CGA-San Joaquin Valley
Teacher Geographic Units
K-6

LESSON # A-8 (1 of 2)

UNIT TITLE: The Arctic and Antarctic

Created By: Kelly Colwell - Summer 2003

GRADE: 2nd
The Arctic
and
Antarctic

By
Kelly Colwell
Standards

Language Arts Standards

Reading

Standard 1: The student experiences a wide range and variety of material. The student reads and understands material of the quality and complexity illustrated in the District's second grade reading list.
- Read and comprehend grade level appropriate narrative and expository text
- Identify the main idea and supporting details from the story
- Differentiate between fact and opinion
- Make, confirm, and extend predictions

Standard 2: The student independently selects and reads grade appropriate materials. The student takes independent action to solve reading problems and persists until problems are resolved.
- Make, confirm, or revise predictions
- Relate previous experience to what is read
- Relate new information to prior knowledge and experience
- Make connections to related topics and information
- Carry out steps in a procedure sequentially

Standard 3: The student demonstrates increasing proficiency in basic reading skills and strategies, vocabulary development, and reading fluency.
- Blend sounds for more complex words
- Continue to use decoding strategies
- Check to see if reading makes sense and rereads to clarify or self-correct
- Understand and explain common antonyms and synonyms
- Use knowledge of individual words in unknown compound words to predict their meaning
- Read familiar materials with appropriate phrasing and expression
- Use punctuation to facilitate reading

Writing

Standard 5: The student writes for a variety of purposes and audiences, developing style and voice.
- Include appropriate facts and details
- Maintain a focus
- Use descriptive words when writing

Listening and Speaking

Standard 7: The student uses speaking and listening skills to communicate effectively.
- Continue to ask appropriate questions to gain information and maintain or clarify understanding
- Listen responsively and respectfully
- Give and follow oral directions with three or four steps
Science Standards

Standard 1: The student demonstrates an understanding of scientific thinking by using the reasoning strategies of the scientific method, scientific knowledge and common sense to formulate questions about, understand, and explain patterns, processes, and problems of the world.
* Collecting and sharing information and details
* Asking questions about observations of objects

Standard 2: The student demonstrates an understanding that matter and energy interact and are affected by forces.
* Understands that matter can be classified according to its observable properties.

Standard 3: The student demonstrates an understanding that the Earth and the sky undergo patterns of change over time.
* Our Earth has many features that can be observed and classified.

Standard 4: The student demonstrates an understanding that all organisms are interrelated to other organisms and the environment.
* Understanding that living things have features and/or behaviors that enable them to adapt to, and change, their environment.

Social Studies Standards

Standard 1: By focusing on people who supply our needs, the student will gain an understanding of geography, economics, and the interdependence of people.
Standard 3: The student will begin to appreciate the importance of individuals from many cultures, now and long ago, who have made a difference for the better in peoples lives

Art Standard

Standard 2: The student demonstrates increasing art skills to create a variety of original artwork.

P.E. Standard

Standard 6: The student in grade two will demonstrate responsible social behavior while participating in movement activities. The student will understand the importance of respect for all others.

Math Standard

Standard 2: Geometry and Measurement. Students demonstrate knowledge of basic skill, conceptual understanding, and problem solving in geometry and measurement.

Music Standard

Standard 4: Students improvise melodies, variations, and accompaniments.

Technology Standard
RATIONALE

The Arctic and Antarctica are fascinating places. These areas have much in common as well as significant differences. Through the exploration of these two regions I can incorporate many fields of study, including biology, sociology, geography, and oceanography. This unit has ten lessons that will cover Language Arts (reading, writing, listening/speaking), Science, Social Studies, Art, PE, Math, Music and Technology. I have chosen to concentrate on six animals (three from each area) and the peoples of the Arctic Circle.

There are ten activities that will be included in a portfolio that will provide an authentic assessment. The learning modalities this unit will access will be auditory, visual, and kinesthetic. The students will be reading many books, (non-fiction and fiction) during the lesson and in their reading groups. Videos, pictures and authentic realia will be presented for visual learning. There are hands-on activities as well as PE games that will connect lessons kinesthetically. Lessons begin with reading and pictures to provide background vocabulary for all students. We will be learning about people as well as places, which will provide an understanding of other cultures.

I'm very excited to be able to include Eskimo realia as well as a special guest speaker Mrs. Elizabeth Reihm. Mrs. Reihm is Inupiat, a native Alaskan who now lives in Fresno. She will be visiting our class after I have given the students information about the culture and people. We will have the privilege of hearing about her experience of growing up in Alaska. She will be bringing artifacts such as an Ulu and traditional clothing. She will also show us a traditional dance.

