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Adaptations: Traits to Thrive in an Environment

Go Adapt!

Key Question

How do we **practice** identifying different adaptations and classifying organisms?

Objectives

- Students will **identify** behavioral and physical adaptations for plants, animals, fungi, and other organisms
- Students will **classify** organisms into groups based on adaptations and traits
- Students will **compare, contrast, and discuss** the adaptation traits of different organisms
- Students will **interpret and explain** their sets of adaptations, classification, and energy flow

Grades: 2-5 Time: 45 minutes Location: Classroom

Materials

- ☐ EOL Species Cards** (http://eol.org/info/eol.org/info/species_cards)
  ** game was developed using Okaloosa Biodiversity Cards deck; any deck with adaptations can be used
- ☐ Computer with internet (optional for Extensions)

Directions

This game is played in the style of "Go Fish." The object of the game is to collect sets of organisms that share classification, traits, and adaptations. Students can play in pairs or in groups of up to four. If students play in **pairs**, each can try to get **four** cards per set. If **more than two** students play, each player should try to find **three** cards per set.

Rounds: You must collect a set of three or four cards per round, based on a concept.

- **Round 1: Classification**: sets based on classification. The teacher can determine at what level to classify. Recommendations for classifying include:
  - **Plants**: all plants, vascular or non-vascular, seedless plants (ferns and moss), conifers, flowering plants
  - **Vertebrate classes**
  - Arthropods, molluscs, or other **invertebrate phyla**
  - Animals that lay eggs, animals that have live births, cold-blooded animals, warm-blooded animals, etc.
- **Round 2: Physical Adaptations:** Organisms that share physical adaptations (e.g., wings, sharp teeth, claws, reproduce by rhizomes, camouflage, etc.)
- **Round 3: Behavioral Adaptations:** Organisms that share behavioral adaptations (e.g., burrow, nocturnal or diurnal, etc.)
- **Round 4: Food chains**: primary producer → _____ → _____ → _____

- **Additional ideas**:
    - Organisms that share diet types: Herbivore, omnivore, carnivore, detritivore, decomposer, autotroph
    - Organisms that live in similar habitats (e.g., wetlands, forests) or places within a habitat (e.g., under rocks, in the intertidal zone, etc.)

For pairs of students, each player starts with 7 cards. For larger groups, each player starts with 5 cards. All extra cards get placed face-down in a stack in the middle of the circle. Before the game starts, anyone who has a set for Round 1 can put the set down, face-up, so everyone can see. Any player who puts sets down at the beginning should justify each set to the group.

The first player will ask another player for a specific characteristic. For example (Round 1), if Player 1 has three birds, he/she can ask Player 2 for a bird. Player 2 is only required to give Player 1 **one** bird. Alternate: Players must give *all cards* that are requested.

If Player 2 does not have any birds in his/her hand, that person says "Go Adapt!" and Player 1 must choose a card from the face-down stack. If Player 1's card **is not a bird**, that player keeps the card, and the turn moves to the next player.

If Player 1's card **is a bird,** he/she gets another turn to ask another player for a trait. Any player cannot go more that three times in a row.

The game ends when one player has lost all of his/her cards (short game), or can continue until the whole stack is gone by replacing cards as they are lost to other players (long game). Instructors should consider how much time they would like this activity to last, and choose the style to fit time.

Extensions

- Add a field investigation to identify organisms, research or observe adaptations.
- Use EOL Food Web Tool to explore energy flow and interdependence in local habitats.

Modifications

- Modify game to meet the needs of the class or teaching objectives.
- Challenge students to create their own variation of the game and share with the rest of the class.

Next Generation Science Standards

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.
3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
3-LS2-1. Construct an argument that some animals form groups that help members survive.
3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.
3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.
5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

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