

Guard Your Nest

Grade Level: lower elementary, upper elementary/middle school

Duration: 20 to 30 minutes of preparation and post-activity discussion; and one full day or 60-minute class period where this activity can run simultaneously with other classroom activities.

Skills: communication, observation, prediction, critical thinking, problem solving, discussion, and evaluation

Subjects: science and fine arts

Concepts

- During a shorebird's breeding season, its habitat is where it courts, nests, and raises its young.
- Shorebirds nest on the ground.
- Shorebirds face numerous threats at their breeding grounds.
- Shorebirds have elaborate behavioral adaptations for courtship display and protection of their nests and young.
- Shorebird nests are well camouflaged. Chicks use both camouflage and behavior to stay concealed from predators.

Vocabulary

- camouflage
- cryptic coloration
- distraction display
- courtship
- scrape
- tundra
- jaegers
- egging
- piracy

Overview

Students, pretending to be shorebirds, must guard their nests from a multitude of predators and threats. They discover that camouflage and distraction displays are two strategies that increase a shorebird's chance of nesting success.

Objectives

After this activity, students will be able to:

- Give three examples of natural threats to shorebird nests.
- Describe two ways people hurt shorebird nests.
- Explain what role camouflage plays in the protection of shorebird nests and eggs.
- Describe two distraction displays shorebirds use to protect their nests and chicks.

Materials

- Construction paper or paper plates
- Scissors
- Masking tape
- Crayons or colored pencils
- One set of Shorebird Threat Cards (included here)
- An activity or lesson to conduct simultaneously

Introduction

Most shorebirds nest on the ground. Many breed in the high Arctic, mating and nesting on open tundra. The nests are generally very simple, shallow, saucer or cup-shaped depressions hollowed or "scraped" into the ground. These scrapes are often lined with grass, leaves, pebbles, or bits of shell. Other birds, including ptarmigan, grouse, and some ducks, make scrapes. Black Oystercatchers and Snowy Plovers, which nest on coastal beaches, also make simple scrapes.

Shorebirds protect their nests in a variety of ways. Nests are concealed within the surrounding landscape. The eggs are camouflaged with speckled coloration. Incubating parents have cryptically colored plumage and sit very still on the nest so they will not attract a predator's attention.

Shorebird parents are known for their clever predator distraction displays. One or both parents

pretend that they have a broken wing or are small mammalian prey. Using these wing-dragging, hunching, or stiff-walking gestures, they attempt to lead the intruder away. Shorebirds also use exaggerated gestures for courtship.

After the chicks have hatched, they learn to drop into a prone position at a parent's alarm call. This quiet, flattened posture, combined with their cryptic coloration, helps conceal them from hunting predators.

For more information on shorebird nesting and displays, read *Elaborate Shorebird Mating Systems and Displays* in the *Shorebird Primer*.

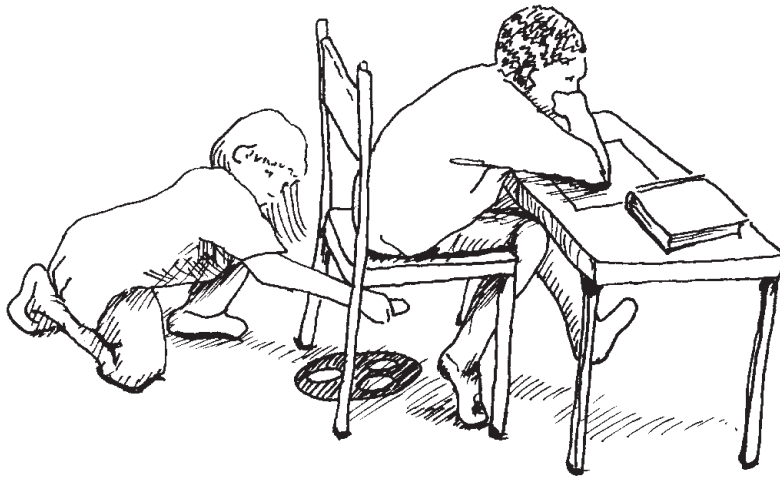
Activity Preparation

1. Copy and cut out a set of the Shorebird Threat Cards (included in this activity). Space is provided for you to add local issues and threats to the deck. There should be one card for every three students in the class. Duplicate cards are okay.

