WHAT HELPS PLANTS AND ANIMALS LIVE IN PLACES?

Overview

In this lesson, students learn that living things have different features and behaviors that help them thrive in their local environment. Students will explore how the local community is affected by change in the local environment.

Objectives

On successful completion of this lesson, students will be able to:

- identify how living things adapt to their environment;
- classify living things according to their physical characteristics and behaviors that help them survive seasonal change in the local environment; and
- describe how the community and their dependence on living things in the local environment change when the seasons change.

Alaska Standards

Alaska Science Standards / Grade Level Expectations

[3] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.

[3] SA1.2 The student demonstrates an understanding of the processes of science by observing and describing the student's own world to answer simple questions.

[3] SA3.1 The student demonstrates an understanding that interactions with the environment provide an opportunity for understanding scientific concepts by observing local conditions that determine which plants and/or animals survive.

[3] SC1.1 The student demonstrates an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution by sorting Alaskan plants and /or animals using physical characteristics. (e.g., leaves, beaks)

3] SC1.2 The student demonstrates an understanding of how science explains changes in life forms over time, including genetics, heredity, the process of natural selection, and biological evolution by describing how some traits (e.g., claws, teeth, camouflage) of living organisms have helped them survive as a species.

[3] SC2.1 The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by sorting animals and plants into groups based on appearance and behaviors.

[3] SC2.2 The student demonstrates an understanding of the structure, function,

behavior, development, life cycles, and diversity of living organisms by observing and comparing external features of plants and animals that may help them grow, survive, and reproduce.

[3] SC3.1 The student demonstrates an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy by identifying examples of living and non-living things in the local environment.

Alaska Mathematics Standards

2.MD.9 Collect, record, interpret, represent, and describe data in a table, graph or line plot.

Alaska English / Language Arts Standards

W.3.2.a-d Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

Alaska Cultural Standards

[D] Culturally knowledgeable students are able to engage effectively in learning activities that are based on traditional ways of knowing and learning.

[E] Culturally knowledgeable students demonstrate an awareness and appreciation of the relationships and processes of interaction of all features in the world around them. Students who meet this cultural standard are able to:

[E.2] understand the ecology and geography of the bioregion they inhabit.

Bering Strait School District Scope & Sequence

2nd grade sequence #4: Living Things (Animals)

B. Understand the needs of animals.
C. Understands how we classify animals.
D. Understands how animals grow and change.
E. Uses scientific processes and inquiry to directly support the concepts of living things.

3rd grade sequence #4, 5: Living Things (Animals)

B. Observe and compare external features of animals that may help them grow, survive, and reproduce.

C. Sort Alaskan animals using physical characteristics.
D. Describe how some traits (e.g., claws, teeth, camouflage) of living organisms have helped them survive as a species.
E. Sort animals into groups based on appearance and behaviors.
F. Understand what vertebrates are.
G. Understand what invertebrates are.
H. Use scientific processes and inquiry to directly support concepts on animals.

Materials

- Living Things Information Cards (Appendix, one set per group of five students)
- Unlined paper
- Chart paper
- Markers
- Student Worksheet: Adaptations of Living Things (one per student)
- Optional:
  - Student Worksheet: What Helps Living Things Survive
  - Books and resources on local land and water plants, animals, and insects in addition to and including the additional resources.

Multimedia

REACH Multimedia K-3: "Watch the Balance of Nature"

REACH Multimedia 4-6: "How Do Animals and Plants Adapt?"
Available at: www.k12reach.org

Additional Resources

Hibernation by Margaret Hall

Going Home: The Mystery of Animal Migration by Marianne Berkes

Animal Camouflage in the Snow by Martha Rustad

Animal Camouflage in the Ocean by Martha Rustad

Animal Camouflage in the Forest by Martha Rustad

On the Move: Mass Migration by Scotti Cohn

Salmon Migration by M.J. Cosson

WHAT HELPS PLANTS AND ANIMALS LIVE IN PLACES?

