

Weird Webs

Students use a ball of twine to create a classroom food web that shows the interactions between the members of the ecosystem. Students will appreciate interconnections and interdependence within the natural community and will identify food chain relationships and energy flows within the “web of life”.
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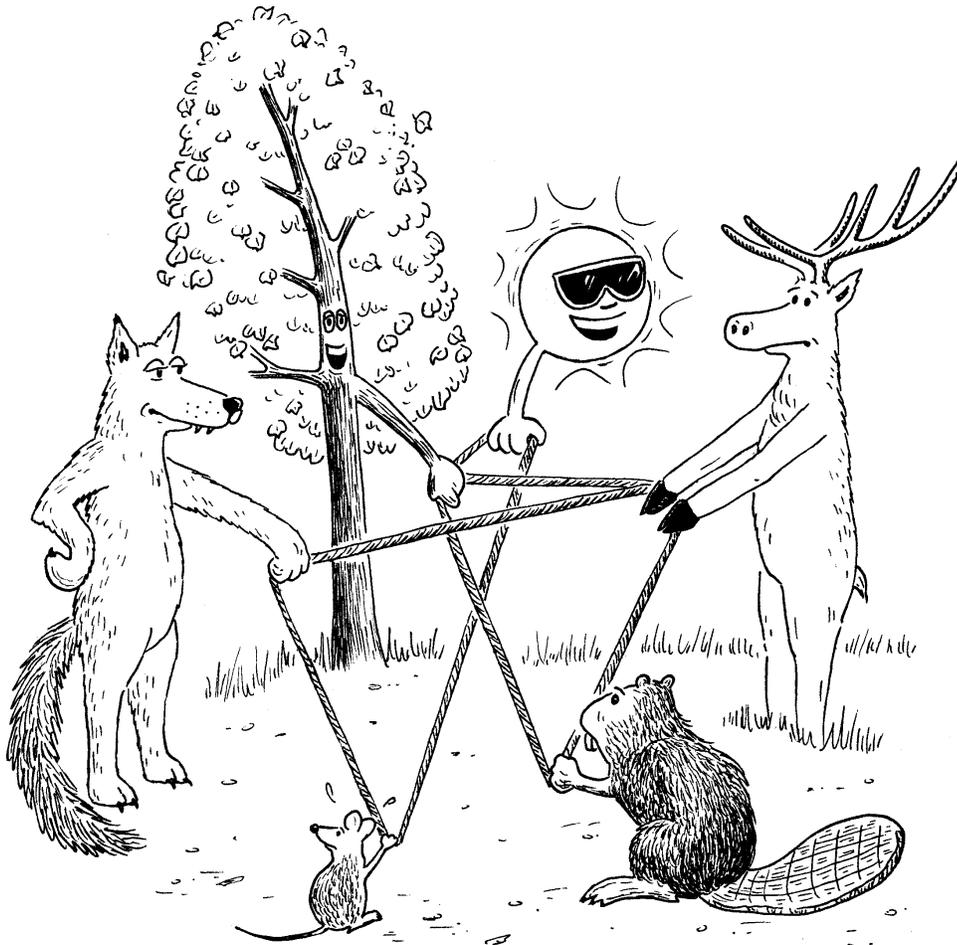
Materials: signs from **Who am I?** activity, two balls of at least 100 m of twine or very thin rope

Time Required: 30 minutes

Instructions: Have students stand or sit in a circle, still showing the tags they received in the **Who am I** activity. You should also be part of the circle. Have every student describe their card, i.e. ‘who they are.’ Tell students that you will be playing the role of the sun, the ultimate source of life for all things (as befits your role as teacher!). Pass the ball to the tree, and say “I am passing the ball to the tree, because it needs me to survive. I give energy to the tree.”

Tell students that they can pass the ball to

another ecosystem element in the circle “**only if it needs you in order to survive, or if you need it in order to survive**”. For example, the squirrel could pass the ball to the tree (which it needs to survive) or to the owl (which needs it to survive). Make sure that each exchange is justified by each student as they pass the ball to another. Make sure that the whole group understands and agrees with the rationale that is given. Challenge students to establish connections with everyone in the circle, so that no organisms are left out. (Note: you might find it useful to have students rehearse this by having them point to ecosystem elements they need to survive - or that need them to survive - before the ball of string is passed).



When you have every organism connected, ask students to pull gently to take in the slack so the string becomes taut. Ask students to examine the pattern they have created. Tell them that this pattern represents the very complex pattern of interconnections between organisms that occurs in a natural ecosystem. For this reason, interrelationships within an ecosystem are sometimes referred to as the 'web of life'. Ask students if the web they created is more simple or more complex than the web of life that actually exists in their schoolyard or in a park; students should realize that things in nature are far more complex than the simple web they have created.

Next, tell students that something has just happened to change this ecosystem: a timber company has just received the right to log this forest ecosystem. Keeping the string taut, ask the "tree" student(s) to suddenly release the string when you count to three. After the string is released, immediately ask if anyone felt the tension in the string change when the tree dropped out (several, including the squirrel, should say yes.) Ask those affected by the loss of the tree to say how they are affected.

Count to three again, and ask these "affected" students to in turn drop the string. Keep going until everyone has dropped the string. Have students drop the string in front of them so they can pick it up again for the next round. Students should come to realize that any change to an ecosystem - whether slight or profound - is felt throughout the system. Tell students the golden rule of ecology: ***In an ecosystem, you can never do just one thing.***

Ask students to repeat this activity using the following changes to the ecosystem:

- the municipality sprays to remove pesky mosquitoes from the area
- hunters come in to harvest moose, elk, and white-tailed deer from the area
- decreasing ozone levels allow more ultraviolet radiation, which kills cells and slows the growth of the trees
- the forest is in a park - but the park is too small to preserve large carnivores, so they are extirpated from the area (Note: tell students that recent studies are showing that carnivores are far more important than previously thought - that their presence or absence will actually dictate how healthy the entire ecosystem is.)

Have students hand in their tags and sit at their desks. Ask them to suggest things that humans do to harm and to help ecosystems.

As an entertaining finale for this activity, take a few minutes to read the true story of '*Cats in Parachutes*' by Bart Robinson.

Extension: The wording used above was "Pass the ball to another ecosystem element only if it needs you in order to survive, or if you need it in order to survive." You could change this activity significantly by telling students that they can only "Pass the ball to another ecosystem element only if you take energy from it, or it takes energy from you, in order to survive." (The second wording is more difficult: e.g. an eagle 'needs a tree' to nest in, but doesn't get food from the tree.)