

Teaching Activity Guide

Arctic Animals

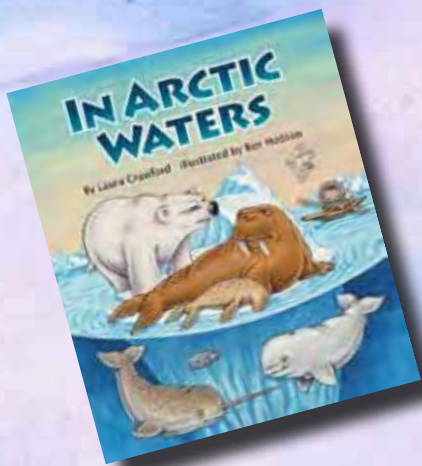


Table of Contents

| | |
|----|---|
| 3 | How to Use This Activity Guide (General) |
| 4 | What Do Children Already Know? |
| 5 | Pre-Reading Questions |
| 6 | Comprehension Questions & Writing Prompts |
| 7 | Cross-Curricular Vocabulary Activities |
| 8 | Word Bank |
| 9 | Cross-Curricular Silly Sentences |
| 12 | Language Arts: Sequence Sentence Strips |
| 16 | Word Search |
| 18 | Edible Sorting and Classifying Activity |
| 20 | Classifying Animals |
| 21 | Animal Chart |
| 24 | Food Web Cards |
| 25 | Animal Sorting Cards |
| 28 | Science Journal (Vocabulary) |
| 30 | Math: Temperature |
| 31 | Answers |
| 32 | Appendix A—"What Children Know" Cards |
| 33 | Appendix B—Venn Diagram |
| 34 | Appendix C—Vocabulary Cards |

Copyright 2016 © Arbordale Publishing

These activities may be copied for
personal and non-commercial use in
educational settings.

www.ArbordalePublishing.com

Arbordale Publishing
Mt. Pleasant, SC 29464



How to Use This Activity Guide (General)

There are a wide variety of activities that teach or supplement all curricular areas. The activities are easily adapted up or down depending on the age and abilities of the children involved. And, it is easy to pick and choose what is appropriate for your setting and the time involved. Most activities can be done with an individual child or a group of children.

For teachers in the classroom: We understand that time is at a premium and that, especially in the early grades, much time is spent teaching language arts. All Arbordale titles are specifically selected and developed to get children excited about learning other subjects (science, geography, social studies, math, etc.) while reading (or being read to). These activities are designed to be as comprehensive and cross-curricular as possible. If you are teaching sentence structure in writing, why not use sentences that teach science or social studies? We also know and understand that you must account for all activities done in the classroom. While each title is aligned to all of the state standards (both the text and the For Creative Minds), it would be nearly impossible to align all of these activities to each state's standards at each grade level. However, we do include some of the general wording of the CORE language arts and math standards, as well as some of the very general science or social studies standards. You'll find them listed as "objectives" in italics. You should be able to match these objectives with your state standards fairly easily.

For homeschooling parents and teachers in private schools: Use as above. Aren't you glad you don't have to worry about state standards?

For parents/caregivers: Two of the most important gifts you can give your child are the love of reading and the desire to learn. Those passions are instilled in your child long before he or she steps into a classroom. Many adults enjoy reading historical fiction novels . . . fun to read but also to learn (or remember) about historical events. Not only does Arbordale publish stories that are fun to read and that can be used as bedtime books or quiet "lap" reading books, but each story has non-fiction facts woven through the story or has some underlying educational component to sneak in "learning." Use the "For Creative Minds" section in the book itself and these activities to expand on your child's interest or curiosity in the subject. They are designed to introduce a subject so you don't need to be an expert (but you will probably look like one to your child!). Pick and choose the activities to help make learning fun!

For librarians and bookstore employees; after-school program leaders; and zoo, aquarium, nature center, park & museum educators: Whether reading a book for story time or using the book to supplement an educational program, feel free to use the activities in your programs. We have done the "hard part" for you.

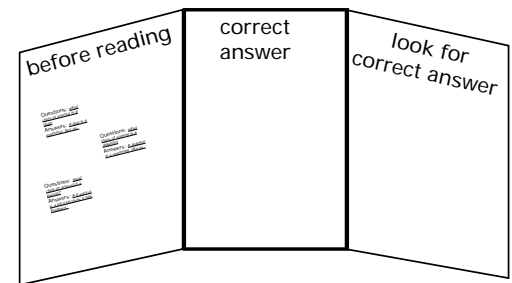
What Do Children Already Know?

Young children are naturally inquisitive and are sponges for information. The whole purpose of this activity is to help children verify the information they know (or think they know) and to get them thinking “beyond the box” about a particular subject.

Before reading the book, ask the children what they know about the subject. A list of suggested questions is below. The children should write down their “answers” (or adults for them if the children are not yet writing) on the chart found in Appendix A, index cards, or post-it notes.

Their answers should be placed on a “before reading” panel. If doing this as a group, you could use a bulletin board or even a blackboard. If doing this with individual children, you can use a plain manila folder with the front cover the “before reading” panel. Either way, you will need two more panels—one called “correct answer” and the other “look for correct answer.”

Do the children have any more questions about the subject? If so, write them down to see if they are answered in the book.



After reading the book, go back to the questions and answers and determine whether the children’s answers were correct or not.

If the answer was correct, move that card to the “correct answer” panel. If the answer was incorrect, go back to the book to find the correct information.

If the children have more questions that were not answered, they should look them up.

When an answer has been found and corrected, the card can be moved to the “correct answer” panel.

Pre-Reading Questions

General Arctic Questions

1. Where is the Arctic?
2. What's the climate in the Arctic?
3. Name some animals that live in the Arctic.
4. What are some ways that Arctic animals deal with the cold climate?
5. What are some of the tribal names of people who live in the Arctic?

In Arctic Waters

6. What type of food do the Inuit eat?
7. What are some ways that Arctic animals are useful to the Inuit?
8. What do polar bears eat?
9. What is a narwhal? What mythical creature does it remind you of?
10. What Arctic animal has tusks?

Tuktuk Tundra Tails

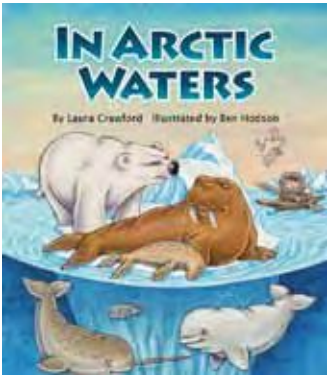
11. What is an / or are animals that have fur that change from brown in the summer to white in the winter?
12. How often do humans and animals see the sun in the Arctic winter?
13. What is an Inuit's boot called?
14. Name some things that some Arctic animals might use to line their winter dens.
15. What are some ways that Arctic animals prepare for winter?

Comprehension Questions & Writing Prompts

Identify basic similarities in and differences between two texts on the same topic.

Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.



1. Describe animals swimming around the ice that floats.
2. Which animal do you think was the smallest?
3. Which animal was the largest? What made them stop and move to another ice berg?
4. Why do you think the animals were afraid of the man?
5. What did the man do at the end of the story?
6. What did the Inuit drop off his sled?
7. Who saw it fall?
8. What did he want it for?
9. Where did the polar bear put the kamik and why didn't he keep it?
10. Where did the arctic fox put the kamik and why didn't he keep it?
11. Which animal ended up keeping the kamik?
12. How had he convinced the other animals to think they didn't want the kamik?

