



Pete's Potato Angels



A story about the relationships between wildlife and potato farming in Delta, British Columbia.

Students will read the story *Pete's Potato Angels*, and then complete an activity to help solidify their learning.

Suggested Subject /Grade Levels

K-3 Science

K-2 Social Studies

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Social Studies	Big Ideas	Content Connections
Kindergarten	<p>Our communities are diverse and made up of individuals who have a lot in common.</p> <p>Rights, roles, and responsibilities shape our identity and help us build healthy relationships with others.</p>	<ul style="list-style-type: none"> • rights, roles, and responsibilities of individuals and groups • people, places, and events in the local community, and in local First Peoples communities
One	<p>We shape the local environment, and the local environment shapes who we are and how we live.</p> <p>Our rights, roles, and responsibilities are important for building strong communities.</p> <p>Healthy communities recognize and respect the diversity of individuals and care for the local environment.</p>	<ul style="list-style-type: none"> • relationships between a community and its environment • roles, rights, and responsibilities in the local community • natural and human-made features of the local environment
Two	<p>Local actions have global consequences, and global actions have local consequences.</p> <p>Canada is made up of many diverse regions and communities.</p>	<ul style="list-style-type: none"> • relationships between people and the environment in different communities • rights and responsibilities of individuals regionally and globally • roles and responsibilities of regional governments

Science	Big Ideas	Content Connections
Kindergarten	<p>Plants and animals have observable features.</p> <p>Daily and seasonal changes affect all living things.</p>	<ul style="list-style-type: none"> • basic needs of plants and animals • adaptations of local plants and animals • weather changes • seasonal changes • living things make changes to accommodate daily and seasonal cycles

One	Living things have features and behaviours that help them survive in their environment. Observable patterns and cycles occur in the local sky and landscape.	<ul style="list-style-type: none"> names of local plants and animals structural features of living things in the local environment behavioural adaptations of animals in the local environment
Two	Water is essential to all living things, and it cycles through the environment.	<ul style="list-style-type: none"> water sources including local watersheds water conservation
Three	Living things are diverse, can be grouped and interact in their ecosystems.	<ul style="list-style-type: none"> biodiversity in the local environment

Teacher Background

The geese in the story are called Lesser Snow Geese. They come from Wrangell Island, Russia and fly along the Pacific Fly Way as they migrate to Delta, British Columbia. Their trip can be up to four thousand kilometers. Snow geese make a few stops along the way to rest and feed. Their stopping areas include the Russian mainland, St. Lawrence Island (Bering Sea), the Yukon-Kuskokwin delta (western Alaska), Cooke Inlet (southern Alaska), and the mouth of the Stikine River in northern British Columbia. Some snow geese fly from Alaska to Delta in one non-stop flight- two thousand five hundred kilometers long! They can make this flight in less than thirty-six hours. Snow geese can fly at speeds of up to forty kilometers per hour.

Lesser Snow Geese have strong, serrated beaks and tongues that crush potatoes rich in nutritious starch. They also eat grains and grasses. Lesser Snow Geese develop an orange stain on their heads from rooting in the iron rich, Delta soil.

In wild areas, Lesser Snow Geese eat intertidal marsh plants growing in estuaries. Plants such as bulrushes also store starch in their roots. The geese use their strong bills to dig up these food sources.

Lesser Snow Geese usually mate for life. They often nest close to each other in large colonies of five thousand pairs per square kilometer. Nesting starts in early May to mid-June. A pair prepares a nest by scraping a shallow hollow in the earth. The hollow is lined with a collection of moss, willow and grasses. Some down, or fine feathers, is added to the nest when the eggs are laid. Anywhere from two to six eggs are produced. Only female snow geese sit on the eggs. The male stays close by to protect the female and nest from predators. Snow geese are also known to nest near Snowy Owl nests as these aggressive parents drive away threatening predators. Lesser Snow Geese thus benefit from the owls' keen eyesight and protective behaviours.

The female goose will leave the nest for a few minutes each day or not leave at all. Consequently, she is very thin by the time the eggs hatch approximately twenty three days after they are laid. She may lose up to thirty percent of her body weight. She will regain this, however, when she starts to feed her goslings. Snow geese have very strong family bonds. The young and adults remain together throughout the winter, spring and fall migrations. They separate after mating.