Procedure

1. Have each student construct a simple shorebird scrape using either a paper plate or a six inch diameter circle of construction paper. Add four construction paper eggs to the nest, taking care to make sure that all eggs fit within the diameter of the nest, touching but not on top of each other. Do not glue or tape eggs onto the nest.
2. Help your students brainstorm a list of possible threats to shorebird nesting success in each of the following categories: Arctic tundra, sandy coastal beaches, and/or grasslands. Write their ideas on the chalkboard in a table like the one below.





3. Explain that every student in the class is going to pretend to be a nesting shorebird. Their job is to protect their nests and eggs from environmental threats and predators (their other classmates). They may protect their nests in any way possible except physically touching the intruder. Help the class brainstorm acceptable ways to protect the nest and list their ideas on the board as a reminder. Here are some suggestions.

Ideas on How to Protect Your Nests

- Hiding the nest
- Making the nest and the eggs the same color as their surroundings
- Staying very close to the nest so as to be aware of any danger that approaches
- Sitting very still and trying not to draw attention to yourself and your nest
- Gesturing at any threatening predator in such a way as to distract it from your nest (For the purpose of this activity, vocal calls may be considered part of a distraction display although they are not always present in actual shorebird distractions.)
- Distracting intruders by leading them away from the nest with some gesture or pretense

4. Explain that several students will secretly get a *Shorebird Threat Card* to use against the other “shorebirds” in the class. If they get a card, they must attempt to “attack” one nest by following the instructions on the card—to take one egg, all the eggs, or the entire nest with all the eggs. “Attackers” have all day to attack, but they must turn in their cards to the teacher as soon as they are successful. Remind the “attackers” that they also must continue to protect their own nests from other “attackers.”

Threats to Nesting Shorebirds in Three Habitats

<i>Arctic Tundra</i>	<i>Sandy Coastal Beaches</i>	<i>Grasslands</i>
Predators: jaegers, gulls, foxes, weasels, etc. Egging (collecting eggs) Hunting Riding ATVs off trails	People jogging and walking unleashed dogs on the beach Children chasing flocks of birds Riding ATVs on the beach Jet Skiing close to the shore Unusually high tides Oil spills Predators: gulls, foxes, raccoons, feral cats etc. Litter Habitat lost to beach homes and hotels	Hunting Predators like falcons, foxes, etc. Agricultural pesticides Habitat lost to agriculture Mowing and harvesting equipment Cattle over-grazing

Attackers Cannot

- Touch the parent bird (In real life, parent shorebirds can fly away from a threat!)
- Attack during periods when the class is leaving or gone for recess, lunch, etc.

5. If a student “shorebird” senses an “attack” coming, the shorebird can protect its nest in any way without touching the “attacker.” “Shorebirds” cannot pick up their nests. Birds may try to distract the “attacker” with talking or gesturing in some wild way. If a “shorebird” can distract the “attacker” long enough, he or she may move on to another unsuspecting classmate.
6. Instruct students to consider carefully where they should place their nests. They must be somewhere on the floor or a countertop, but not up high on top of cabinets (shorebirds are ground nesters). Tell students that the nests cannot be moved from their original location.
7. Encourage students to color their nests and eggs so they are well camouflaged. Instruct them to use a loop of masking tape to secure their nest (but not their eggs). Give the students time to carefully place their nests.
8. It is important to simulate a more natural state. Nesting shorebird parents also need to feed, preen, and guard their nests all at the same time. Predators also have to care for their young while at the same time hunting for prey. To accomplish this, hand out reading or worksheet assignments that

can be completed at the same time with some disruption. Other activities may also proceed during this time. Allow students to work together so that some talking and moving about is okay.

9. Discreetly hand out the *Shorebird Threat Cards* to about one-third of the class.
10. Quietly pass the *Shorebird Threat Cards* to other students as they are turned in. Let the activity proceed for as long as possible so that all the students have a chance to use their *Shorebird Threat Cards*.

Example Game Scenarios

Mona receives a *Shorebird Threat Card* that says “ATV.” She watches for a good opportunity to attack an unguarded nest. Ten minutes later she notices that Daniel is across the room sharpening his pencil. Daniel comes back to discover his inattention has cost him of his eggs and nest. Mona puts all the eggs in her own nest and hands the card to the teacher, who later passes it to Sylvia. Daniel asks the teacher for more paper to make 4 new eggs.

Archie receives a *Shorebird Threat Card* that says “jaeger.” He watches and waits for a good opportunity to “attack.” Five minutes later he tries to sneak up to Chad’s nest and snatch an egg. Chad and Larry see him coming their way and decide to distract him by asking him about last night’s basketball game. To Chad’s disappointment, Archie picks up one of Chad’s eggs anyway, puts it in his own nest, and hands the card to the teacher. Chad may remember that he can choose to make another egg.