Humpback Whale Migration by L. E. Carmichael

Arctic Tern Migration by Rebecca Eileen Hirsch

Caribou Migration by Rebecca Eileen Hirsch

North: The Amazing Story of Arctic Migration by Nick Dowson

Waiting for Ice by Sandra Markle

Ocean Animal Adaptations by Julie Murphy

Polar Animal Adaptations by Lisa J. Amstutz

What Do Critters Do in the Winter? by Julie K. Lundgren

Wildlife Notebook Series Alaska Department of Fish and Game

Activity Preparations

1. Read through the entire lesson, including the background information in the Whole Picture section.
2. Create a chart titled "Adaptations of Living Things". Complete the chart as shown in Appendix A.
3. Have a variety of books and resources on living things available for student access, including additional resources if available.
4. Make copies of the Student Worksheet: Adaptations of Living Things.
5. If desired, make copies of the Student Worksheet: What Helps Living Things Survive.
6. If needed, make extra copies of the Living Things Information Cards (Appendix B). If using the optional homework worksheet, you may want to make extra sets of the cards for students to take home.

Whole Picture

All living things require basic needs to survive. Animals need food, water, shelter, space, and oxygen. In addition to these things, plants also need light, to make their own food through photosynthesis. At the same time, individual plants and animals have unique needs — making them particularly adapted to specific areas. For example, a polar bear's hollow fur and dark skin give it an edge in extremely cold climates, but these would make it ill-suited for a more moderate climate — the bear would get too hot and likely would not survive! Similarly, tundra plants are uniquely adapted to high winds and cold temperatures. If you tried to relocate plants from the forest to the tundra, they would not be equipped to fulfill their needs.

WHAT HELPS PLANTS AND ANIMALS LIVE IN PLACES?

The needs of many Arctic and sub-arctic plants and animals are being just so disrupted as the climate changes. A major challenge for many species here is the ability to find adequate food and shelter. One such example is caribou. These animals have highly specialized hooves; they are designed to dig through snow in winter in order to find nutritionally rich lichen. However, warmer winters have brought freezing rains to the tundra, encasing the lichen in ice and making it impossible for the caribou to access (Divoky and Rosa, 2015). In the spring, the caribou face yet another difficulty. Like other migratory species, caribou migrate in time with the light, or photoperiod, which has historically been timed with the nutritional peak of tundra grasses, sedges, and other low-lying plants that the caribou eat. Due to climate change, many of these plants are beginning to reach their peak nutritional value much earlier — when the caribou have not yet arrived to eat them. As a result, many caribou — especially calves — are going hungry. (Divoky and Rosa, 2015).

Another example of a subsistence animal with specific needs are sea birds. They require a nearby, reliable source of fish and safe shelter for their chicks. Sea ice provides critical habitat for fish species, like Arctic cod, that sea birds depend on. As it melts and moves farther off shore, the waters become warmer and less hospitable for the fish, which in turn move farther away and into deeper, colder water — where sea birds cannot access them. Similarly, finding adequate shelter has become a problem. Not only is the coastline eroding, causing a loss of habitat for nesting sea birds (Kingeekuk, 2010), but spring precipitation has turned from snow to rain. While the downy chick feathers are ideal protection against wind and snow, they provide little protection against the rain, which turns to a coat of ice in the wind (Divoky and Rosa, 2015). Consequently, sea bird populations are diminishing as chick survival rates plummet.

The term trophic phenological mismatch refers to when timing of the usual activities of plants and animals, or predators and prey, do not coincide as they did previously. For example, snowshoe hares are more vulnerable to predation in a changing climate. The change in their pelage from white to brown is triggered by photoperiod, but when the snow melts earlier than usual in the spring, snowshoe hares are left without their camouflage.

Alaska Native elders have also noted the phenological mismatch. Elders agree with scientists that climate changes are affecting subsistence plants and animals. They also teach that the reasons for this have to do with spiritual imbalance. They say that the spirits of plants and animals respond directly to how they are treated by the people who harvest them. Elders advise that subsistence plants and animals show and give themselves when they want to be harvested (Garibaldi, 1999). When they are absent from the landscape, it is believed that the plant and animal spirits of previously

harvested species were offended by the way the people acted or treated them, and told others of their kind not to return (Charles, 2002; Fienup-Riordan and Rearden, 2012.

Alaska Native elders and culture bearers teach that all things are connected. All life needs basic elements to survive and thrive: food, shelter, air, water, and space. When the system becomes unbalanced, these needs fail to be met and life falters. Because of climate change, some plants and animals that have lived in the Arctic for thousands of years are facing just such difficulties.