Both Stories

13. Both of these stories take place in the Arctic. Describe the habitat of each story and explain how they are different.
14. We see an Inuit man in each story. Why were the animals afraid of the man *In Arctic Waters* but not in *Tuktuk Tundra Tale*?
15. What animal was in both stories? Can you describe how that animal can live in the two different habitats?
16. What are some ways the illustrators showed readers that it is cold?
17. On the last page of both stories, we see beautiful lights in the sky. Do you know what the lights are? Can you see those lights where you live? If so, have you ever seen them?

Cross-Curricular Vocabulary Activities

Objective Core Language Arts:

Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content.

Identify new meanings for familiar words and apply them accurately (e.g., duck is a bird & the verb to duck).

Use words & phrases acquired through conversations, reading/being read to, and responding to texts.

Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade-level topic or subject area.

Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.

Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.

Use frequently occurring adjectives.

Vocabulary Game: This activity is a very general idea and is designed to get children thinking of vocabulary words that will then be used as the beginning vocabulary list for a science lesson.

Select an illustration from the book and give the children a specific length of time (five minutes?) to write down all the words they can think of about the particular subject. It is helpful to project an illustration on a whiteboard. Use eBook or book preview found at www.ArbordalePublishing.com.

The children's word list should include anything and everything that comes to mind, including nouns, verbs, and adjectives. At the end of the time, have each child take turns reading a word from his/her list. If anyone else has the word, the reader does nothing. However, if the reader is the only one with the word, he/she should circle it. While reading the list, one person should write the word on a flashcard or large index card and post it on a bulletin board or wall.

At the end, the child with the most words circled "wins." And you have a start to your science vocabulary list. Note: if a child uses an incorrect word, this is a good time to explain the proper word or the proper usage.

Glossary/Vocabulary Words: Word cards may be used (see Appendix) or have children write on index cards, a poster board, or on a chalkboard for a "word wall." If writing on poster board or chalkboard, you might want to sort words into nouns, verbs, etc. right away to save a step later if using for Silly Sentences (on the next page). Leaving the words posted (even on a refrigerator at home) allows the children to see and think about them frequently.

Using the Words: The following activities may be done all at once or over a period of several days.

- Sort vocabulary words into nouns, verbs, adjectives, etc. and write what they are on the backs of the cards. When the cards are turned over, all you will see is "noun," etc. (these can then be used for the "silly sentences" on the next page).
- After the cards have been sorted, go over the categories to ensure that all cards have been placed correctly. (Mistakes are a great opportunity to teach!)
- Choose two words from each category and write a sentence for each word.
- Write a story that uses at least ten vocabulary words from the word sort.
- Have children create sentences using their vocabulary words. Each sentence could be written on a separate slip of paper. Have children (individually or in small groups) sort and put sentences into informative paragraphs or a story. Edit and re-write paragraphs into one informative paper or a story.

Silly Sentence Structure Activity: This "game" develops both an understanding of sentence structure and the science subject. Use words from the "word wall" to fill in the blanks. After completing silly sentences for fun, have children try to fill in the proper words by looking for the correct information in the book.

Word Bank

Build a word bank using words found in the story or For Creative Minds.

| Adjective | Noun | | | Verb |
|-----------|-------------------|-----------------|----------|-----------|
| blue | Arctic | hemisphere | reindeer | bounce |
| bottom | arctic fox | hibernate | seal | chase |
| bright | atmosphere | hummock | snail | circle |
| coastal | beluga whale | hunter | soil | cracked |
| cold | bird | ice | spring | eat |
| colorful | blow hole | ice pack | summer | float |
| deep | blubber | iceberg | sun | flying |
| dim | caribou | Inuit | sun dogs | freeze |
| frozen | clam | kamik | tooth | hibernate |
| furry | cold | kayak | tundra | hop |
| high | collared lemmings | lichen | tusks | hunting |
| icy | crystals | light | twilight | kayaking |
| low | darkness | month | walrus | migrate |
| northern | daytime | narwhal | whiteout | paddling |
| polar | den | North Pole | winter | resting |
| quick | earth | northern lights | world | splashed |
| small | Eskimo | nose | worm | standing |
| southern | fall | padded feet | | stop |
| thick | fins | permafrost | | swimming |
| tiny | flippers | pingo | | thaw |
| warm | flukes | polar bear | | |
| white | frost boils | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Cross-Curricular Silly Sentences

Arctic General Info

1. The _____ region in the _____ hemisphere is called the _____.
adjective adjective noun
2. At the earth's _____s, the _____ stays low in the sky, even in the middle of _____.
noun noun season
3. In the _____, the _____ doesn't come up at all for _____s at a time.
season noun noun
4. When _____ comes, _____ _____s have to be prepared for the months of _____ and cold.
season adjective noun adjective
5. Some animals grow a _____ winter coat, prepare a warm _____, or even _____ for the whole winter.
adjective noun verb
6. The winter ice pack _____s in the _____ and thaws in the spring.
verb season
7. Permafrost is a _____ layer of _____ that is always _____.
adjective noun adjective
8. The _____ are natives who live in the _____ arctic.
noun adjective
9. The term " _____ " is considered _____ to the Inuit.
noun adjective

IN ARCTIC WATERS

1. Arctic ______{noun}s have adaptations to help them ______{verb} in the cold.
2. Polar bears have ______{noun} on the ______{adjective} of their feet.
3. ______{noun}s and ______{noun}s have ______{adjective} blubber to keep them warm.
4. ______{noun}s have a long ______{noun} that looks like a unicorn's horn.
5. Walruses have ______{number} front ______{noun}s.
6. Inuits ______{verb} animals for food.
7. ______{noun} cubs are usually born in December.
8. Walruses eat ______{noun}s, ______{noun}s, and worms.
9. Polar bears, seals, and natives ______{verb} seals.
10. Narwhal calves are usually ______{verb} in ______{month}.

Tuktuk

Tundra Tale

1. _____ can last for _____s in polar regions.
noun noun
2. In the _____, the _____ is just below the horizon.
season noun
3. During the _____, the sun never _____s above the horizon, but there is _____ light to see by.
noun verb adjective
4. The _____s, or Aurora borealis, are _____ patterns of light in the sky.
noun adjective
5. Tiny ice _____s in the atmosphere _____ the sun's light making _____ lights, or sun dogs, appear on either side of the real sun.
noun verb number adjective
6. Sun dogs can be seen from anywhere in the _____ not just in _____ regions.
noun adjective
7. Collared lemmings have _____-_____ fur most of the year that turns _____ in the winter.
color color
8. _____ have _____ hooves to let them walk on top of the snow.
noun adjective
9. _____s have a thick layer of _____ and thick fur to help them stay warm.
noun noun

Language Arts: Sequence Sentence Strips

Cut into sentence strips, laminate if desired, and place in a "center." Have children put the events in order. Children may work alone or in small groups. Cards are in order but should be mixed up when cut apart.

Objective: Use temporal words and phrases to signal event order. Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.

IN ARCTIC WATERS



This is the ice that floats in the Arctic waters.



This is the fish, small and quick that circles the ice.



This is the beluga, blubbery thick.



This is the narwhal, big and strong.



This is the seal bouncing along.



This is the walrus, ready to play.