11. When the activity is over, ask students to count their eggs.

12. Discuss some of the following questions:

- Was the color of your nest important? Could you have concealed it better? Would you have chosen a different habitat?
- Did you lose time making a new nest or new eggs? Is time important to shorebirds? What might keep a second brood from fledging? (some possible answers are: insect hatch dies off, weather changes, and the parents’ need to migrate.)
- Are humans effective predators? Why were human predators allowed to take only one egg? (Humans who egg frequently leave some eggs so that more shorebirds will be born.) What other human activities pose a threat to shorebird nests? (They may inadvertently drive over nests on the beach or the tundra with ATVs, get too close on Jet Skis or when walking or jogging nearby. Researchers and other people who find nests may leave a scent trail. Weasels can follow human scents, and ravens and magpies sometimes look for nests by watching people. If you find a nest, walk on past it in the same direction you were going. Don’t leave a “v-shaped” scent-trail.)
- What happens to a shorebird nest if the parents are killed? What could kill them? Why are the parents in less danger than the eggs or chicks? (They can fly and they are experienced at avoiding predators.)

- Did you see any of your classmates work together to protect their eggs? Did distraction work? If not, why? (Card-holding predators wanted the egg more than whatever else was offered.) Why do birds use distraction displays? (A predator may be fooled into thinking that the distracting parent bird is injured and can be snatched easily.)

Additional Activities



Cultural Connection

Shorebird Egging: Ask students to research the sensitive issue of shorebird and seabird egging (the harvesting of eggs for subsistence purposes) in the Arctic.

Students can research how the Exxon Valdez oil spill affected nesting birds and the local communities.

Shorebird Chick Development

Have students research the chick development for a particular shorebird species. How many eggs does this species lay? What type of nest does it build? How many days old are the chicks when they fledge? What do the chicks look like? What are the biggest threats these chicks encounter? How old are these shorebirds when they first breed? Have scientists determined the nesting success of this species? Ask older students to pick two shorebird species and compare and contrast the chick development information they find.

Volunteer to Guard Real Shorebird Nests

If you live on the coast of the Atlantic or Pacific Flyways in the United States, you could help protect plover nests!

- Atlantic Flyway: Piping Plover – Volunteer Opportunities <http://pipingplover.fws.gov>
- Pacific Flyway: Snowy Plover – Do an Internet search for Snowy Plovers with volunteers in quotes



Shorebird Threat Cards

(Photocopy so there is one card for every three students.)
 (Write your own local examples on the blank cards.)

Predator Threat	Predator Threat	Predator Threat	Predator Threat
People (Take one egg.)	Jaeger (pronounced "yay-ger") (Take one egg.)	Fox (Take one egg.)	Weasel (Take one egg.)
Predator Threat	Predator Threat	Predator Threat (Local)	Predator Threat (Local)
Gulls (Take all the eggs.)	Falcon (Take one egg.)		
Habitat Threat	Habitat Threat	Habitat Threat	Habitat Threat
Inexperienced Parents (Take one egg.)	Flooding (Take the entire nest and all the eggs.)	Dangerous Waves (Take the entire nest and all the eggs.)	Loss of Habitat (Take the entire nest and all the eggs.)
Habitat Threat	Habitat Threat (Local)	Habitat Threat (Local)	Habitat Threat (Local)
Extra High Tides (Take the entire nest and all the eggs.)			
Human Threat	Human Threat	Human Threat	Human Threat
Egging (Take one egg.)	Hunting (Take the entire nest and all the eggs.)	Jet Skis (Take all the eggs.)	ATVs (Take the entire nest and all the eggs.)

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 (Write your own local examples on the blank cards.)

Human Threat	Human Threat	Human Threat	Human Threat
Dog Walking (Take one egg.)	Jogging on the Beach (Take one egg.)	Trash (Take one egg.)	Chasing Flocks of Birds (Take one egg.)
Agricultural Threat	Agricultural Threat	Agricultural Threat	Agricultural Threat
Mowing Equipment (Take the entire nest and all the eggs.)	Pesticides (Take all the eggs.)	Habitat Loss to Agriculture (Take the entire nest and all the eggs.)	Harvesting Equipment (Take the entire nest and all the eggs.)
Human Threat (Local)	Human Threat (Local)	Human Threat (Local)	Human Threat (Local)
Agricultural Threat (Local)	Agricultural Threat (Local)	Agricultural Threat (Local)	Agricultural Threat (Local)