

STUDENT NAME:

CLASS:

DATE:

Circle your Ecosystem: River / Lake

Ali Shakoor needs your help! Fisheries biologists have discovered that walleyes migrate between rivers and lakes for spawning, foraging, and overwintering habitat each year. To understand what walleyes need in their biotic communities to survive, Ali has assembled a team of fisheries biologists to decode the food webs of these two aquatic ecosystems. And you are part of the team!

Okay, **environmental scientist**. Unlike the other members of your group, you understand that the organisms in a biological community not only interact with each other, but also with abiotic factors. **Abiotic factors** are the nonliving parts of an ecosystem, such as the temperature, water, atmosphere, and wind. Organisms also have their own role within an ecosystem or an **ecological niche**. Their niche is determined by their food sources, feeding relationships with the other organisms as well as their habitat.

Consider researching the following to understand your ecosystem:

- What do walleyes use your ecosystem for?
- What kind of water temperatures does your ecosystem typically have?
- What kind of oxygen levels does your ecosystem typically have?
- What importance does wind have on oxygen for your ecosystem?
- What kinds of plants live in your ecosystem?
- Double check with your predator expert. Do the organisms in your food web belong in your lake or river ecosystem?
- Where do the organisms live in your habitat?



Record your findings on a separate sheet of paper or computer document. Then, discuss your findings with your team members. As a group, design a food web and trophic pyramid on two large sheets of paper.

The **food web** must have:

- **Background:** The entire poster should have a drawing or painting of the ecosystem.
- **Organisms:** Place drawings or printed pictures of all the organisms where they live in the ecosystem.
- **Labels:** List the names of the organisms beneath the drawing of the organisms. The labels must be color-coded to the organisms' trophic levels.
- **Arrows:** Organisms are connected with arrows to show the flow of biomass. The arrows must be color-coded to the trophic level transferring the energy.

The **trophic pyramid** must have:

- **Pyramid:** Draw a large outline of the trophic pyramid and its levels.
- **Color:** Color in each trophic level to their designated color.
- **Organisms:** Place drawings or printed pictures of all the organisms into their correct trophic levels.
- **Labels:** Write labels for the trophic levels and the organisms.

Let your creativity go wild when building your posters. You may paint, sketch, cut construction paper, or glue in natural resources like sticks, pebbles, sand, moss, or grasses. You will present your food web and trophic pyramid to your class with supporting research. Use your diagrams to highlight what prey sources you conclude are important to the walleye in your ecosystem.

