

FOXES AND KITTIWAKES

Students play an active game which illustrates predator/prey relationships and the adaptive significance of nesting in colonies.

Taken from: Learn About Seabirds, Curriculum & Teacher's Guide (Grades 4-6), U.S. Fish and Wildlife Service, Alaska Region, Anchorage.

OBJECTIVE:

Students will gain an understanding of seabird predator/prey relationships, population growth and limits, and the utility of colonization through a highly interactive, capture-the-flag style game.

MATERIALS:

Seabird eggs (plastic eggs, crumpled newspaper, foam balls, or cloth cutouts)

-One per student

Markers for predators (masks, nametags, strips of cloth)

-About ten each of two colors (for adult predators and juvenile predators).

BACKGROUND:

While seabirds are on the ocean, they are the predators hunting for prey (small fishes and other tiny marine life) to eat or to carry back to feed their chicks. When seabirds come onto land, they cease being the predators and become potential prey for land animals such as foxes and rats, and birds that hunt other birds, such as falcons, jaegers, ravens, eagles, and some gulls.

If you were a seabird, how could you protect yourself from predators? One adaptation is to nest in huge communities with thousands of other seabirds so a hungry predator is overwhelmed; that is, the predator might eat all it wants long before reaching your nest. Also, those neighbors can set up an alarm, so no predator can sneak into the colony and catch you off guard. You might try to fight back: kittiwakes, terns and gulls will even try to attack the predator in flights of dive bombing or mobbing.

Another adaptation is to hide. Some seabirds nest underground in burrows or in cracks and crevices between rocks. Some choose nest sites on sheer rock cliffs, inaccessible to most predators. However, rats can go almost everywhere and foxes, too, have few barriers, making them both the most feared predators on seabirds.

PROCEDURE:

- This game is named after Alaskan species: kittiwakes (a smallish, cliff-nesting gull that is named after the sound of its call “*kitti-weeeik*”) and arctic foxes. You can choose any local seabird and a local predator of seabirds to be represented in this activity.

-Play in an open gym, all-purpose room or in a field outdoors.

-To begin, the instructor is an adult fox, and all students will be kittiwakes. Each kittiwake receives one egg. The fox selects a den location, placing all the fox markers there.

-Explain that the object of the game is for the kittiwakes to have more eggs than the fox at the end of a two-minute round. The kittiwakes may lay their egg wherever they wish, but once their egg is laid it cannot be moved. The fox can take only unattended eggs. The fox can also take kittiwakes by tagging them. Once a fox tags a kittiwake it must go willingly to the fox den. The fox may only take one egg or one kittiwake to the den at a time; that is, it must take a kittiwake to the den before returning to its nest site for the egg. The captured kittiwake becomes a juvenile fox. A juvenile fox can capture only unattended eggs. Once a juvenile captures four eggs it becomes an adult fox and can capture kittiwakes.

- Seabirds have limited defense. They cannot fight off a fox alone. However, if four or more seabirds hold hands and encircle a fox, the fox must return to its den. A fox may not capture seabirds if they are in a group of four or more. If the group disassembles, the fox can capture only one bird at a time.

-Begin the game by telling seabirds to find a place to lay their egg, using a broad sweep of the arm to suggest nesting throughout the play area.

-At the end of the first two-minute round, count how many eggs were captured by the fox, and how many kittiwakes survived. If the nest sites were scattered, most eggs and birds were probably easily taken. Discuss the results. Was it easy for the fox to take eggs and kittiwakes? Why? How might the kittiwakes defend themselves better? Encourage the students to come up with strategies for defense and safety such as nesting closely together in a colony.

-Play another round, allowing the seabirds to nest together in a colony. At the end of round, discuss the differences between the two rounds. Were more kittiwakes and eggs able to survive? Discuss actual examples of colonial nesting in seabirds. What other nesting habits protect seabirds from predation? Examples are nesting on sheer cliffs, on islands and in deep burrows. What were the limits of fox population growth?

EXTENSION:

When on a field trip to a seabird colony, look for predators or signs of predators (scat, den sites, broken egg shells, parts of birds such as wings and feathers).