D.O. the Limbo

Activity Description:

This activity teaches students about the effect of dissolved oxygen on pond water.

Take Home Message:

Dissolved oxygen is the oxygen that is dissolved in water. Fish, like humans, need oxygen to survive. It is absorbed through their gills and if the levels are too low, fish can't breathe and will die

Massachusetts Frameworks:

Life Science

Organisms are adapted to their habitats #5
Food Chains & webs #6

Supplies:

- Limbo stick
- Support Posts
- Dread Locks **(DON'T SHARE HATS WITH KIDS TO PREVENT LICE).**
- Extension Cord
- CD player
- Limbo Music
- Laminated scenario cards

Set Up:

First, always find a location nearest to an outlet. Second, set up hot pink limbo poles. Duct tape them to the ground to prevent students from accidentally knocking them over. *Optional:* Place padded mat under limbo poles to cushion if students fall (*Previous AmeriCorps member did not use a mat and students were fine*. Third, plug in C-D player and put in the C-D. Wear the dreadlocks hat if you like, and hand out leis if you would like, but make sure the students return them at the end of the activity. Finally, organize the scenario cards so that you know how much the limbo stick will go up and down. *Previous AmeriCorps member usually started with the pole near the middle and had the last few cards lower the stick because students usually liked that.*

Script/Activity Procedure

1. Ask if anyone knows what D.O. might stand for - dissolved oxygen. Explain that dissolved oxygen is the amount of oxygen that is in the water. Next, ask if fish need water in order to survive – yes. This is important because fish and life in the water need oxygen just like us. Emphasize that there is oxygen in the air that we breathe and that there is also oxygen in the water that the fish breathe through their gills. Then, tell the students that there are certain factors that increase oxygen and ones that decrease oxygen in the water. Ask, what might increase oxygen – wind, photosynthesis during sunny days, plants, and trees. Then ask, what might decrease oxygen – oil, gas, fertilizer, pesticides, leaking septic system, not picking up after your dog, algae blooms that die etc. Finally ask – does cold or warm water contain more oxygen – cold because the molecules are more compact and closer together. In the summer, less because molecules are expanding and evaporating.

2. Ask if anyone has done the limbo before. Explain that this is a different type of limbo though.

3. Ask the students what normally happens in Limbo. Hopefully someone will say the bar moves up and down and you dance with music. Ask the students, "If this is a special kind of limbo how do you think we get the bar to move up and down?"

4. Explain that the bar is the like the amount of dissolved oxygen that is in a pond. The students are the fish and have to make it under the limbo pole in order to survive. Ask the students what they think might lower or raise the amount of dissolved oxygen in the pond for the fish. Examples you are looking for are wind, temperature, plant growth, etc (from above). Give each participant one lei to wear (optional).

5. After they have an idea of dissolved oxygen and what happens, begin the limbo game.
   - Have the students stand in a line.
   - Read the first scenario card aloud (do not let the student see the card because the answer is on there).
     - Example question: The neighbor fertilizes his lawn which runs right down to the pond, and then it rains and the fertilizer runs into the pond.
   - Ask them if the D.O. will go up or down?
     - Based on the card you lower or raise the limbo bar.
   - The student goes under and then gets back in line (taller students can crab walk).
   - Then ask the next student a question about D.O. and repeat until all cards have been asked.

6. After it is over, see if anyone can remember why the bar went up and down, and what dissolved oxygen is! Remind them of the name of the activity: D. O. (dissolved oxygen) the Limbo.