The room will have a bulletin board that will represent the unit. It will have a white background with Arctic and Antarctic representations. As the unit progresses representations of animals and people will be added. Also we will have our origami art projects hanging around the room. Children will make a portfolio of the two regions. I'm very excited about this unit and believe it will provide a meaningful and fun learning experience for both the students and the teacher.
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<thead>
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<td>tundra</td>
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<td>Nanuk</td>
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<td>Polar Bear</td>
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<td>pack</td>
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<td>owl</td>
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<td>talon</td>
<td>baleen</td>
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<td>camouflage</td>
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# SPELLING WORDS

<table>
<thead>
<tr>
<th>Week One</th>
<th>Week Two</th>
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<tbody>
<tr>
<td>Arctic</td>
<td>Antarctica</td>
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<tr>
<td>north</td>
<td>south</td>
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<tr>
<td>polar</td>
<td>glacier</td>
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<tr>
<td>Inuit</td>
<td>penguin</td>
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<tr>
<td>igloo</td>
<td>seal</td>
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<tr>
<td>iceberg</td>
<td>whale</td>
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<tr>
<td>tundra</td>
<td>snow</td>
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<tr>
<td>wolf</td>
<td>frozen</td>
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<tr>
<td>owl</td>
<td>continent</td>
</tr>
<tr>
<td>talon</td>
<td>ocean</td>
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</tbody>
</table>
Rewrite your spelling words in ABC order.

1. Arctic
2. north
3. polar
4. Inuit
5. igloo
6. iceberg
7. tundra
8. wolf
9. owl
10. talon
Fill in the Blank 1

Directions: Fill in the missing vowel or vowels of this week's spelling words. Then write the whole word on the line to the right.

1. _rct_c
2. n_rth
3. p_l_r
4. _n_t
5. igl_
6. ic_ b_rg
7. t_ndr_
8. w_lf
9. t_l_n
10. _wl
Rewrite your spelling words in ABC order.

1. Antarctica

2. south

3. glacier

4. penguin

5. seal

6. whale

7. snow

8. frozen

9. continent

10. ocean
Fill in the Blank 2

Directions: Fill in the missing vowel or vowels of this week’s spelling words. Then write the whole word on the line to the right.

1. _nt_rctic_ __________________________
2. s_ _ th ______________________________
3. glac_ _ r ______________________________
4. peng_ _ n ______________________________
5. s_ _ l ________________________________
6. wh_ _ l ______________________________
7. sn_ w ________________________________
8. fr_ z_ n ______________________________
9. c_ nt_n _nt ____________________________
10. _c_ _n ______________________________
Clinical Teaching Lesson Plan
New or Reteach

Grade 2        Subject: Social Studies        Standard 1        Lesson Title: Mapping The Poles

Teacher Materials            Vocabulary            Student Materials
* world map                * Arctic                * map handouts
* world map ball            * Antarctic              * crayons
* world map overhead        * North Pole            * pencil
* ocean

Objective: The student's will label a world map with the vocabulary words and color the appropriate areas.

Set: I will have a bulletin board covered with a white sheet. I will tell the student's that today we will be starting a great adventure about two places on Earth that are covered in snow and dark most of the year. I will tell them that during the next two weeks we are going to be talking about weather, animals and people that live in these areas and that we will use the bulletin board to represent what we learn. Today we will learn the names of these two places and draw them on a map.

Background/Input: I will ask students if anyone has seen the snow, I will let them explain the experiences they have had. I will guide them to use descriptions such as ice, cold, wet, and white, for students who have not had the experience.

Procedure/Application:
* Teacher teaches, (visual/auditory): Teacher has a world map and asks the students to examine it for a minute. Teacher then points out the Arctic and Antarctic areas. Teacher writes these words on the board emphasizing the correct spelling and pronunciation. Teacher explains that these places are also called the North and South Poles. Teacher writes North Pole by the word Arctic and South Pole by the word Antarctic.
* Students teach the teacher, (oral/psychomotor/kinesthetic): Teacher takes out a world map blow-up ball and tosses it to a student. Teacher points to one of the four words on the board and has the student point to the correct place on the map.
* Guided Practice: The students receive world map handouts at their desks and with guidance from a teacher overhead will label the Arctic and Antarctic areas.
* Activities: After labeling the Arctic and Antarctic areas the students will color them.
* Assessment/Criterion: The world map handout will be assessed. Student's responses will demonstrate that they know where the Arctic, (North Pole), and Antarctic (South Pole) are located. The students will add the map to a portfolio.