Vocabulary

adaptation – any trait that helps a living thing survive

environment – all the living, nonliving, and once living things in a place

living thing – needing food, water, and air to grow and change

camouflage – color, patterns, and shapes that disguise a living thing and help it hide

migration – the movement of animals from one region to another and back

hibernation – a deep sleeplike state for winter

behavior – an action done by a living thing to help it survive

physical feature – a trait or part that can be seen or observed on a living thing

Activity Procedure

Part 1

1. Give students a blank piece of paper and ask them to draw a picture of themselves on it and label the features they have that help them survive in the local environment. At the bottom of the page ask them to jot down several things they do that help them survive when the seasons change and it becomes colder. Tell them they will have five minutes to draw their pictures. After they have finished with their pictures ask the students (pre-assessment):
    - What features do you have that help you survive in the local environment?
    - What behaviors do you have that help you survive?
    - What behaviors do you change when the seasons change and it becomes colder?
    - How would your behaviors differ between a land and water environment?
    - How would they be the same?
    - What does it mean to adapt to one's environment?

2. Explain to the students that living things adapt to the environment they live in. Explain the meaning of the vocabulary word adaptation. Show the students the chart "Adaptations of Living Things" (example in Appendix) and explain the terms. Explain that living things have different physical features and behaviors that help them adjust and change so they can survive in their environment. Point out the examples of the animals on the chart for each adaptation. Ask the students what kind of adaptation each of the living things has in the following examples:
    - A whale has a blowhole to help it breathe air. (physical feature)
    - A crab's shell protects it from other animals. (physical feature)
    - Canada geese fly south for the winter. (migration / behavior)
    - Wolves hunt in packs. (behavior)
    - Birds have hollow bones and light feathers so they can fly. (physical feature)
    - Arctic ground squirrels sleep during the winter months. (hibernation / physical feature and behavior)
    - Salmon fry migrate out to sea but return to spawn in the river years later. (migration / behavior)
    - Arctic hares are white in the winter and brown in the summer. (camouflage / physical feature)
3. Have students give other examples and record them on the chart. Discuss how these adaptations help animals survive. Have them decide if they are a behavioral adaptation or a physical feature.
4. Discussion Questions (student assessment):
    - What are some physical features of living things that live on land?
    - What are some physical features of living things that live in water?
    - What are some behaviors that living things do on land?
    - What are some behaviors that living things do in water?
    - How are animals and plants different in how they adapt?
    - How are animals and plants the same in how they adapt?

Part 2

1. Review vocabulary terms from Part 1 and remind the students of what they learned from the chart.
2. Introduce the Living Things Information Cards and explain that they will be reading about living things from the local environment. Explain that students will be exploring the adaptations, both physical features and behaviors, of the living things. They will be classifying the living things by adaptation. Tell the students that a living thing may have more than one adaptation. Give examples

such as:

- A beluga whale has white skin that camouflages them against the arctic ice. (Camouflage)
- A beluga whale migrates to coastal water in summer, deep ocean water in winter. (Migration)
- A beluga whale has five inches of blubber to keep warm in cold water. (Physical Feature)

3. Instruct the students on the following procedure:
   - Students will be divided into groups of five. (If you have smaller groups, each student will just have more cards to read.)
   - Each student will get the Student Worksheet: Adaptations of Living Things.
   - One person in the group will deal out the "Living Things Information Cards", so that each student has about four cards.
   - Each student will read their cards to the others in their group.
   - As a group, they will determine which living things are good examples of each category of adaptation. They will discuss the examples, but each student will complete their own worksheet. They will start with camouflage and decide on two living things to list as examples. For instance: beluga whale could be written in the middle column next to the word camouflage. In the third column I would write, "white skin blends in with the arctic ice". Then I would list another living thing that has camouflage, such as the snowshoe hare. In the example column I would write, "fur is brownish grey in summer, white in winter". Then we will move on to the migration row, and we could also list the beluga whale in the middle column there, and write "moves to coastal water in summer and deep water in winter" for the example, and so on.
   - Student groups may use additional resources and books if they need additional information on their living things.
   - Student groups that finish early may look at the additional resource materials and discuss the adaptations of other living things they read about.
4. After the activity, ask (student assessment):
   - How did your living things adapt to the environment?
   - How many ways were you able to classify your living thing?
   - What physical features did your living thing have that showed an adaptation to the environment?
   - What behaviors did your living thing do to adapt to the environment?
   - Were any of the living things similar in their adaptations? How were they

different?

- If we classify living things into plants and animals, how were the adaptations of plants and animals similar? How were they different?
- What would happen if your living thing switched environments and went from land to water, or water to land?
- Why do living things adapt to their environments?
- How would the behaviors of living things affect the people in the local community?
- If changes in the seasons and the climate affect living things in the local environment, how does that affect the people in the local community?

