

Danger Ahead!

Introduction



The orcas of Granny's clan face many threats to their survival. These orcas have been given special protection as an endangered species in the United States, Canada and the state of Washington. Why are they in such danger?

Food Shortage - Lack of salmon means Granny and her clan have to travel much farther to find enough salmon to eat. The number of salmon has decreased over 90% in the last 100 years because of overfishing, dams and loss of salmon habitat.

Toxins - Toxic chemicals pollute the seas where Granny and her clan live. These dangerous chemicals don't break down and are passed from one animal to another up the food chain. When an orca eats a salmon, toxins are stored in the orca's blubber. These toxins are released into the orca's body when the orca gets hungry and burns fat. Then the orca may get sick and die from infection.

Boat Traffic - Because so many people want to see Granny and her clan, dozens of boats crowd the waters whenever the orcas make an appearance. Too many boats chasing the orcas can stress them, separate families and interfere with their feeding, resting, traveling and socializing.

Noise - Many different boats travel the waters where Granny and her clan live. Fishing boats, pleasure boats, whale-watch boats, ferry boats, cruise ships, Navy ships, freighters and tankers pass through the Salish Sea each day. Loud noise from all these boats can interfere with orca echolocation and communication and even cause serious injury to the orcas.

Key Concepts

- ◆ Lack of salmon, toxic pollution, boat traffic and noise are dangers facing Granny's clan.
- ◆ Decrease in salmon populations make it difficult for Granny's clan to find enough food.
- ◆ Toxic chemicals in the sea build up in the food chain and cause orcas to become sick.
- ◆ Boat noise interferes with orca navigation and communication.
- ◆ Whale-watching boats travel too close to orcas.

National Science Education Standards

Life Science – Characteristics of Organisms. Organisms and their Environments (K-4)

Characteristics and Changes in Populations. Changes in Environments (K-4)

National Council for Teachers of English/ International Reading Association Standards:

4. Students adjust their use of spoken, written and visual language to communicate effectively with a variety of audiences and for different purposes.
5. Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for different purposes.
8. Students use a variety of technological and information resources to gather and synthesize information and to create and communicate knowledge.

Inquiry Questions

- ◆ What happens to orcas when they can't find enough food? What would happen to you if you couldn't find enough food?
- ◆ What happens to orcas when they can't use their echolocation to navigate because of too much boat noise? How would you feel if you couldn't find your way home?
- ◆ What happens to orcas if they get sick from toxic chemicals? What happens to you when you get sick?
- ◆ What happens if orcas can't communicate with their families? What would happen if you couldn't talk with your family?
- ◆ What happens if whale-watching boats get too close to orcas? What happens if bikes or cars travel too close to you while walking?
- ◆ Do you think people would miss the orcas of Granny's clan if they disappeared?
- ◆ If Granny could speak to humans, what do you think she might say? Ask humans to do? Not do?

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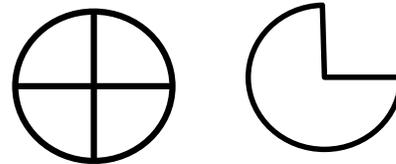
Activity #1-Wheel of Danger

In this activity, students design a spinner that reveals the dangers that threaten Granny's clan.

Materials Needed: drawing and construction paper, paper fasteners, markers, crayons, scissors, compass

Procedure:

1. Draw and cut out two large circles of equal size.
2. Divide one circle into 4 quarter sections.
3. Draw and color a different scene on each quarter that shows how human actions endanger the orcas of Granny's clan (food shortage, toxins, noise & boat traffic).
4. Write name of the danger on each section.
5. Mount circle on construction paper.
6. Use second circle as wheel cover.
7. Cut one quarter section from second circle to make window.
8. Decorate cover and label **ORCA Wheel of Danger**.
9. Use brass fastener to attach cover to base.
10. As you turn the wheel, the open quarter reveals different scenes in the window.