Student Teacher: [Signature] Date: 7/9/03

Master Teacher: [Signature] Date: 7/1/03
Looking at the World
Day 2

Clinical Teaching Lesson Plan

Grade 2     Subject: Social Studies  Standards SS 1, LA 1,4, SCI 1,2

Lesson Title: The Arctic

Teacher Materials
*Animals of the Arctic
   And Antarctic (Big Book)
*Living in the Arctic

Vocabulary
Inuit  umiak
     tundra  iceberg
     igloo  ocean

Student Materials
Arctic Web Handout
Pencil/crayons

Objective: The students will complete a web on Arctic facts and make an iceberg.

Set: Today boys and girls we are going to learn about a very special place called the Arctic. We will read some great books and see some pictures and then we will make an Arctic Fact Web.

Background/Input: This lesson is to familiarize the students with the Arctic and give them and give them the opportunity to see and hear Arctic facts.

Procedure/Application:
*Teacher teaches. (visual/auditory): The teacher reads the book Living in the Arctic and introduces the new vocabulary words. The teacher will then draw a writing web graphic organizer on the board with the title Arctic in the middle.
*Students teach the teacher. (oral/psychomotor/kinesthetic) The teacher will ask the students to help her fill out the web. The teachers will then write responses on the overhead and have students fill out the web on the board.
*Guided Practice: The teacher will handout Arctic Circle webs and guide students in filling them out by referring to the web on the board.
*Activities: Students will fill out Arctic webs and do an iceberg science activity.
*Independent Practice: Students will draw pictures to go with web activity
*Assessment/Criterion: The web will be used for assessment. The student’s responses and pictures will be used for a comprehension check. The web will be added to the portfolio.

Student Teacher: [Signature]  Date: 7/10/03

Master Teacher: [Signature]  Date: 7/10/03
Arctic People

No Trees

COLD

Long Winters

Surrounded by Land

North Pole

Ocean Covered with Ice

Arctic Ocean

Soviet

Greenland

Alaska

North Atlantic

Tundra
Use the graphic organizer below to help plan your Arctic report or project. Put key words by each line. By each word put ideas and notes to help you organize your thoughts.
Day 2a  

Clinical Teaching Lesson Plan
New or Reteach

Grade 2  
Subject: Science  
Standards 1.2

Lesson Title: What Is An Iceberg?

Teacher Materials  
Glass jar  
Scale  
Water  
Freezer

Vocabulary  
Iceberg  
Float

Student Materials  
Journal  
Pencil/crayons

Objective: The students will discover that an iceberg is frozen water and that ice weighs less than water and therefore floats.

Set: Today boys and girls we are going to learn about icebergs. We are going to freeze water and make a miniature iceberg. We will discover that an iceberg is mostly under the water and we only see a little part of it.

Background/Input: Icebergs are huge chunks of ice that are floating on the ocean. Did you know that when you put ice in your drinks you are really adding little icebergs? When you put an ice cube in your drink, how much is above the water and how much is below?

Procedure/Application:

*Teacher teaches (visual/auditory): The teacher will review materials already introduced. The book Living in the Arctic and vocabulary words from the unit such as iceberg, continent, ocean, and glacier.

*Guided Practice: The teacher will guide students through the steps of filling the jar with water and weighing the jar, placing in then freezer and then recording steps.

*Activities: The students will write down experiment and record water weight in their journals. The students will predict whether the frozen water will weigh more or less than the recorded weight of liquid water. Student’s will then weight the jar and either confirm or revise predictions.

*Independent Practice: The students will make icebergs(cubes) at home and see if the experiment works at home.

*Assessment/Criterion: Students will be assessed on student participation and journal entries.

Student Teacher:  

Master Teacher:  

Date 7/10/03  

Date 7/10/03
# Sea Water Experiments

Sea animals live in sea water. Demonstrate these experiments for your class so they can see how sea water is different from the fresh water lakes or ponds students may have near their homes.

