



Modeling Predator-Prey Interactions

Research Objective: Data Collection

Description

In an ecosystem, organisms are connected in many ways. Predators get energy by eating other organisms, while prey must find food, resources, and safe places to live while avoiding predators. Every organism depends on its habitat for the resources it needs to survive.

In this activity, you'll take part in an active game that models these relationships. You'll explore how predators and prey interact, how organisms compete for limited resources, and how changes to a habitat can affect an entire population. You'll see how the survival of one organism can be connected to the survival of many others in an ecosystem.

Procedures

1. Identify the resource area, home area, and habitat zones, which act as safe zones. Stay within the designated boundaries.
2. Choose your role. Some students will be predators, while the rest will be prey. Your instructor will assign your role.
3. Collect resources. If you are a prey animal, travel to the resource area, collect one resource, and bring it back to your home area while avoiding predators.
4. Use habitat zones for safety. Habitat zones are safe areas where predators cannot tag you. You can use them to avoid predators, but you must still travel between areas to collect resources.
5. Hunt for prey. If you are a predator, try to tag prey as they travel between the resource and home areas. Follow the game rules and tag gently.
6. Watch for changes. After each round, your instructor will change the habitat by removing or reducing safe zones. These changes can represent events such as wildfires, floods, droughts, deforestation, or urban development.
7. Play another round. Continue playing as the habitat changes. Pay attention to how the amount of available habitat affects the prey's ability to collect resources and avoid predators.

Reflection

1. Compare the rounds. Think about how the number of safe habitat zones, available resources, and predator-prey interactions changed throughout the game.
2. Discuss your findings. What happened when habitat became smaller? How did habitat loss affect prey survival and resource collection? What does this game teach you about how changes in an ecosystem can affect populations?

Materials

Cones, markers, or flags to designate habitats, resource zones, and boundaries

Tips

- Set clear boundaries. Mark the playing area, resource area, home area, and safe habitat zones before starting. Make sure everyone knows where they can and cannot go.
- Play safely. Tag gently, keep your eyes up while moving, and avoid pushing, grabbing, or running into others.
- Think like an organism. Pay attention to how changes in habitat affect your strategy. When safe habitat decreases, think about how real animals might adapt, compete for resources, or become more vulnerable to predators.