This is the polar bear, furry white.



This is the man that hunts the animals.



This is the ice that cracks.



Tuktuk

Tundra Tale

One furry kamik fell off the Inuit's sled.

Tuktuk the collard lemming thought the kamik would be perfect for his winter den.

Putak the polar bear thought the boot was perfect for him. Tuktuk suggested he put it on his nose.

Putak sneeze the boot off.

Aput the arctic fox thought the boot was perfect for him. Tuktuk suggested he put it on his tail.

Aput swished it off her tail.

Masak the caribou thought the book was just right for her.
Tuktuk suggested she put it on a hoof.

Masak's hoof got stuck in the snow so she kicked it off.

Tuktuk carried the boot to his den.

Tuktuk snuggled into the boot to stay warm for the winter.

One furry kamik is just right for a collard lemming.

Word Search

Find the hidden words. Even non-reading children can match letters to letters to find the words! Easy—words go up to down or left to right (no diagonals). For older children, identify the coordinates of the first letter in each word (number, letter).

| | A | B | C | D | E | F | G | H | I | J |
|----|---|---|---|---|---|---|---|---|---|---|
| 1 | I | D | E | A | T | O | Y | Z | O | W |
| 2 | C | O | L | D | B | E | L | U | G | A |
| 3 | E | A | S | T | F | I | S | H | I | L |
| 4 | P | O | L | A | R | B | E | A | R | R |
| 5 | A | C | I | R | Y | P | A | R | A | U |
| 6 | C | E | R | A | N | T | L | C | I | S |
| 7 | K | A | Y | A | K | A | H | T | O | N |
| 8 | C | N | E | T | I | N | U | I | T | E |
| 9 | N | A | R | W | H | A | L | C | K | P |
| 10 | W | A | T | E | Z | O | A | L | I | V |

ARCTIC

BELUGA

COLD

FISH

ICE PACK

INUIT

KAYAK

NARWHAL

OCEAN

POLAR BEAR

SEAL

WALRUS

IN ARCTIC WATERS

| | A | B | C | D | E | F | G | H | I | J |
|----|---|---|---|---|---|---|---|---|---|---|
| 1 | B | A | O | A | X | T | O | T | S | P |
| 2 | P | I | L | I | C | H | E | N | J | U |
| 3 | | D | U | A | D | U | O | E | | T |
| 4 | T | I | V | K | A | M | I | K | S | A |
| 5 | O | A | C | H | N | M | A | S | A | K |
| 6 | I | P | I | N | G | O | Q | D | R | U |
| 7 | M | U | N | S | Y | C | O | L | C | W |
| 8 | F | T | U | G | S | K | Y | A | T | A |
| 9 | R | A | I | L | M | O | M | D | I | K |
| 10 | Z | I | T | U | N | D | R | A | C | E |

APUT
 ARCTIC
 HUMMOCK
 INUIT
 KAMIK
 LICHEN
 MASAK
 PINGO
 PUTAK
 TUNDRA


 Tuktuk
 Tundra Tale

Edible Sorting and Classifying Activity

Objective Core Language Arts Vocabulary Acquisition and Use: Sort common objects into categories (e.g., shapes, foods) to gain a sense of the concepts the categories represent.

Objects and materials can be sorted and described by their properties. (color, shape, size, weight and texture)

Use whole numbers, up to 10, in counting, identifying, sorting, and describing objects and experiences.*

Gather a cup of edible “sorting items.” For example:

- As many different kinds of M&Ms as you can find
- Chocolate & peanut butter chips
- Hershey Kisses
- Peanuts or other type of nuts



Ask the children to sort the items into groups. There is no right and wrong, only what makes sense to the child. When finished, ask the child:

What feature or attribute (color, size, ingredient, etc.) did you use to sort the items?

- Were there some items that fit more than one group or don't fit any group?
- If so, how did the child decide which attribute was more important?
- How are various objects similar and different?
- Was it easy to sort or were there some items that were a little confusing?

If more than one person did this, did everyone sort by the same attribute? To extend the learning, graph the attributes used to sort the items (blank graph below).

Graph the attributes that children used to sort their items. (Graph provided on next page.)

What was the most common attribute (size, shape, color, etc.) used?

Objective: Classify organisms according to one selected feature, such as body covering, and identify other similarities shared by organisms within each group formed.

Describe several external features and behaviors of animals that can be used to classify them (e.g., size, color, shape of body parts).

Identify observable similarities and differences (e.g., number of legs, body coverings, size) between/ among different groups of animals.

| | | | | |
|-----------|--|--|--|--|
| 10 | | | | |
| 9 | | | | |
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |
| attribute | | | | |

Classifying Animals

Objective: Classify organisms according to one selected feature, such as body covering, and identify other similarities shared by organisms within each group formed.

Describe several external features and behaviors of animals that can be used to classify them (e.g., size, color, shape of body parts).

Identify observable similarities and differences (e.g., number of legs, body coverings, size) between/among different groups of animals.

Just as we sort candy, scientists sort all living things into groups to help us understand and connect how things relate to each other. Scientists ask questions to help them sort or classify animals.

Based on the answers to the questions, scientists can sort the living organisms. The first sort is into a Kingdom. There are five commonly accepted Kingdoms: Monera, Protista, Fungi, Plantae, and Animalia. All of the living things in this book belong to Animalia or the Animal Kingdom.

The next big sort is into a Phylum. One of the first questions that a scientist will ask is whether the animal has (or had at some point in its life) a backbone. If the answer is “yes,” the animal is a vertebrate. If the answer is “no,” the animal is an invertebrate.

Each Phylum is broken down into Classes, like mammals, birds, reptiles, fish, amphibians, insects, or gastropods (snails). Then each class can be broken down even further into orders, families, genus and species, getting more specific.



The scientific name is generally in Latin or Greek and is the living thing’s genus and species. People all over the world use the scientific names, no matter what language they speak. Most living organisms also have a common name that we use in our own language.



Some questions scientists ask:



- Does it have a backbone?
- What type of skin covering does it have?
- Does it have a skeleton? If so, is it inside or outside of the body?
- How many body parts does the animal have?
- Does it get oxygen from the air through lungs or from the water through gills?
- Are the babies born alive or do they hatch from eggs?
- Does the baby drink milk from its mother?
- Is it warm-blooded or cold-blooded?

Using what you know, and information and pictures in the book, see how many Animal Chart squares you can fill in for each animal.