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<thead>
<tr>
<th>Experiment 1</th>
<th>Experiment 2</th>
<th>Experiment 3</th>
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| **How do we know that ocean and sea water contain salt?**
**Materials:** pie pan; 2 cups/480 mL ocean or sea water (You can make your own by mixing 2 tsp/10 mL of salt with 2 cups/480 mL of water.)
**Directions:** Pour the water into a pan.
Place the pan in a warm, dry place.
Allow water to evaporate—this usually takes a few days.
Make observations. |
| **Why does an iceberg float?**
**Materials:** a glass jar; water; a freezer; scale
**Directions:** Fill the jar to the top with water.
Weigh and record the weight.
Carefully place the jar in the freezer.
Close the freezer door; in three hours, observe what has taken place.
Weigh the jar again and compare this weight with its pre-frozen weight. |
| **Is it easier to float in the ocean or in fresh water?**
**Materials:** 1 egg; 1 jar filled with fresh water; 1 jar filled with ocean water (You can make your own by mixing 2 tsp/10 mL of salt with 2 cups/480 mL of water.)
**Directions:** Put the egg in the jar of fresh water.
Observe what happens.
Put the egg in the jar of ocean water.
Observe what happens. |
Day 3

Clinical Teaching Lesson Plan

Grade 2    Subject: Social Studies    Standards LA 1, SCI 4

Lesson Title: Polar Bears

Teacher Materials:  
* Animals of the Arctic And Antarctic (Big Book)  
* Ice Bear and Little fox  
* Stuffed polar bear and brown bear

Vocabulary:  
nanuk  
polar bear  
mammal

Student Materials:  
polar bear picture handout  
book report form  
pencil/crayons

Objective: The students will identify distinguishing characteristics of polar bears, fill out a book report and correctly color a polar bear picture.

Set:  Today boys and girls we are going to learn about polar bears. Polar bears live in the Arctic. When we finish this lesson you will know what a polar bear looks like and where it lives.

Background/Input: This lesson is to familiarize the students with polar bears and build an interest with fiction and non-fiction stories.

Procedure/Application:
* Teacher teaches, (visual/auditory): Teacher displays pictures of polar bears. Teacher reads Ice Bear and Little Fox with attention given to the color of the fur and possible reasons why. Teacher will read information about eating habits, cubs, and habits of polar bears from the big book. Teacher will use small stuffed polar bear for a visual.
* Students teach the teacher, (oral/psychomotor/kinesthetic) Students will pass around the polar bear restating facts they have learned. Students will also discuss the differences between a brown bear and a polar bear (habitat, food, color, etc.)
* Guided Practice: At desks students will review polar bear facts.
* Activities: Students will appropriately color a picture of a polar bear.
* Independent Practice: Students will fill out a book report form on the book Ice Bear and Little Fox.
* Assessment/Criterion: Completed book report and polar bear picture will be added to a portfolio.

Student Teacher

Master Teacher

Date 7/11/03

Date 7/10/03
Polar bears live near the North Pole. Polar Bears have yellow-white fur. They also have a black nose, small eyes and black lips. They have a long neck and a small narrow head. They have thick fur covering their feet so they can walk on ice.

Most polar bears do not sleep all winter. They stay out and hunt. They are meat-eaters. They hunt seals, walruses, and birds.

When she is ready to have cubs, a mother polar bear goes inland and digs a hole in the snow and then lets new snow cover her. Her warm breath keeps a little hole open in the snow. When her cubs are born, they have very little fur and pink skin.

Baby polar bear cubs stay with their mother for almost two years. She teaches them how to hunt and swim. Mother polar bear is very strong and often carries or swims with her cubs on her back. Father polar bear does not help with the cubs.
**Polar bear**

**SUBFAMILY URSINAE**  
*Ursus maritimus* Phipps, 1774

Image by David Kirshner & Frank Knight  
From Ian Stirling, ed. *Bears, Majestic Creatures of the Wild.*  

**APPEARANCE** The polar bear is immediately recognizable from the distinctive white color of its fur. The neck of the polar bear is longer than in other species of bears. The head is elongated but the ears are relatively small. The front paws are large and are used like paddles for swimming while the hind legs trail behind. The nose, and the skin underneath the white fur, are black. The soles of the feet have small papillae and vacuoles like suction cups to make them less likely to slip on the ice.

**SIZE** The polar bear is the largest land carnivore alive in the world today. Adult males weigh from 400 to 600 kilograms (880 to 1,320 pounds) and occasionally exceed 800 kilograms (1,760 pounds). Females are about half the size of males and normally weigh...
200 to 300 kilograms (440 to 660 pounds). Immediately before entering the maternity den in the fall, the weight of a pregnant adult female can exceed 500 kilograms (1,100 pounds) because of the enormous amount of stored fat. Adult males measure 240 to 260 centimeters (95 to 105 inches) and females 190 to 210 centimeters (75 to 85 inches). At birth, cubs weigh 600 to 700 grams (1 pound 3 ounces to 1 pound 6 ounces).