Materials

- Potato
- Bird Feather
- Sunflower seeds
- [Photo of Lesser Snow Geese](#)
- *Pete's Potato Angels* Story
- Student handouts:
 - *Pete's Potato Angels* Graphic Organizer

Procedure

1. Display the potato, bird feather and sunflower seeds at the front of the class.
2. Tell students that you are going to read them a story, and that you would like them to make some predictions about what they think the story might be about, based on the items you displayed.
3. Review the graphic organizer to students.
4. Read *Pete's Potato Angels* aloud to class.
 - a. Stop and show picture of Lesser Snow Geese for students to have a visual.
5. At the end of the story, review information needed for graphic organizer and have students complete it.
6. Have students share graphic organizers with a partner or small group.

Extension Activities

- List and compare the different animals mentioned in the story. Have students group them according to their similarities.
- Diagram the annual farming cycle, and insert into the diagram where the animal interactions take place.
- Discuss and list events that would cause Lesser Snow Geese to not migrate to the Delta farmlands.
- Describe some of the relationships from the story that show the dependency of living things (snow geese, snowy owls, brown bats and insects).
- Identify the relationships mentioned in the story between wildlife and farm plants such as barn owls and mice and corn crops; humans, wild geese and potato plants; pollinators and plants.
- Create a map to show a bird's migratory route ([Pacific Flyway](#)) and refueling points.
- Learn more at [BC's Potato Story](#)
- Check out our [Spuds in Tubs Handbook](#) for different potato activities including a labeling the potato plant activity.

Credit

- Delta Farmland and Wildlife Trust: <https://deltafarmland.ca/>
- Grow BC Potato Story: <https://bcaitc.ca/index.php/resources/grow-bc-potato-story>

Pete's Potato Angels

The autumn, afternoon sun slowly sinks in the sky causing a reflection on a stream trickling through farmland in Delta, British Columbia. Eleven year old Pete dips his toes in the sparkling water as he observes three olive-backed Western Tanagers pecking seeds from sunflowers growing in hedgerows. Hedgerows are rows of bushes and shrubs planted to form protective shelters around fields. As sunflower seeds sprinkle to the ground, Pete promises to return to this peaceful place next spring to look for new sunflowers. He knows that they make excellent natural birdfeeders; perfect for bird watching. As he puts on his shoes and heads home, Pete observes other pollinators: butterflies, beetles and bumblebees transferring pollen grains from flower to flower. Pollinators are very important to farmers as they are vital to the production of new plants in the spring.

Walking home through his family's potato fields, Pete reflects on the farming cycle. In the spring his family planted thousands of seed potatoes which sprouted fresh, green stalks. The stalks developed broad, veined leaves. The leaves absorbed sunshine converting it into plant energy. The potato plants grew and developed new potatoes around their roots. All the potatoes growing to a size of thirty-five to seventy-five millimeters in diameter were collected by a large machine attached to a tractor. Potatoes sold in the markets must meet this standard size. Potatoes smaller than this size are left in the fields. Next spring, Pete's family would once again plant seed potatoes and the cycle would repeat. Nearing the farmhouse, Pete leaves the field which is dotted with small potatoes, and heads up the road towards his house.

The late afternoon sun warms Pete's back as he walks. Approaching the driveway, he notices a familiar truck. The logo on the truck door says Delta Farmland and Wildlife Trust. Pete hears voices in the barn so he wanders in to find his father talking to Mr. Martin. Mr. Martin knows most of the farmers in the Delta region. He works with people to find ways for wildlife to coexist with farming in the area. The Delta area is an especially important region because it is part of the Pacific Fly Way; an ancient 'highway' for migrating birds. Mr. Martin and Pete's father discuss hosting a meeting with other local farmers to present a new idea. Pete wonders, "What is this idea is about?"

Several days later, Pete comes home from school and finds a dozen farm trucks parked in front of his house. The Delta Farmland and Wildlife Trust truck is also there. In the kitchen, farmers greet each other, shake hands and settle into chairs around the kitchen table. Pete's curiosity burns inside him, "Why are they gathering at his house?" But he isn't invited to the meeting, so he climbs the stairs to his bedroom and perches on the top step where he can overhear the conversations, out of view.