Animal Chart

| | Animals |  |  |
|--|--------------------------------|--|---|
| Appendages | legs (how many) | | |
| | flippers/fins | | |
| | wings | | |
| | tail/no tail | | |
| | horns/antlers | | |
| Feet or hands: if they have; may have more than one | claws | | |
| | web | | |
| | toes | | |
| | opposable thumbs/toes | | |
| | hooves | | |
| Movement: may do more than one | walks/runs | | |
| | crawls | | |
| | flies | | |
| | slithers | | |
| | swims | | |
| | climbs | | |
| | hops | | |
| Backbone | backbone/vertebrate | | |
| | no backbone/invertebrate | | |
| Skeleton | inside skeleton (endoskeleton) | | |
| | outside skeleton (exoskeleton) | | |
| | no skeleton | | |
| Body covering | hair/fur/whiskers/quills | | |
| | feathers | | |
| | dry scales or bony plates | | |
| | moist scales | | |
| | smooth, moist skin | | |
| | hard outer shell | | |
| | hard outer covering | | |
| Color/patterns | stripes or spots | | |
| | mostly one color | | |
| | skin color changes | | |
| | bright, vivid colors | | |
| Gets oxygen | lungs | | |
| | gills | | |
| Body temperature | warm-blooded (endothermic) | | |
| | cold-blooded (ectothermic) | | |
| Babies | born alive | | |
| | hatch from eggs | | |
| | born alive or hatch from eggs | | |
| Metamorphosis | complete | | |
| | incomplete | | |
| | none | | |
| Teeth | sharp | | |
| | flat | | |
| | no teeth (bill/beak) | | |
| Food | plant eater (herbivore) | | |
| | meat eater (carnivore) | | |
| | both (omnivore) | | |

| | Animals |  |  |
|--|--------------------------------|---|--|
| Appendages | Legs (how many) | | |
| | flippers/fins | | |
| | wings | | |
| | tail/no tail | | |
| Feet or hands: if they have, may have more than one | horns/antlers | | |
| | claws | | |
| | web | | |
| | toes | | |
| Movement: may have more than one | opposable thumbs/toes | | |
| | hooves | | |
| | walks/runs | | |
| | crawls | | |
| | flies | | |
| Backbone | slithers | | |
| | swims | | |
| | climbs | | |
| | hops | | |
| Skeleton | backbone/vertebrate | | |
| | no backbone/invertebrate | | |
| Body covering | inside skeleton (endoskeleton) | | |
| | outside skeleton (exoskeleton) | | |
| | no skeleton | | |
| Color/patterns | hair/fur/whiskers/quills | | |
| | feathers | | |
| | dry scales or bony plates | | |
| | moist scales | | |
| | smooth, moist skin | | |
| | hard outer shell | | |
| Gets oxygen | hard outer covering | | |
| | stripes or spots | | |
| | mostly one color | | |
| | skin color changes | | |
| Body Temperature | bright, vivid colors | | |
| | lungs | | |
| Babies | gills | | |
| | warm-blooded (endothermic) | | |
| | cold-blooded (ectothermic) | | |
| Metamorphis? | born alive | | |
| | hatch from eggs | | |
| | born alive or hatch from eggs | | |
| Teeth | complete | | |
| | incomplete | | |
| | none | | |
| Food | sharp | | |
| | flat | | |
| | no teeth (bill/beak) | | |
| Food | plant eaters (herbivore) | | |
| | meat eather (carnivore) | | |
| | both (omnivore) | | |


| | Animals |  |  |
|--|--------------------------------|--|---|
| Appendages | Legs (how many) | | |
| | flippers/fins | | |
| | wings | | |
| | tail/no tail | | |
| | horns/antlers | | |
| Feet or hands: if they have, may have more than one | claws | | |
| | web | | |
| | toes | | |
| | opposable thumbs/toes | | |
| | hooves | | |
| Movement: may have more than one | walks/runs | | |
| | crawls | | |
| | flies | | |
| | slithers | | |
| | swims | | |
| | climbs | | |
| | hops | | |
| Backbone | backbone/vertebrate | | |
| | no backbone/invertebrate | | |
| Skeleton | inside skeleton (endoskeleton) | | |
| | outside skeleton (exoskeleton) | | |
| | no skeleton | | |
| Body covering | hair/fur/whiskers/quills | | |
| | feathers | | |
| | dry scales or bony plates | | |
| | moist scales | | |
| | smooth, moist skin | | |
| | hard outer shell | | |
| | hard outer covering | | |
| Color/patterns | stripes or spots | | |
| | mostly one color | | |
| | skin color changes | | |
| | bright, vivid colors | | |
| Gets oxygen | lungs | | |
| | gills | | |
| Body Temperature | warm-blooded (endothermic) | | |
| | cold-blooded (ectothermic) | | |
| Babies | born alive | | |
| | hatch from eggs | | |
| | born alive or hatch from eggs | | |
| Metamorphosis? | complete | | |
| | incomplete | | |
| | none | | |
| Teeth | sharp | | |
| | flat | | |
| | no teeth (bill/beak) | | |
| Food | plant eaters (herbivore) | | |
| | meat eater (carnivore) | | |
| | both (omnivore) | | |

Food Web Cards


Objective: Use observations to describe patterns of what plants and animals (including humans) need to survive.

Develop a model to describe the movement of matter among plants and animals.

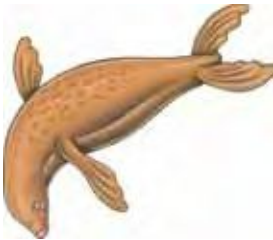
Cut copies into food web cards. Using the information in the book and on the card, stack each “**predator**” card on top of its “**prey**” card (predators eat the prey). How many cards can you get in one pile? Are there some animals that are always at the top of your pile or on top of the food chain?




Polar Bear
Polar Bears are meat-eaters who frequently hunt and catch their prey in the water, often many miles from land. They eat mostly seals. A polar bear’s stomach can hold up to 150 pounds.




Walrus
Walruses are meat-eaters; they eat mostly clams, snails, mussels, worms, sea cucumbers, and other animals that they find on the sea floor. If they are very hungry, they will eat seals.



Norther Fur Seal
Northern Fur Seals are meat-eaters that hunt at night (they are primarily nocturnal). They eat fish, squid, and octopi. Seals don’t chew their food; they swallow it in large chunks.



Narwhal
Narwhals are meat-eaters; they eat fish, squid, shrimp, and other marine animals.



Beluga
Belugas are meat-eaters. They hunt and eat bottom-dwelling prey, including fish, squid, crustaceans, octopi, and worms. Belugas use echolocation to locate the prey.

Animal Sorting Cards

Objective: Classify organisms according to one selected feature, such as body covering, and identify other similarities shared by organisms within each group formed.

Describe several external features and behaviors of animals that can be used to classify them (e.g., size, color, shape of body parts).

Identify observable similarities and differences (e.g., number of legs, body coverings, size) between/among different groups of animals.

Animal Card Games:

Sorting: Depending on the age of the children, have them sort cards by:

where the animals live (habitat)

tail, no tail

number of legs (if the animals have legs)

colors or skin patterns

how they move (walk, swim, jump, or fly)

animal class

type of skin covering (hair/fur, feathers, scales, moist skin)