5. Optional: Have students complete the Student Worksheet: What Helps Living Things Survive, using the Living Things Information Cards for ideas. They may begin in class and finish at home for homework. Have them return to class the next day to share with the class.

Extension Activities

- Invite a cultural knowledge bearer to the classroom to talk about how the seasons have changed over the past few years in the local environments. Ask them to comment on how this has affected the local plants and animals.
- Explore the relationship between temperature, body heat, and insulation and how animals have made adaptations to cold environments.
- Write a short paragraph describing why blubber helps animals stay warm in icy conditions.
- Draw a picture(s) of the local environment and show the adaptations a living thing makes during the different seasons of the year.

Answers

Part 1

1. Pictures of students (pre-assessment):
    - Features you have that help you survive in the local environment: ability to think, hands with fingers and thumbs, legs and feet, answers will vary.
    - Behaviors you have that help you survive: ability to walk, run, and climb, building a fire, making and/or wearing clothes, answers will vary.
    - Behaviors you change when the seasons change and it becomes colder: wearing warmer clothing, rubbing hands together to keep them warm; using snowshoes or snow machines, answers will vary.

- How your behaviors differ between a land and water environment: would not go in water in the winter; need a boat for water; swim in water, walk on land; answers will vary.
- How behaviors would be the same between a land and water environment: hunt or search for food; move to stay warm; answers will vary.
- Meaning of adapting to one's environment: any feature or behavior a living thing does to survive.

2. Discussion Questions (student assessment):
    - Physical features of living things that live on land: legs, leaves, claws, spruce needles, lungs, eyes, noses, answers will vary.
    - Physical features of living things that live in water: fins, blowholes, tails, baleen, teeth, eyes, answers will vary.
    - Behaviors that living things do on land: hunt, grow, breathe, dig dens, migrate, hibernate, change colors, drop leaves; answers will vary.
    - Behaviors that living things do in water: migrate, grow, breathe, swim, climb on the ice, answers will vary.
    - How animals and plants differ in how they adapt: plants cannot move from one place to another, animals cannot produce green leaves, animals eat plants or other animals, plants make their own food.
    - How animals and plants are the same in how they adapt: both prepare for when the seasons change, both grow, need shelter, need air, need wate.r

Part 2

3. Student Worksheet: Adaptations of Living Things: Answers will vary depending on which living things are classified.
4. Discussion Questions (student assessment):
    - How living thing adapts to its environment: developing physical features over long periods of time or changing behaviors so that the living thing can survive.
    - Physical features that showed an adaptation to the environment: growing long hair, changing hair color, specialized claws or fangs, specialized body parts that have developed to do a specific job; answers may vary.
    - Behaviors that showed an adaptation to a change to the environment: migration, hibernation, eating excess food to store fat for winter, storing food for winter, defensive actions, answers may vary.
    - Number of ways able to classify living thing: answers will vary.
    - Similarity of adaptations of land and water living things: defensive actions,

migration, fat storage, staying active.

- Differences of adaptations of land and water living things: water things limited in ability to hibernate; plants lose leaves and go dormant.
- Similarity of adaptations of plant and animals: hibernation of animals and dormancy of plants are similar; defensive physical features; answers will vary.
- Differences of adaptations of plants and animals: animals migrate, animals have defensive actions; answers will vary.
- Results of living thing switching environments: living things would probably not survive; if a living thing did survive, adaptations would probably appear in future generations.
- What was learned about how living things adapt to their environments: living things adapt to threats and change in their environment in order to thrive and to ensure that they keep reproducing.
- How behaviors of living things affect the people in the local community: if living things migrate away or are scarce, the local community would not have access to it; when an animal's food source becomes scarce, it may come closer to town in search of food; an abundance of living things would mean an abundance for the community; answers may vary.
- Seasonal change in the environment effect on local living things and the local community: seasonal changes that cause living things to go dormant, hibernate, or migrate will cause a shortage or scarcity of local living things which means the local community will have less access to that living thing; answers may vary.

5. Optional Student Worksheet: What Helps Living Things Survive: Answer Key with sample answers provided

References

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Student Worksheet: What Helps Living Things Survive

Name _____

Answers will vary but examples for each question are given.

