

Hands-on Activity

MATERIALS

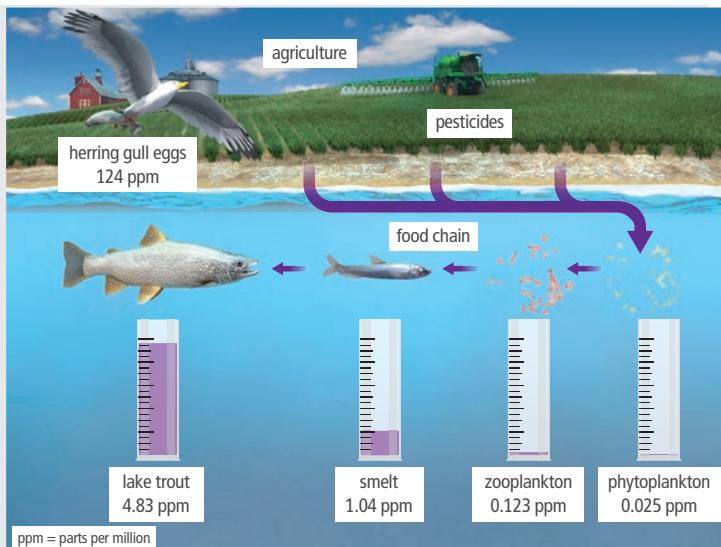
- beads, large (16)
- beaker, 500 mL
- marker
- tape, masking
- paper cups (4 small, 2 medium, 1 large)
- pencil, sharpened
- salt



Biomagnification

Harmful chemicals enter aquatic ecosystems from the runoff of silt, pesticides, and fertilizers. These chemicals enter the food chain and build up in the bodies of organisms through a process known as **biomagnification**. Scientists study this process by measuring the amount of chemicals in each trophic level in parts per million.

FIGURE 21:
Biomagnification
in an aquatic
ecosystem.



Predict How will the beads, or pollutants, transfer between the cups? How is this a model of biomagnification? How are contaminants magnified up the food chain?

PROCEDURE

1. Label the small cups "Smelt," the medium cups "Trout," and the large cup "Gull." With just the pencil tip, punch one or two small holes in the bottom of each cup, and cover them with tape.
2. Fill each of the cups halfway with salt. Add four beads to each small cup.
3. Hold each of the small cups over the beaker and remove the tape. Allow the salt to flow through the holes into the beaker.
4. Pour the remaining contents of two small cups into one medium cup. Pour the contents of the other two small cups into the second medium cup. Repeat Step 3 with the medium-sized cups.
5. Pour the remaining contents of both medium cups into the large cup.

ANALYZE

1. What pattern did you notice for the transfer of pollutants between trophic levels?
2. Why would tertiary consumers have the highest concentrations of toxins?
3. How are humans affected by biomagnification? Use evidence from this activity to explain why this is a concern.



WHAT DO
ALLIGATORS EAT?

IS YOUR DIET
ENERGY EFFICIENT?



AQUATIC PRIMARY
PRODUCTIVITY

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these other paths.