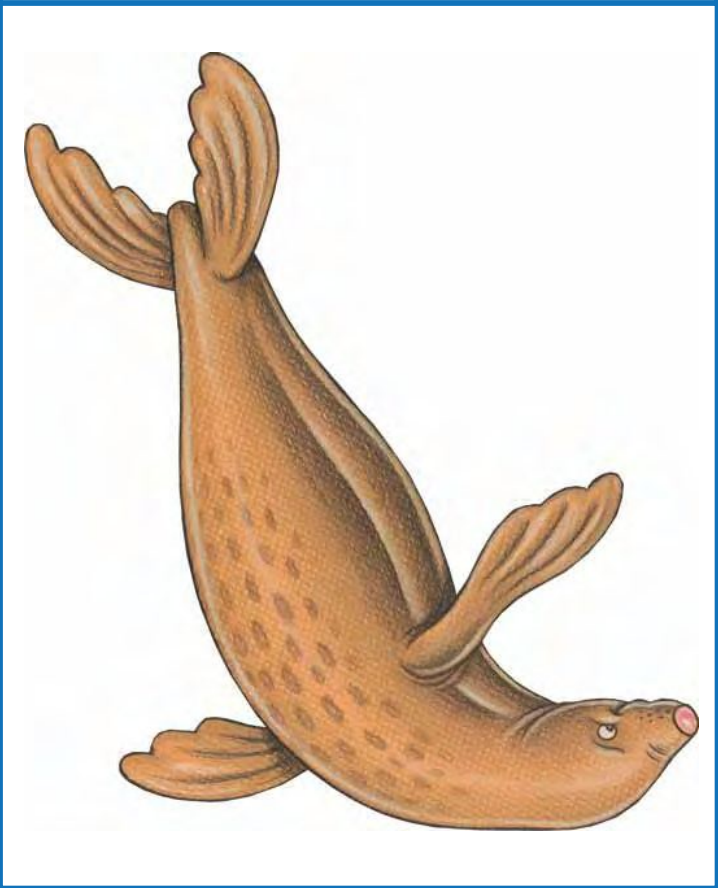
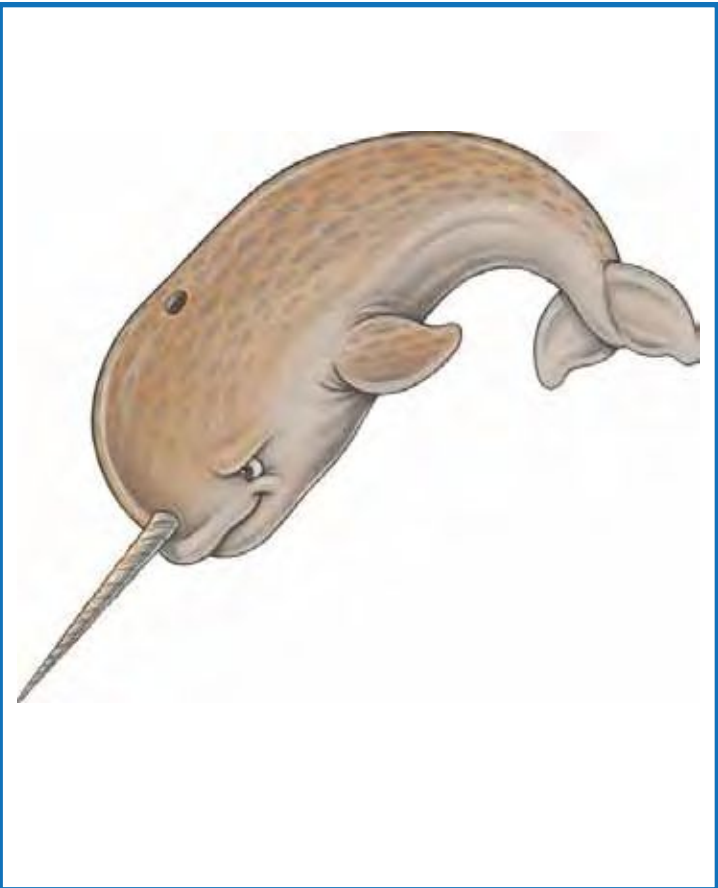
what they eat (plant eaters/herbivores, meat eaters/carnivores, both/omnivores)

Memory Card Game: Make two copies of each of the sorting card pages and cut out the cards. Mix them up and place them face down on a table. Taking turns, each player should turn over two cards so that everyone can see. If the cards match, he or she keeps the pair and takes another turn. If they do not match, the player should turn the cards back over and it is another player's turn. The player with the most pairs at the end of the game wins.

Who Am I? Copy and cut out the cards. Poke a hole through each one and tie onto a piece of yarn. Have each child put on a "card necklace" without looking at it so the card hangs down the back. The children get to ask each person one "yes/no" question to try to guess "what they are." If a child answering the question does not know the answer, he/she should say, "I don't know." This is a great group activity and a great "ice-breaker" for children who don't really know each other.

Charades: One child selects a card and must act out what the animal is so that the other children can guess. The actor may not speak but can move like the animal and imitate body parts or behaviors. For very young children, you might let them make the animal sound. The child who guesses the animal becomes the next actor.





Science Journal (Vocabulary)