Activity #2 -Can You Survive? Orca Survival Game

In this activity, students play a game in which they take on the roles of orcas and encounter challenges to their survival.

Materials Needed: Game board, dice, game pieces, game cards

Procedure: Game can be played on game board or as life-sized game.

Preparation

1. Mount game board (see **Game Board**) on thick poster board and laminate.
2. **For Life-sized Game:** Change game into a life-sized version by enlarging each game board square to 2 X 2 ft. and arranging them into same configuration on classroom floor. Game pieces can be students wearing orca paper-bag costumes. Use same rules for game play.
3. Print and cut out **DANGER** cards and **SURVIVE** cards (see **Game Cards**). Place in two piles.
4. Make game pieces. Create different orca cut-out figures or use multi-colored playing pieces from another game.

Game Rules:

1. Goal of game is to **SURVIVE** the challenges and live another day.
2. Throw dice to choose first player. Continue taking turns clockwise from first player.
3. First person rolls the dice. Begin at **START** and move the number of spaces on the dice.
4. If you land on a **DANGER CARD**, pick one and follow its directions. Return card to pile.
5. If you land on a **SURVIVE CARD**, pick one and follow its directions. Return card to pile.
6. If you land on any other card, stay until your next turn.
7. Each player survives and wins when reaching the **END**.

CAN YOU SURVIVE? ORCA SURVIVAL GAME BOARD

START		DANGER CARD	People wave at you from shore	Play in bow wave of tanker	Pass seals resting on rocks	SURVIVE CARD	
Time for a fishing lesson		Avoid meeting transient Orcas				Family changes direction	
SURVIVE CARD		SURVIVE CARD	Tail slap!	Lots of fishing boats nearby		Research boat takes your photo	
Your clan gathers into a Superpod		<i>CAN YOU SURVIVE?</i>		Share a fish with your cousin		DANGER CARD	
Carry a salmon on your head				DANGER CARD		Breach!	
Spy-hop!				Swim past group of kayaks		Lots of salmon ahead!	
DANGER CARD		SURVIVE CARD	Time to rest with your family	Boats make a lot of noise today		SURVIVE CARD	
Your family searches for salmon		Time to play in the kelp				Listen for family calls	
Travel by the lighthouse	Time to practice <i>ECHO</i> -location	DANGER CARD				END	Pass a whale-watch boat

CAN YOU SURVIVE? ORCA SURVIVAL GAME CARDS

DANGER CARDS

DANGER!

Salmon overfished. Not enough left for you. Go back 2 spaces.

DANGER!

Toxins in the water get stored your blubber. Go back 2 spaces.

DANGER!

Too many boats crowd your family on a holiday weekend. Go back 1 space.

DANGER!

Your baby cousin gets sick from toxins and bacteria. Go back 2 spaces.

DANGER!

Sonar blast from Navy ship causes your family to leave area. Go back 2 spaces

DANGER!

Development damages an estuary that is prime salmon habitat. Go back 1 space.

DANGER!

An oil spill from a freighter leaks into the water. Go back 1 space.

DANGER!

A cruise ship dumps raw sewage into the sea. Go back 1 space.

SURVIVE CARDS

SURVIVE!

Volunteers restore a salmon spawning habitat. Go forward 1 space.

SURVIVE!

Lots more young salmon survive to reach the sea this year. Go ahead 1 space.

SURVIVE!

Most boats follow the *Be Whale Wise* rules and give you space. Go ahead 1 space.

SURVIVE!

A marine sanctuary is created to protect your habitat. Go ahead 2 spaces.

SURVIVE!

A dam is demolished to let a river run free. Salmon return. Move ahead 1 space.

SURVIVE!

Your clan has been given protection as an endangered species. Move ahead 2 spaces.

SURVIVE!

A new baby is born in your family. Move ahead 2 spaces.

SURVIVE!

Volunteers clean up a beach. Move ahead 1 space.