Lesson - What are the Connections Within the Cacao Ecosystem and How are They Being Threatened?

Objectives

Explore the interconnections between the organisms in the cacao ecosystem.

Explore the consequences of change in the cacao ecosystem.

Identify the factors that are threatening the cacao ecosystem.

Materials

- 2 balls of string or yarn
- Cacao Web Cards (P.45)

Lesson Plans

Background Activities:

1. Review the organisms that are part of the cacao ecosystem (see environment lesson: Where Does Chocolate Begin?).

2. Write two of the organisms on the board. Have students brainstorm ways that the two organisms are connected (e.g. one eats the other, one provides a home for the other, etc.). Have students try to generate at least ten ways the organisms are connected. (This will be difficult but will challenge them to think past the most obvious or common connections.)

Instructional Activities:

1. Divide students into groups of 5-10 and pass out the Cacao Web cards, one for each student.

2. Ask students to start with the person who holds the SUN card. The person holding the SUN card (there should be one in each group) will hold onto the end of the string or yarn. Then they will toss or pass the ball of string to someone else in their group while explaining the connection between the SUN and the new card the other student is holding. The ball of string is to be passed from student to student connecting the cacao web. Students may be thrown the string more than once during the creation of the web. It is important that every card be included by the end of the activity. See example on the next page.

3. The web continues to be built until all members of the group are holding onto at least one piece of the string.

4. Next, remove one card (person) from the group. They need to gently lay down their card and the string they are holding. Each person holding a card connected to the removed card explains why he or she is affected by the loss.

Discuss the following questions with the groups as the activity continues:

- What is the effect of that one loss?
- How many parts of the web are affected by the loss?
- What is the ripple effect?
- What might cause such a loss?

5. After the students have found all the connections among the organisms, ask them to set the cards and string down in place and copy the energy web they created onto paper. You may want them to work in pairs for this part of the activity.
The sun → cacao seed: the sun will provide energy for the seed to sprout and grow
The cacao seed → canopy tree: the seed needs the shade in order to sprout
The canopy trees → monkey: monkeys live in the canopy trees
The monkey → cacao pod: monkeys eat the pulp in the pods
The cacao pod → flower: pods grow from pollinated flowers
The flower → midge: flowers are pollinated by the midge
The midge → leaf litter: leaf litter provides ideal living conditions for the midge to live and breed
Leaf litter → canopy trees: the leaf litter provides nutrients for the canopy trees
The canopy trees → bird: birds inhabit the branches of the trees
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