Arctic

my definition

my drawing

Inuit

my definition

my drawing

blubber

my definition

my drawing

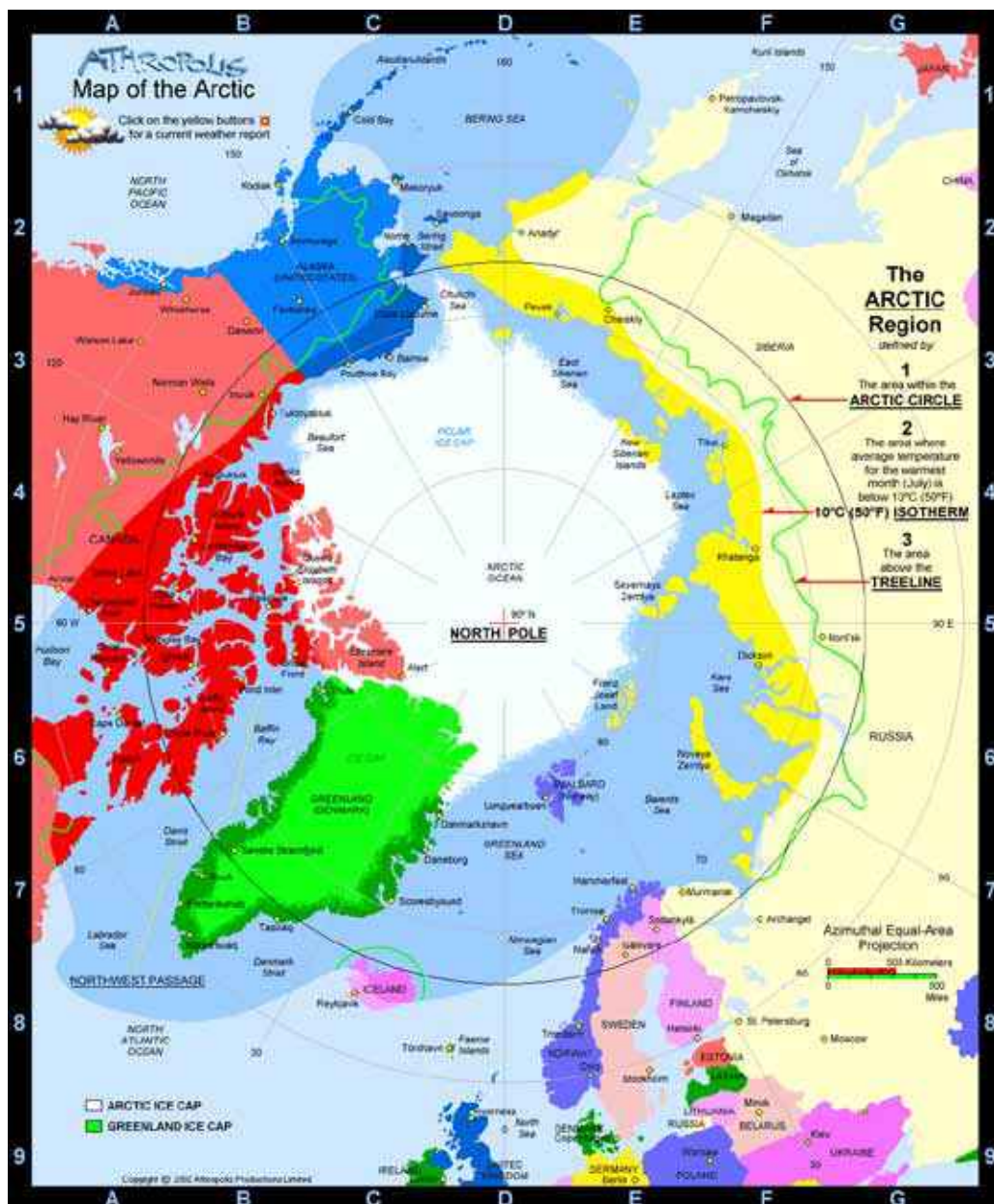
Northern Lights

my definition

my drawing

Math: Temperature

- Go outside and measure the temperature. What is it?
- Do you think that it is warmer, colder, or the same temperature in the Arctic? Why?
- Go to this website <http://www.athropolis.com/map2.htm>, pick a city, and click on it to see what the temperature is in that city.
- Were you right? Which city is warmer and which is colder?
- How many degrees difference is there between where you live and the Arctic Circle city you measured?



Answers

Silly Sentences

Arctic General

The polar region in the northern hemisphere is called the Arctic.

At the earth's poles, the sun stays low in the sky, even in the middle of summer.

In the winter, the sun doesn't come up at all for months at a time.

When winter comes, the animals have to be prepared for the months of darkness and cold.

Some animals grow a thick winter coat, prepare a warm den, or even hibernate for the whole winter.

The winter ice pack only freezes in the winter and thaws in the spring.

Permafrost is a deep layer of soil that is always frozen.

The Inuit are native who live in the coastal arctic.

The term "Eskimo" is considered insulting to the Inuit.

In Arctic Waters

Arctic animals have adaptations to help them live in the cold.

Polar bears have fur on the bottom of their feet.

Seals and beluga whales have thick blubber to keep them warm. (So do polar bears... mentioned in Tuk Tuk)

Narwhals have a long tooth that looks like a unicorn's horn.

Walrus have two front tusks.

Inuits hunt animals for food.

Polar bear cubs are usually born in December.

Walrus eat clams, snails, and worms.

Polar bears, seals, and natives eat seals.

Narwhal calves are usually born in July.

Tuk Tuk Tundra Tail

Twilight can last for months in polar regions.

In the winter, the sun is just below the horizon.

During the daytime, the sun never appears above the horizon, but there is dim light to see by.

The northern lights, or Aurora borealis, are colorful patterns of light in the sky.

Tiny ice crystals in the atmosphere bend the sun's light making two bright lights, or sun dogs, appear on either side of the real sun.

Sun dogs can be seen from anywhere in the world, not just in polar regions.

Collared lemmings have reddish-brown fur most of the year that turns white in the winter.

Caribou/reindeer have large hooves to let them walk on top of the snow.

Polar bears have a thick layer of blubber and thick fur to help them stay warm.

Arctic foxes curl up to sleep so that their tails cover their noses to stay warm.

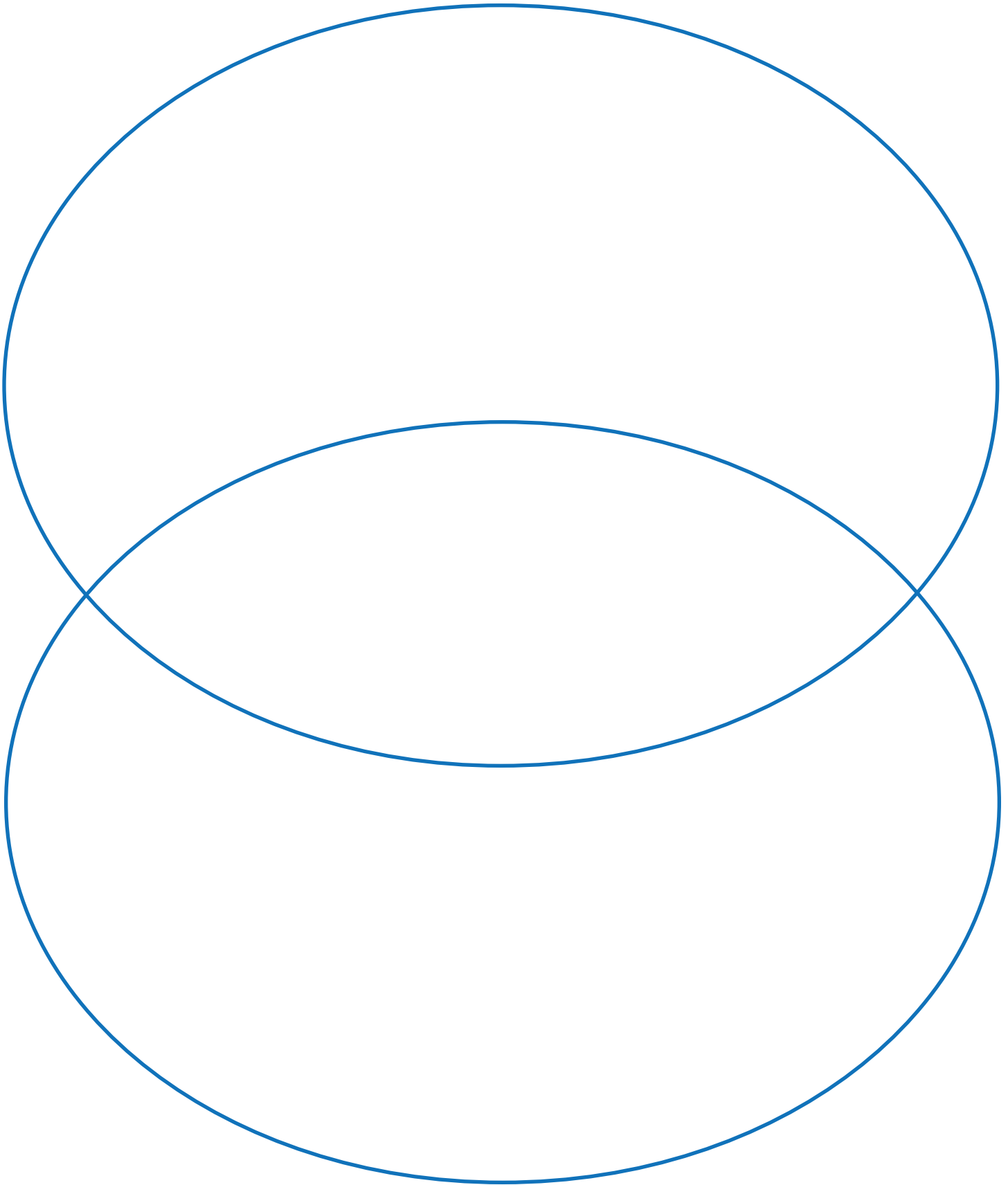


Appendix A—"What Children Know" Cards

| | |
|---|---|
| <p>Question:</p> <p>My answer:</p> <p>This information is correct! This information is not correct; can you find the correct information?</p> | <p>Question:</p> <p>My answer:</p> <p>This information is correct! This information is not correct; can you find the correct information?</p> |
| <p>Question:</p> <p>My answer:</p> <p>This information is correct! This information is not correct; can you find the correct information?</p> | <p>Question:</p> <p>My answer:</p> <p>This information is correct! This information is not correct; can you find the correct information?</p> |

