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Food Webs: Interconnectedness of Organisms in Ecosystems

Food Chains Rummy

Key Question

How can we synthesize information about organisms to build food chains and webs?

Objectives

- Students will **build** food chains and webs that represent energy flow.
- Students will **discuss** the interconnectedness of organisms.
- Students will **explore** the roles of organisms in ecosystems.

Grade: 6-8 Time: 45 minutes Location: Classroom

Materials

- EOL Species Cards* (http://education.eol.org/species_cards)
  *game was designed using the Okaloosa Biodiversity Cards (PDF), but any deck with food chains and "adaptations and energy flow" info can be used

Directions

Objective: The objective of this activity is to identify food web roles and analyze the relationships among organisms in order to create multiple food chains. Players earn points for each food chain and try to use all cards in order to end the game.

Setup: Students will play in pairs or small groups. If students play in pairs, each draws 10 cards. If in groups of 3-4, each player draws 8 cards. The extra cards sit face down in a stack called "stock" in the center of the playing area.

Play: The first player will draw a card from the stock. This player now must discard either the new card or an existing card face-up next to the stockpile, creating a "discard pile." At any point during his or her turn, Player 1 can set down a chain of at least three organisms. When placing a food chain, the player must explain how energy moves through this food chain by referencing the "Energy" information on each Species Card. For example, live oak acorn is consumed by a squirrel, which is consumed by a coyote. Player 1 may place up to **two** food chains down during his/her turn. The turn moves to Player 1's right.

Now that a discard pile has been created, Player 2 may choose a card from either the stock or the discard pile, and either discard the new card or another card from his or her hand face-up into the discard pile. The card placed in the discard pile should be placed on top of, but not cover, the first card so that both are visible. Player 2 continues the round by setting down a food chain, or if the player has no chain, continues to the next player.

As the discard pile grows, a player can draw from the line of discarded cards. If a player would like the second card in a line of five, that player must take **all cards on top of** the of the chosen card as well. A player can also choose to build on another player's food chain by placing a card face-up on the table and describing how it fits into the food chain. They have created a food web!

Scoring (optional): The game ends when any player runs out of cards. Each consumer in a food chain is worth one point; each autotroph (plant) is worth two points. Food chains that include a plant produce more points for the player. A single card that is played to add to another person's food chain is worth either one or two points as well.

Any player with cards remaining in hand subtracts the number of cards from the points earned in food chains to calculate the final score.

Discussion: Each group should choose two food chains they created to share with the class. Then, the teacher can lead a discussion to explore students' experiences with this activity and the trophic relationships that emerged. Recommended questions include:

- What was the objective of this activity?
- Did you find this game challenging or simple? Explain. What was challenging?
- Did you find any organisms that could have fit into more than one food chain? If so, which ones?
- DId you find any organisms that you had a difficult time fitting into a food chain? Explain.
- What is the role of humans in the food chains you created?

Modifications

Add another dimension to game by allowing students to also put down sets of trophic levels - a set of three primary producers, herbivores, omnivores, carnivores, detritivores, decomposers, etc.

Next Generation Science Standards

MS-LS1-6. Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

Science and Engineering Practices

Asking Questions and Defining Problems
Constructing Explanations and Designing Solutions
Engaging in Argument from Evidence
Obtaining, Evaluating and Communicating Information

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