Pete's father opens the conversation welcoming the farmers. He explains that Mr. Martin has a plan he would like the group to consider. He suggests a possible solution to a problem potato farmers need help with. He explains that they must remove the small potatoes

from the soil before they sprout new shoots in the spring. Potatoes that resprout are called 'volunteer' potatoes. Volunteer potatoes produce poor quality, starchy spuds; not suitable for selling in the stores. As well, if left in the field, volunteer potatoes decay and could have disease that could infect new crops. So, seed potato farmers will pay workers to weed out the volunteer potatoes from the field, which costs money. But today, Mr. Martin offers a different approach to this problem, one that surprises Pete.

Mr. Martin suggests that farmers refrain from shooting blanks (empty bullets) into the air, creating loud bangs to keep wild birds from eating winter hay crops. Often hay fields are near potato fields so birds are frightened from the general area. If, however, farming areas are quiet, it is possible wild geese will land on the fields and eat the potatoes.

The farmers listen carefully to this plan. Some farmers are concerned that if they don't scare wildlife from their hay crops, their plants will be damaged by wild birds. The hay is needed to feed livestock or to sell later on.

Other farmers nod in agreement with Mr. Martin's plan as it provides wildlife with a valuable food source after migrating, and it could also save farmers' money, as field help may not be needed in the spring to remove the volunteer potatoes.

Mr. Martin understands the farmers' different perspectives, but he would like to give the new approach a chance. He knows, however, that there are no guarantees when it comes to wildlife.

Pete quietly listens to the farmers' different points of view. Some farmers are willing to try Mr. Martin's plan, while others are unsure. A few farmers are concerned that large flocks of birds will pack down or compact the field's surface, preventing water from draining through the soil. Poor drainage causes puddles to form, compacting the soil even more. Plants need soil to have tiny air pockets so that roots can grow down into the earth. Soil compaction causes plants to be stunted and produce fewer potatoes.

Pete wonders, "Whose opinion is best? The points the farmers raise make sense to him. How can they reach a decision that satisfies everyone?" Finally, after each farmer carefully considers the issues, they agree to try Mr. Martin's plan. The hay fields will remain quiet so that the Delta farmland will be more attractive to wild geese. The farmers decide to wait three weeks in hopes that the wild birds will come to their potato fields.

The first week passes and so does the second. Pete scans the fields each day after school, but he does not see any wild geese. The Delta farmlands are quiet, but not completely silent. In the evenings and before he goes to sleep at night, Pete hears many wonderful sounds including the tap-tap-tap of woodpeckers on trees as they seek insects living under the bark. Pete's father told him that woodpeckers are farmers' friends. Pete also hears coyotes howling as they hunt rabbits and mice who nibble the crops' tender, new shoots. Owls hoot and hawks scream as they begin the evening hunt startling rodents into their aerial views.

There are some night sounds Pete's ears do not detect, such as the high pitched squeaks of brown bats using echolocation as they seek mosquitoes in the night. Female brown bats can eat up to one and a half times their body weight in one night. Pete likes having brown bats around the farm as itchy mosquito bites keep him awake at night. Beneath the soil, wriggling earth worms create air pockets in the soil which help plants grow.

As the third week approaches, only a few ducks waddle on to the fields. Pete wonders, "Will the wild geese come to the potato fields? Will Mr. Martin's plan help the farmers and the birds?"

One day after school, Pete wanders beyond his family fields searching for wild birds. He ventures onto farmland that has been seeded to tall grass and clover and left alone for several years. The tall grass waves lazily with the wind. This land was set aside for rejuvenation so that the soil can rest and restore nutrients. Soil rich in nutrients produces better vegetables than depleted soil; soil that has had its nutrients used up.

These resting fields also provide natural habitats for wildlife. The tall grasses provide cover for voles who create tunnels to their nests. Pete spots a short-eared owl swooping down to catch a vole in its sharp talons. He is impressed with how the land and living things exist harmoniously. These fields give wildlife a place to hunt and hide; a home for having babies and gathering food. At the same time, resting fields provide farmers with rich soil for future use.