1. Name two living things that migrate.

   caribou, arctic fox, ptarmigan, beluga, bowhead whale, puffin, phalarope, walrus

2. Name two living things that hibernate.

   brown bears, spruce trees, arctic bumblebees, lichen

3. Name two living things that use camouflage:

   Arctic fox, snowshoe hare, caribou, belugas, lemmings, ptarmigan, ermine

4. Choose a living thing and name two behaviors that help them adapt to winter. Answers will vary – Examples follow:

Name of Living Thing:	*Arctic Bumblebee*
Behaviors that help adapt to colder seasons	1. *Uses large wings to shiver to keep body heat* 2. *Queen hibernates for nine months*

Name of Living Thing:	*Walrus*
Behaviors that help adapt to colder seasons	1. *Migrate south in the winter following ice pack* 2. *Tusks make holes in the ice to help them climb out of the water*

5. Choose a living thing and name two physical features that help them adapt to winter.

Name of Living Thing:	*Spruce tree*
Physical features that help adapt to winter	1. *Cone shape of tree fosters shedding of snow and stops branch loss* 2. *Dark green needles help absorb warmth from the sun*

Name of Living Thing:	*Ptarmigan*
Physical features that help adapt to winter	1. *Feathers on feet to keep warm in winter* 2. *Feathers turn brown in summer, white in winter*

6. Name a living thing that changes the local environment in order to help it thrive and survive? Explain how it does this.
   Answers will vary. Examples:
   - *A beaver builds a dam to make the water deeper at lakes and along rivers or streams. The deeper water protects the beaver from other animals and provides a way for it to get safely into its lodge.*
   - *The phalarope is a bird that lives mostly at sea. When it is feeding in deeper water it will rapidly swim around in a circle to create a whirlpool. As zooplankton rises to the surface, the phalarope will pick the zooplankton out of the center of the whirlpool and eat it.*

7. Describe how the community and their dependence on living things in the local environment change when the seasons change.
   Answers will vary. Example:
   - *The local community depends on the local animals for food. When the seasons change, the plants become dormant and are no longer producing food for some of the plant-eating animals. If it snows, the plants may also be covered in snow. Animals that depend on the plants for nourishment will migrate and search for food in other areas. The local people must then search for game further from the community.*

Student Worksheet: Adaptations of Living things

Name _____

Record examples of each type of adaptations. Record the name of each plant or animal in the Living Thing column next to the adaptations it shows. In the Example column, describe what the living thing has or does to survive in its environment.

Adaptations of Living Things

Adaptation	Living Thing	Example
Camouflage	1. 2.	1. 2.
Migration	1. 2.	1. 2.
Hibernation	1. 2.	1. 2.
Behavior	1. 2.	1. 2.
Physical feature	1. 2.	1. 2.

Student Worksheet: What Helps Living Things Survive

Name _____

1. Name two living things that migrate:

   _____ _____

2. Name two living things that hibernate:

   _____ _____

3. Name two living things that use camouflage:

   _____ _____

4. Choose a living thing and name two behaviors that help them adapt to winter.

Name of Living Thing:	
Behaviors that help adapt to colder seasons	1. 2.

5. Choose a living thing and name two physical features that help them adapt to winter.

Name of Living Thing:	
Physical features that help adapt to colder seasons	1. 2.

6. How does a living thing change the local environment in order to help it thrive and survive?

_____

_____

_____

_____

_____

7. Describe how the community and their dependence on living things in the local environment change when the seasons change.

_____

_____

_____

_____

_____

Teacher Chart: Adaptations of Living Things

Adaptations of Living Things

Adaptation	Living Thing	Example	Student Examples
Camouflage	A color or pattern that helps a living thing hide.	Snowshoe hare – white fur	
Migration	Movement by a living thing from one place to another.	Caribou – moving to find food	
Hibernation	Long periods of seasonal sleep by a living thing in order to save energy.	Brown Bear – sleeps during the winter	
Behavior	Actions done by living things to help them survive.	Ermine – has side rooms in its den for storing food	
Physical features	The parts that can be seen or observed on a living thing	Beaver – paddle tail and webbed feet	

Living Things Information Cards

Arctic Fox

- Coat gets thinner and turns brown in summer, white and longer in winter
- Will travel a long way out on sea ice to eat the remains of seals left by polar bears

Caribou

- Hooves made for digging through the ice and snow
- Hair is hollow to give warmth
- Coat turns to mostly brown in summer, mostly white in winter
- Moves to different areas to find food, return to same calving grounds in the spring.

