

Class: Grade 4/5 Science

Lesson Title: Food Web & Migration KinulationClass Size: 24
Time: 60 mins**Curriculum Outcomes:**

Grade 4:

108-3 Describe how personal actions help conserve natural resources and care for living things and their habitats**301-1** Predict how the removal of a plant or animal population affects the rest of the community**301-2** Relate habitat loss to the endangerment or extinction of plants and animals**302-3** Classify organisms according to their role in a food chain**Learning Objectives:**

1. Students will understand the relationships between different types of organisms within an ecosystem (and their dependence on one another).
2. Students will understand what can happen to organisms if habitats are removed or destroyed and strategies to restore those habitats and create new ones.

Materials:

- Food web nametags (The sun, Deer, Bee, Grass, Maple, Birch, Clover, Grasshopper, Squirrel, Beaver, Duck, Owl, Robin, Snake, Frog, Fox, Mouse, Raccoon, Trout, Fly, Ant, Mosquito, Crow, Coyote, Hawk, Human)
- Ball of string/yarn
- Hula-hoops (2 students per hoop)

Preparation beforehand:

- Create organism nametags for students. You can choose any organisms you like but be sure to include ones from all trophic levels (producers, primary/secondary/tertiary consumers).
- Be sure to have an open area for students to form a large circle and run from one side of the room to the other. This activity could be done in the gym or outside if your classroom is not big enough.

Introduction:

- Introduce the topic. Possible prompt questions include:
 - a. What do you know about ecosystems?
 - b. What is a habitat? What's the difference between the two?
 - c. What are examples of habitats and ecosystems?
 - d. What kinds of animals live in the ecosystems around us? In this neighborhood?
 - e. What do you need to have in order for the ecosystem to work? (Very basic level—you need plants and trees)
- Explain what a kinulation is (broken up into kinesthetic and simulation). Tell them that these are used to help students learn difficult concepts that are otherwise difficult to picture. It allows students to become part of the demonstration, and therefore easier to remember and learn. Ask students if they would like to try one.

Activity #1 – Food Web:

1. Explain to students that everyone is going to play a role in the ecosystem they are about to create. Have students form a big circle in the open space you have chosen for the class and Begin handing out the nametags to students.
2. Ask students to look around the circle and see if there are any names they haven't heard of before. Have students explain to the class if they know the animal and others do not.
3. Bring out the ball of yarn and tell students that they're going to try and figure out connections between the different parts of their ecosystem.
 - a. Make sure all students can see one another and the nametags in the circle.
 - b. Randomly pick a student to start with the yarn. Tell this student that they are going to hold onto the string and roll the ball to someone else in the ecosystem they have a connection with. They have to explain the connection before the next person can go (example: I am a human and I like maple syrup so I am rolling the yarn to the maple tree).

- c. Remind students to keep the string tight while they are rolling the ball to other students.
4. Students should continue to do this, holding onto piece of the string every time it comes back to them (it may be passed to the same person more than once!).
5. After everyone has been reached at least once, ask students what they think it looks like in the middle (a web, a trampoline, a net, etc.). Ask what they think it represents (relationships between everything in the ecosystem; everyone is connected).
6. Ask students what would happen if all the people who are plants let go of the string? Have them actually drop the string and have everyone else continue to hold the string.
 - a. What does this represent? What would happen without plants in our ecosystem?
 - b. Are you connected to anything that eats plants?

Activity #2 – Migration Frustration Game:

1. Have students leave the yarn on the floor and push it off to the side. They can take off their organism nametags now.
2. Divide the class into 2 groups and have each group line up on either side of the room. Explain that you are going to do one more activity.
 - a. What does the word migrate or migration mean?
 - b. Do you know examples of animals that migrate? (Canada geese, other birds, monarch butterflies)
3. Place half of the hula-hoops on one side with a group and the other half with the other group in a horizontal line (almost like setting up for a game of "red-rover").
4. Explain to students that they're going to play a game called "Migration Frustration" where they will be simulating Canadian geese migrating south and migrating back to Canada.
 - a. Each hula hoop represents a habitat. One side is Canada (the northern habitat) and one side is Florida (southern habitat)
 - b. Each student is a Canada goose and only two geese can live in one hula-hoop
 - c. Have students go stand in a habitat now
 - d. Once everyone has a home, ask them how it feels to have a home? They have water, shelter from predators, food to eat, etc.
5. Explain to students that when you yell "Migrate!!" that the geese in Canada are going migrate to Florida and the geese in Florida are going to migrate to Canada (in opposite directions at the same time). Students will have to keep their heads up and make sure they don't run into each other. They do not have to run, they can walk from one side to the other if they wish.
 - a. No more than two birds can be in a habitat.
 - b. Get students to migrate a couple of times so they understand what to do.
6. Explain to students that it is great when animals can migrate knowing their habitat will be ready for them when they get there; but, sometimes natural disasters can occur in ecosystems and cause habitats to be destroyed.
 - a. Pretend that a forest fire has occurred and tell students that one of the habitats is no longer available as a home (remove one of the hula-hoops)
 - b. Now there will be students who do not arrive in time to get a habitat and they will stand off to the side
7. Continue to get students to migrate and continue introducing problems in the habitats (floods, buildings being constructed, etc.) You can do this about 3-4 more times. Students will keep being removed from the game and will have to wait on the side.
 - a. You can have a couple of students, that previous lost their habitats, become predators and try to "capture" other students as they are migrating (do this by tagging the other students. They can try to capture prey for 1 or 2 migrations.

8. After habitats have been removed and predators have had a chance to participate, tell students that there are ways to bring habitats back into ecosystems after they have been destroyed.
 - a. Ask the students on the side who are in need of a home to think of ways that habitats could be brought back into the game (planting trees, make a lake or pond, planting grasses for fields, etc.)
 - b. Animals without homes will now start to come back into habitats
 - c. Get them to migrate again and build more habitats until everyone has a home again.

Conclusion – Possible wrap-up questions:

1. What is the moral of this story? (Be aware of ecosystems around us, be careful with fires, be prepared for natural disasters, if things get bad in ecosystems you can call the government, start awareness groups)