Appendix B—Venn Diagram

Compare and contrast two



Appendix C—Vocabulary Cards



pingo



tundra



hummock



sun dogs



Arctic twilight



Northern Lights

In Arctic Waters Bingo

| Term | Definition |
|-----------------|---|
| adaptation | any structure or behavior that helps a living thing meet its needs for survival |
| camouflage | any coloring, shape, or pattern that allows a living thing to blend into its surroundings |
| migration | the movement of an animal from one location to another as the seasons change |
| hibernation | a long, deep sleep in which an animal's heart rate & breathing are much slower than normal |
| walrus | an Arctic marine mammal with large tusks; flippers help it to crawl onto land |
| polar bear | a large white bear that lives in the Arctic |
| Seals | marine mammals with sub-species such as ringed, bearded, spotted, harp, ribbon, and hooded. |
| narwhal | a large marine mammal with a horn like a "unicorn" |
| Inuit | Natives who live in Canada's coastal Arctic area. |
| endangered | having a population that is falling low in number & that is in danger of becoming extinct |
| Polar Ice Cap | huge mass of ice that stays frozen all year long |
| Summer Ice Pack | ice that breaks into smaller pieces during the summer |
| ecosystem | all the living & nonliving things in an environment & how they interact |
| habitat | a place where an animal or a plant lives |
| blubber | a type of adaptation: a layer of fat that helps to keep marine mammals warm in cold water |
| Arctic | the area lying above 66.5 degrees North latitude |
| permafrost | deep layer of soil that is always frozen, may have been frozen for thousands of years |
| carnivore | a consumer that eats other consumers |
| omnivore | a consumer that eats both plants and other consumers |
| fur | an animal adaptation of heavy "hair" that keeps animals warm in cold weather |
| Winter Ice Pack | ice that freezes in the winter and thaws in the summer |
| food chain | the flow of energy through a community |
| predator | an animal that hunts and kills other animals for food |
| prey | the animals that predators hunt |
| food web | all the food chains in a community |

| B | I | N | G | O |
|------------|-----------------|---------------|-----------------|------------|
| food web | hibernation | narwhal | Summer Ice Pack | permafrost |
| adaptation | Winter Ice Pack | Inuit | ecosystem | predator |
| habitat | polar bear | FREE | camouflage | omnivore |
| migration | Seals | Polar Ice Cap | blubber | food chain |
| fur | walrus | prey | Arctic | carnivore |

| B | I | N | G | O |
|-----------------|------------|-----------------|-------------|------------|
| polar bear | blubber | Seals | migration | omnivore |
| habitat | narwhal | Polar Ice Cap | camouflage | Inuit |
| Summer Ice Pack | permafrost | FREE | hibernation | prey |
| food chain | ecosystem | predator | endangered | adaptation |
| Arctic | carnivore | Winter Ice Pack | food web | fur |

| B | I | N | G | O |
|------------|-----------------|-------------|-----------------|------------|
| camouflage | endangered | habitat | carnivore | predator |
| Seals | ecosystem | polar bear | omnivore | prey |
| Inuit | Summer Ice Pack | FREE | narwhal | food web |
| blubber | fur | permafrost | Winter Ice Pack | adaptation |
| walrus | Arctic | hibernation | food chain | migration |

| B | I | N | G | O |
|------------|------------|-----------------|-----------------|---------------|
| permafrost | food web | carnivore | blubber | hibernation |
| adaptation | polar bear | prey | Inuit | ecosystem |
| fur | camouflage | FREE | omnivore | Polar Ice Cap |
| migration | Seals | Summer Ice Pack | Winter Ice Pack | walrus |
| predator | food chain | narwhal | habitat | endangered |

| B | I | N | G | O |
|------------|-----------------|---------------|------------|-----------------|
| camouflage | Winter Ice Pack | ecosystem | food web | blubber |
| Seals | hibernation | carnivore | endangered | Summer Ice Pack |
| predator | Arctic | FREE | food chain | adaptation |
| Inuit | fur | Polar Ice Cap | habitat | permafrost |
| narwhal | walrus | prey | polar bear | migration |

| B | I | N | G | O |
|------------|-----------------|-------------|-----------------|-------------|
| endangered | Winter Ice Pack | walrus | predator | permafrost |
| habitat | Polar Ice Cap | migration | carnivore | polar bear |
| narwhal | blubber | FREE | prey | camouflage |
| Inuit | omnivore | food chain | Summer Ice Pack | hibernation |
| ecosystem | food web | Arctic | adaptation | fur |

| B | I | N | G | O |
|-----------------|------------|---------------|-----------------|------------|
| hibernation | food web | narwhal | Summer Ice Pack | permafrost |
| Winter Ice Pack | adaptation | Inuit | ecosystem | predator |
| polar bear | habitat | FREE | camouflage | omnivore |
| Seals | migration | Polar Ice Cap | blubber | food chain |
| walrus | fur | prey | Arctic | carnivore |

| B | I | N | G | O |
|-----------------|------------|-----------------|-------------|------------|
| habitat | narwhal | Polar Ice Cap | camouflage | Inuit |
| polar bear | blubber | Seals | migration | omnivore |
| Summer Ice Pack | permafrost | FREE | hibernation | prey |
| food chain | ecosystem | predator | endangered | adaptation |
| Arctic | carnivore | Winter Ice Pack | food web | fur |

| B | I | N | G | O |
|------------|-----------------|-------------|-----------------|------------|
| walrus | Arctic | hibernation | food chain | migration |
| camouflage | endangered | habitat | carnivore | predator |
| Seals | ecosystem | FREE | omnivore | prey |
| Inuit | Summer Ice Pack | polar bear | narwhal | food web |
| blubber | fur | permafrost | Winter Ice Pack | adaptation |

| B | I | N | G | O |
|------------|------------|-----------------|-----------------|---------------|
| food web | permafrost | carnivore | blubber | hibernation |
| polar bear | adaptation | prey | Inuit | ecosystem |
| camouflage | fur | FREE | omnivore | Polar Ice Cap |
| Seals | migration | Summer Ice Pack | Winter Ice Pack | walrus |
| food chain | predator | narwhal | habitat | endangered |

| B | I | N | G | O |
|------------|-----------------|---------------|------------|-----------------|
| Seals | hibernation | carnivore | endangered | Summer Ice Pack |
| camouflage | Winter Ice Pack | ecosystem | food web | blubber |
| predator | Arctic | FREE | food chain | adaptation |
| Inuit | fur | Polar Ice Cap | habitat | permafrost |
| narwhal | walrus | prey | polar bear | migration |

| B | I | N | G | O |
|------------|-----------------|-------------|-----------------|-------------|
| ecosystem | food web | Arctic | adaptation | fur |
| endangered | Winter Ice Pack | walrus | predator | permafrost |
| habitat | Polar Ice Cap | FREE | carnivore | polar bear |
| narwhal | blubber | migration | prey | camouflage |
| Inuit | omnivore | food chain | Summer Ice Pack | hibernation |