Snowshoe Hare

- Back feet are large, long, with lots of fur for moving in deep snow
- Eats grass, ferns, and leaves in summer, twigs and bark in winter
- Fur is brownish grey in summer, white in winter

Ermine

- Mainly active at night
- Dens have side rooms for storing extra food
- Fur is dark brown and short in the summer, white with a black tip on the tail in winter

Living Things Information Cards

Brown Bear

- Eats fish, berries, grasses, small mammals, roots
- Usually found alone, but large numbers may be at fishing areas
- Eats a lot in the summer, then stays in its den most of the winter

Ptarmigan

- Feathers on feet to keep them warm in winter
- Migrates 100 to 150 miles in the fall from lower areas to the treeline
- Feathers turn brown in summer, white in winter

Beaver

- Paddle shaped tail, webbed back feet, and waterproof fur
- Builds dams across streams to make water deeper to protect itself
- Builds lodge and stores food in lodge for winter

Lemming

- Double digging claws on the front toes to dig through the ice and snow
- Coat is dark grey with a reddish brown tone in summer, white in winter
- Tunnels under the snow

Living Things Information Cards

Arctic Bumblebees

- Velvet coat helps it stay warm
- Can fly at low temperatures for long distances
- Uses large wings to shiver to keep body heat
- Queen hibernates for nine months

Spruce Tree

- Cone shape of tree fosters shedding of snow and stops branch loss
- Thin needles help tree not lose water, dark green color helps absorb warmth from the sun
- Grows in the summer, is dormant or inactive in the winter

Lichen

- Hard, strong tissues seal out wind, rain, and cold
- Can go long periods without water
- Becomes dormant with low temperatures and limited light in winter

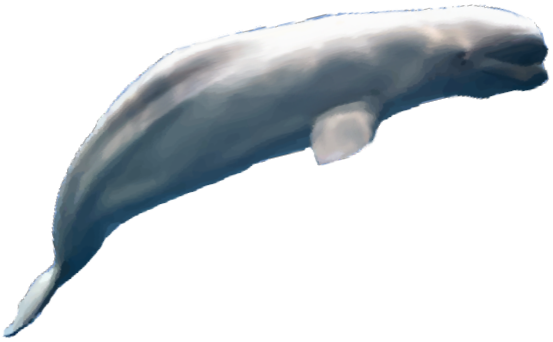
Labrador Tea

- Sprouts from its roots
- Evergreen leaves
- Fuzzy leaves limit the loss of water
- Leaves curl when exposed to the wind

Living Things Information Cards

Beluga Whale

- Five inches of blubber keeps them warm in cold water
- White skin blends in with the arctic ice
- Moves to coastal water in summer, deep ocean water in winter

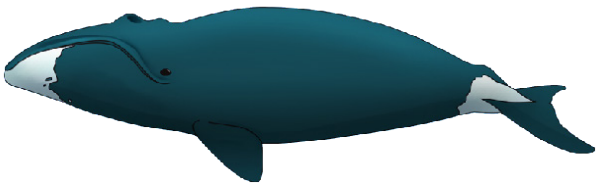


Walrus

- Blubber stored under skin keeps them warm
- Moves north in the spring, south in the winter following ice pack
- Tusks make holes in the ice to help them climb out of the water

Bowhead Whale

- Thick blubber used to keep warm, save energy, and for padding
- Have two blowholes that help them breathe from small holes in the ice
- Moves north to feeding areas in summer, south to have babies in winter



Bearded Seal

- Makes breathing holes in ice with their claws
- Rests close to holes or cracks in the ice so they can escape quickly
- Moves north as sea ice melts in summer, south as sea ice forms in winter

Living Things Information Cards

Alaska King Crab

- Shell is called an exoskeleton, protects its body
- Sheds shell in order to grow
- Moves to shallow water in summer, deeper water in winter

Polar Bear

- Waterproof, hollow hair
- Large feet help them swim and walk on thin ice
- Eats small mammals, bird eggs, plants, and berries in summer, ringed seals, walrus, and beluga whales in winter

Puffin

- Nests underground
- Webbed feet help them change direction in the water and in the air
- Lives on land to breed in summer, in open ocean in winter

Phalaropes

- Swims to make a whirlpool so it can pick up food from the center.
- Moves to Alaska to have chicks in summer, tropical oceans in winter
- Eats insects and invertebrates in summer, zooplankton, krill, and arrow worms in winter