**HABITAT** The preferred habitat of polar bears is the annual ice adjacent to the shorelines of the continents and archipelagos throughout the circumpolar Arctic. Wind and currents create cracks in the ice that concentrate the seals they hunt. Although polar bears have been recorded as far north as 88°, they rarely enter the zone of heavy multiyear ice of the central polar basin because it is unproductive biologically and there is little to eat. In areas such as Hudson Bay, where the ice melts completely for a few months in the late summer and fall, bears spend the summer on land, resting to conserve energy and waiting for freeze-up. Males tend to remain along the coast, while family groups and subadults go further inland.

**DISTRIBUTION** Polar bears are found throughout the circumpolar Arctic. The farthest south that polar bears live all year round is James Bay in Canada, which is about the same latitude as London, England. During winter, when the polar ice pack extends further south, polar bears move as far south as Newfoundland and into the northern Bering Sea. They then move back north as the southern edge of the pack ice recedes throughout the summer.

**REPRODUCTION** Polar bears mate from late March to late May. Implantation of the fertilized egg is delayed until late September to early October and the cubs are born between late November and early January. A little under 70 percent of the litters consist of two cubs, 25 to 30 percent are singletons, and there are a small number of triplet litters. Litters of four cubs have been reported, but are extremely rare and it would be unlikely for all the cubs to survive. Cubs remain with their mothers until they are two-and-a-half years of age, so the most often that females normally breed is once every three years.

**SOCIAL SYSTEM** Throughout most of the year, polar bears are distributed as solitary individuals, except for females accompanied by their cubs. They have large overlapping home ranges but do not defend territories. The adult sex ratio is 1:1 but since most females reproduce only once every three years, only a third of them are available in each breeding season. This results in intense competition between males for mates, which is probably one of the reasons why males are twice the size of females.

**DIET** Polar bears are the most carnivorous of all the bears and live almost entirely on ringed seals, and to a lesser degree, on bearded seals. They are also known to prey on young walruses and occasionally even capture narwhals and beluga whales. In summer, if they are along the coast, they may eat some grass, kelp, or berries, and scavenge on the carcasses of terrestrial or marine mammals.
Day 4

Clinical Teaching Lesson Plan

Grade 2    Subject: Social Studies    Standards LA 1, SCI 4, Art 2, Math2

Lesson Title: Arctic Wolves

Teacher Materials
* Animals of the Arctic
  And Antarctic (Big Book)
* The Arctic Wolf

Vocabulary
pack
territory
litter
muzzle

Student Materials
The Wolf handout
journal
pencil/crayons/glue
scissors
Wolf origami handout

Objective: The students will identify distinguishing characteristics of wolves, such as habitat, color, and body structure from information given from literature.
Set: Today boys and girls we are going to learn about Arctic Wolves. These are special wolves that live in the Arctic. They live in the snow, they are related to dogs, hunt in packs in a territory they claim.
Background/Input: This lesson is to familiarize the students with wolves and build an interest with fiction and non-fiction stories.

Procedure/Application:
* Teacher teaches (visual/auditory): Teacher displays pictures of Arctic wolves and reads Arctic Wolf. The teacher writes distinguishing characteristics and introduces vocabulary.
* Students teach the teacher. (oral/psychomotor/kinesthetic) Students will discuss the differences between Arctic wolves and dogs they have for pets.
* Guided Practice: Teacher will write steps for cutting and gluing the wolf page. Teacher will also give journal topic.
* Activities: Students will glue wolf, (inside and out) page. Students will make a wolf origami art project
* Independent Practice: Students will write in journals about what it would be like if they were Arctic wolves and color wolf picture.
* Assessment/Criterion: Students will write in journals and add wolf picture to their portfolios.

Student Teacher: Kerry, Date: 7/16/03

Master Teacher: Z.C., Date: 7/17/03
In the BUILD-A-WOLF activity, we discussed what a wolf looks like on the "outside." Now, let's have the wolf take off his coat, and see how he looks on the "inside." The West Coast people believed that when a wolf took off his fur coat, he was a person underneath. What do you see "underneath?"

**Activity**

- Hold this page up to the light, and you will see the skeleton of the wolf.

A wolf (from the tip of his nose to the end of his tail) is almost as long as a man is tall.

continued on next page...
The scientific name for the wolf is *Canis lupus*. The scientific name for your dog is *Canis familiaris*. The ancestors of all dogs (from toy poodles to German shepherds) are wolves. All of the qualities (loyalty, playfulness and intelligence) that we love in our pet dogs came from wolves.

Members of the dog family (*Canidae*) include the wolf, coyote, fox, jackal and your pet dog (whether it is a Chihuahua or a German shepherd.)

Average adult male wolves weigh from 95 to 100 pounds. Average adult female wolves weigh from 80 to 85 pounds.