets water from deep underground. (Draw a tree with long roots on the chalkboard). If this tree is getting all the water from this area, can other plants with long roots live right next to it? NO, there isn’t enough water. So plants with shorter roots live next to the trees and get the water from the top of the ground (Draw plants with shorter roots).

2. **For light:** Plants of different heights compete for access to light. Tall plants with large canopies of leaves can block the light from the smaller plants.

3. **For space:** Can two plants live in the exact same place? No - only one plant per spot. Sometimes, plants have a defense to make sure other plants don’t grow near them. Some plants secret a poison. The black walnut tree secretes a poison in the area right around it. If a tomato plant or an alfalfa plant even touches a black walnut root, they will die. The black walnut tree competes for space with other plants using a poison.
V. Activity

1. Tell the kids about the beaks of woodpeckers and how they are little tools that make holes in certain types of tree bark to store acorns in. The acorns attract insects and the woodpeckers eat the insects. The trees are their habitat and the little holes in the bark are like their kitchen cupboards with “bug traps”.

2. Divide the class into 4 groups and put them in different areas in the room. Give each group a paper that says either Woodpeckers, Healthy Trees, (with one person in charge of holding a couple of acorns or signs that designate acorns) Tree Disease, or Davis Home (with picture of house and wood shingles on the roof).

3. Tell all the kids in the woodpecker group that they live in a forest, named “woodpecker forest” near Davis. That is their habitat because the trees are healthy and good to make bug traps in.

4. Have the woodpeckers walk over to the “healthy tree” group and get an acorn from them. That is their food.

5. Have the woodpeckers walk back to their original place. Now have the “tree disease” group walk over in front of the “healthy tree” group and form a chain blocking the woodpeckers from getting to the trees with their food. Explain that the “tree disease” has killed the trees so there are no places for the woodpeckers to store their bug traps.

6. Ask the children - what are the woodpeckers going to do? Where will they find new wood to hold their acorns? They will go over to the Davis home and see that there is good wood to peck holes in for bug traps.

7. Ask the children if they can think of any ways people change animal habitats. (house development, cutting down forests, filling in wetlands, creating dams in rivers)