That evening after his long walk through the land, Pete climbs into bed with tired legs. He hopes the wild birds will come to the potato fields, but the farmers' meeting was almost three weeks ago. Time is running out. Before drifting into sleep, he pictures the wildlife he has recently seen: tanagers, coyotes, owls, woodpeckers, ladybugs, worms, butterflies, bumblebees, brown bats, hawks, rabbits and voles. Finally, Pete falls into a deep sleep.

With dawn lighting the sky, Pete slowly wakes, opens his tired eyes, and looks outside. It seems that there is fresh snow on the ground. With glazed vision and a drowsy brain, he thinks, "It is quite early for snow. Wait. What is that? What's happening? The snow blanket is moving!"

Pete slides his legs onto the cool floor and lightly steps to the window to get a better look. Suddenly, a large white wing brushes the outside of the window and disappears. Astonished, he jumps back.

"An angel! There is an angel at the window. Her wings were so close, I could have touched her," Pete stammers.

The flying angel loops around and joins the white blanket on the field. Pete throws on his housecoat and tip toes downstairs to look through the bigger windows. Now his eyes have adjusted to the dark and he is alert.

Through the living room window, Pete sees the most beautiful angel he can imagine. She is full of undulating softness, snowy white with momentary flashes of black. Her lips are tinted orangey-pink and she is hungry! She is a Russian angel and she has thousands of friends in the field. Pete stares in disbelief. He sees acres of snow geese! Snow geese who are eating, no gobbling, gobbling as fast as they can, gobbling potatoes!

"POTATOES!" Pete laughs out loud. "They are eating potatoes! Hah, potato angels." If they continue their greedy eating, our fields will be cleared in a couple of days!

The clock strikes. It is two in the morning. Pete must get back to bed. Just to make sure it wasn't a dream, he looks out the window once more. He can hardly see the earth for all the snow geese. Thousands of birds push their slender oval heads into the soil pulling out potatoes with their serrated beaks. With ease, they crush the starchy masses gulping them down. They eat as if they hadn't eaten in days - one potato, two potato, three potato, four, but this is thousands of times more!

Upon closer inspection, Pete sees some white birds that are much larger than the others. He realizes these are swans. Then his eyes spot smaller, darker movements closer to the earth: wigeons, mallards, and pintails - small dabbling ducks. There are several species of wild birds sharing food on the field.

Pete wonders about the snow geese. Where did they come from? Did they stop to refuel on their journey here? What other kinds of food do snow geese eat? How do snow geese begin their lives?

Suddenly, there are so many things he wants to know, but his questions will have to wait until tomorrow when he can get to the library. Turning from the window, Pete whispers, "Tonight help yourselves, my friends. You've earned a good meal after your long journey, so stay as long as the potatoes last."

In the morning, Pete can hardly wait to get to school. He goes to the library and reads through many books to find answers to his questions about snow geese. He jots down what he learns in his notebook.

That evening Pete and his parents watch the wild birds feasting in their field. Pete tells his parents all the interesting facts he learned about snow geese at school. He realizes that Mr. Martin's plan was a great idea. The geese, swans and ducks are eating thousands of potatoes replenishing their hungry bodies, and in turn doing hundreds of hours of work for the farmers.

The Delta farmers took a worthwhile risk. Pete feels proud that his father supported the plan by hosting a meeting at their house. He promises himself that he too will be an innovative farmer and will work cooperatively with other local farmers. Together they can help protect the beautiful, wild creatures that also need the land.

Snuggling into his cozy bed that night, Pete hears angelic honking way up in the heavens. The thankful geese, now fully energized, dissolve into specks no longer detected by eyes.

But before Pete closes his, he tells himself, "When we think that there are no alternatives, we must remember nature. Given an opportunity, She might offer something in exchange for our consideration."

As the wild geese disappear in the sky, Pete hears a sound from the barn, "Screeeeech" and a barn owl swoops from the rafters to ensure one less mouse nibbles the corn.

THE END

Pete's Potato Angels



Name: _____

How do the geese help the farmers?



What do potato farmers do in the spring?

Write or draw some animals mentioned in the story