| B | I | N | G | O |
|------------|-----------------|---------------|------------|-----------------|
| food web | hibernation | narwhal | permafrost | Summer Ice Pack |
| adaptation | Winter Ice Pack | Inuit | predator | ecosystem |
| habitat | polar bear | FREE | omnivore | camouflage |
| migration | Seals | Polar Ice Cap | food chain | blubber |
| fur | walrus | prey | carnivore | Arctic |

| B | I | N | G | O |
|-----------------|------------|-----------------|-------------|------------|
| polar bear | blubber | Seals | migration | omnivore |
| habitat | narwhal | Polar Ice Cap | camouflage | Inuit |
| Summer Ice Pack | permafrost | FREE | hibernation | prey |
| Arctic | carnivore | Winter Ice Pack | food web | fur |
| food chain | ecosystem | predator | endangered | adaptation |

| B | I | N | G | O |
|------------|-----------------|-------------|-----------------|------------|
| camouflage | endangered | habitat | carnivore | predator |
| walrus | Arctic | hibernation | food chain | migration |
| Seals | ecosystem | FREE | omnivore | prey |
| Inuit | Summer Ice Pack | polar bear | narwhal | food web |
| blubber | fur | permafrost | Winter Ice Pack | adaptation |

| B | I | N | G | O |
|------------|------------|-----------------|---------------|-----------------|
| permafrost | food web | carnivore | hibernation | blubber |
| adaptation | polar bear | prey | ecosystem | Inuit |
| fur | camouflage | FREE | Polar Ice Cap | omnivore |
| migration | Seals | Summer Ice Pack | walrus | Winter Ice Pack |
| predator | food chain | narwhal | endangered | habitat |

| B | I | N | G | O |
|------------|-----------------|---------------|------------|-----------------|
| camouflage | Winter Ice Pack | ecosystem | food web | blubber |
| Seals | hibernation | carnivore | endangered | Summer Ice Pack |
| predator | Arctic | FREE | food chain | adaptation |
| narwhal | walrus | prey | polar bear | migration |
| Inuit | fur | Polar Ice Cap | habitat | permafrost |

| B | I | N | G | O |
|------------|-----------------|-------------|-----------------|-------------|
| endangered | Winter Ice Pack | walrus | predator | permafrost |
| ecosystem | food web | Arctic | adaptation | fur |
| habitat | Polar Ice Cap | FREE | carnivore | polar bear |
| narwhal | blubber | migration | prey | camouflage |
| Inuit | omnivore | food chain | Summer Ice Pack | hibernation |

| B | I | N | G | O |
|------------|-----------------|---------------|------------|-----------------|
| food web | hibernation | narwhal | permafrost | Summer Ice Pack |
| adaptation | Winter Ice Pack | Inuit | predator | ecosystem |
| habitat | polar bear | FREE | omnivore | camouflage |
| migration | Seals | Polar Ice Cap | food chain | blubber |
| fur | walrus | prey | carnivore | Arctic |

| B | I | N | G | O |
|-----------------|------------|-----------------|-------------|------------|
| habitat | narwhal | Polar Ice Cap | camouflage | Inuit |
| polar bear | blubber | Seals | migration | omnivore |
| Summer Ice Pack | permafrost | FREE | hibernation | prey |
| Arctic | carnivore | Winter Ice Pack | food web | fur |
| food chain | ecosystem | predator | endangered | adaptation |

| B | I | N | G | O |
|------------|-----------------|-------------|-----------------|------------|
| camouflage | endangered | habitat | carnivore | predator |
| walrus | Arctic | hibernation | food chain | migration |
| Seals | ecosystem | FREE | omnivore | prey |
| blubber | fur | permafrost | Winter Ice Pack | adaptation |
| Inuit | Summer Ice Pack | polar bear | narwhal | food web |

| B | I | N | G | O |
|------------|------------|-----------------|---------------|-----------------|
| permafrost | food web | carnivore | hibernation | blubber |
| adaptation | polar bear | prey | ecosystem | Inuit |
| fur | camouflage | FREE | Polar Ice Cap | omnivore |
| migration | Seals | Summer Ice Pack | walrus | Winter Ice Pack |
| predator | food chain | narwhal | endangered | habitat |

| B | I | N | G | O |
|------------|-----------------|---------------|------------|-----------------|
| Seals | hibernation | carnivore | endangered | Summer Ice Pack |
| camouflage | Winter Ice Pack | ecosystem | food web | blubber |
| predator | Arctic | FREE | food chain | adaptation |
| narwhal | walrus | prey | polar bear | migration |
| Inuit | fur | Polar Ice Cap | habitat | permafrost |

| B | I | N | G | O |
|------------|-----------------|-------------|-----------------|-------------|
| endangered | Winter Ice Pack | walrus | predator | permafrost |
| ecosystem | food web | Arctic | adaptation | fur |
| habitat | Polar Ice Cap | FREE | carnivore | polar bear |
| Inuit | omnivore | food chain | Summer Ice Pack | hibernation |
| narwhal | blubber | migration | prey | camouflage |

| B | I | N | G | O |
|------------|-----------------|---------------|------------|-----------------|
| adaptation | Winter Ice Pack | Inuit | predator | ecosystem |
| food web | hibernation | narwhal | permafrost | Summer Ice Pack |
| habitat | polar bear | FREE | omnivore | camouflage |
| migration | Seals | Polar Ice Cap | food chain | blubber |
| fur | walrus | prey | carnivore | Arctic |

| B | I | N | G | O |
|-----------------|------------|-----------------|-------------|------------|
| food chain | ecosystem | predator | endangered | adaptation |
| polar bear | blubber | Seals | migration | omnivore |
| Summer Ice Pack | permafrost | FREE | hibernation | prey |
| Arctic | carnivore | Winter Ice Pack | food web | fur |
| habitat | narwhal | Polar Ice Cap | camouflage | Inuit |

| B | I | N | G | O |
|------------|-----------------|-------------|------------|-----------------|
| camouflage | endangered | habitat | predator | carnivore |
| walrus | Arctic | hibernation | migration | food chain |
| Seals | ecosystem | FREE | prey | omnivore |
| blubber | fur | permafrost | adaptation | Winter Ice Pack |
| Inuit | Summer Ice Pack | polar bear | food web | narwhal |

| B | I | N | G | O |
|------------|------------|-----------------|---------------|-----------------|
| adaptation | polar bear | prey | ecosystem | Inuit |
| permafrost | food web | carnivore | hibernation | blubber |
| fur | camouflage | FREE | Polar Ice Cap | omnivore |
| migration | Seals | Summer Ice Pack | walrus | Winter Ice Pack |
| predator | food chain | narwhal | endangered | habitat |

| B | I | N | G | O |
|------------|-----------------|---------------|------------|-----------------|
| Inuit | fur | Polar Ice Cap | habitat | permafrost |
| camouflage | Winter Ice Pack | ecosystem | food web | blubber |
| predator | Arctic | FREE | food chain | adaptation |
| narwhal | walrus | prey | polar bear | migration |
| Seals | hibernation | carnivore | endangered | Summer Ice Pack |

| B | I | N | G | O |
|------------|-----------------|-------------|-------------|-----------------|
| endangered | Winter Ice Pack | walrus | permafrost | predator |
| ecosystem | food web | Arctic | fur | adaptation |
| habitat | Polar Ice Cap | FREE | polar bear | carnivore |
| Inuit | omnivore | food chain | hibernation | Summer Ice Pack |
| narwhal | blubber | migration | camouflage | prey |