Unit Plan and Lessons for
Curriculum Alignment between the "Penguins: Past & Present" Research Study and Local Elementary Schools

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Introduction

The Brush-tail Penguins instructor's guide is for second grade. It was developed at UNCW to help teach local elementary school students about the brush-tail penguins of Antarctica. This instructor's guide is complete with seven different hands-on and interactive lessons. These lessons are designed to engage and inform the students. The lesson plans are all aligned with North Carolina Standard Course of Study. Each goal and objective is listed at the beginning of the specific lesson. The goal of this instructor's guide is to provide lessons that integrate science, technology, language, and other elementary subjects.

Teacher Guide

This instructor's guide is complete with instructor's materials, student materials, and references to additional materials that may be helpful when teaching this unit on the brush-tail penguins. The guide will also have teacher's materials that have the correct answers to student assignments and activities. This unit was developed to be used in local elementary schools to enhance the collaboration between local schools and the UNCW faculty researchers. Dr. Steve Emslie and Mike Polito, a PhD student, are UNCW researchers that are going to be visiting local schools to talk about their research that takes place in Antarctica. They will visit once before they go to Antarctica and once when they return from Antarctica. While the researchers are in Antarctica though, the students will learn about the penguins through the use of this unit. The student materials that have been developed for this unit are in their own package called *My Penguin Book.* Every student will need one of these books for this unit. The books also have a place where students can record their thoughts while learning about penguins and write down questions that they would like to ask a researcher. The teacher can then collect the books and send questions to the researchers. Note: make sure to screen the questions and to check out the Frequently Asked Questions link on the website to ensure that the question has not been previously answered.

Student Guide

The student guide for this unit has been organized into the *My Penguin Book*. This booklet format was designed to make the materials organized and easily accessible for student and teacher use. The student materials that have been developed for this unit are in their own package called *My Penguin Book.* Every student will need one of these books for this unit. The books serve as the place for students to record the information they learn. The books also have places for the students to make comments, take notes, and ask questions about penguins. The questions that students ask can then be sent to the researchers for answers.

An Introduction to Brush-tail Penguins

Grade level: 2

Goal/Objective: NC Standard Course of Study:

SCIENCE:

Competency Goal 1: The learner will conduct investigations and build an understanding of animal life cycles.

Objective 1.01 Describe the life cycle of animals including:

- Birth.
- Developing into an adult.
- Reproducing.
- Aging and death.

INFORMATION SKILLS:

Competency Goal 1: The learner will explore sources and formats for reading, listening, and viewing purposes.

Objective 1.09 Demonstrate awareness that resources convey meaning and exist in a variety of formats (print, graphical, audio, video, multimedia, web-based).

Competency Goal 5: The learner will communicate reading, listening, and viewing experiences.

Objective 5.01 Respond to reading, listening, viewing experiences orally, artistically, dramatically, through various formats.

Preparation: Login to Discovery United Streaming and in the content search bar type in "penguins". On the first page of results, scroll down until you see the video titled Penguins (2 minutes 29 seconds). Click here for the video. This is a video segment that belongs to Animal Classification: If you were a bird. Minimize the segment on your computer so that it is "ready to go" during your lesson. Also, open the PowerPoint Penguins of Antarctica and minimize it, so that it too is ready for the lesson.

Materials: Projector, Computer with Internet connection, United Streaming video: Penguins, PowerPoint: Penguins of Antarctica, Pencils (one for each student), *My Penguin Book* booklets (one for each student), *My Penguin Book* teacher guide

Estimated time: 1 day

Summary: This lesson is the first in a unit about penguins. In this lesson, students will be introduced to three types of penguins that belong to the Brush-tail group. These three penguins are the Chinstrap Penguin, Adélie Penguin (pronounced a-dell-ee), and the Gentoo Penguin. Students will learn basic information about the penguins such as where they live, what they look like, and what they eat. At the end of the lesson, students will begin a *My Penguin Book* by documenting two things they learned about penguins, and writing two questions to be posted on a class blog to UNCW researchers.

Focus and Review (gain attention, recall prerequisites): Begin the lesson by showing the class a video clip about penguins from Discovery United Streaming called If you were a bird: Penguins (2:29). Following the video clip, ask students what they saw in the video. In trying to elicit responses, some sample questions are: Have you seen penguins at the zoo before? Have you seen penguins in cartoons or movies? Where do penguins live? After 2-3 minutes of student answers and discussion about penguins, draw the discussion to a close.

Statement of Objectives: Inform the students that the class is beginning a unit on penguins. Tell the students that they are going to learn about three different types of penguins, the Chinstrap Penguin, the Adélie Penguin, and the Gentoo Penguin. The students will learn that there are 17 different species of penguins and the remaining 14 species are found on islands and coastlines throughout the southern hemisphere. The three they are studying are found in the Antarctic or the sub-Antarctic.

Teacher Input (present stimulus material, provide learning guidance): Prior to presenting the lesson to the class, print out the power point in note form, so that you have the necessary information to give the students. Once you have informed the class of the objectives for the lesson, begin by showing a globe and pointing to Antarctica. That way the students know where Antarctica is located in reference to the United States. Then begin presenting the PowerPoint Penguins of Antarctica to students. Allow students to ask questions. If you do not know the answers, try to write the questions down to ask the researchers at another time.

Guided Practice: (elicit performance, provide feedback): As a class, complete the quiz at the end of the introductory power point about penguins.

Independent Practice (assess performance): Pass out to each student a *My Penguin Book*. Tell students to write their name and the date on the front of the book. Ask students to turn to page one and write two things they learned about penguins today. Then, ask students to write down two questions they have about penguins or Antarctica for scientists.

Closure (enhance retention and transfer): Once students have finished writing in their books, ask for students to share what they learned from today's lesson. Once students have had a chance to share what they learned, invite them to share what they would like to know about penguins or Antarctica. Tell students that tomorrow they will learn about life cycles and what the penguins' life cycle is like.

Assessment: Informally observe individual student participation during the lesson.

The Life Cycle of a Penguin

Grade level: 2

Goal/Objective: NC Standard Course of Study:

SCIENCE:

Competency Goal 1: The learner will conduct investigations and build an understanding of animal life cycles.

Objective 1.01 Describe the life cycle of animals including:

- Birth.
- Developing into an adult.
- Reproducing.
- Aging and death.

ENGLISH LANGUAGE ARTS:

Competency Goal 2: The learner will develop and apply strategies and skills to comprehend text that is read, heard, and viewed.

Objective 2.02 Use text for a variety of functions, including literary, informational, and practical.

Competency Goal 3: The learner will make connections through the use of oral language, written language, and media and technology.

Objective 3.04 Increase oral and written vocabulary by listening, discussing, and composing texts when responding to literature that is read and heard. (e.g., read aloud by teacher, literature circles, interest groups, book clubs).

Materials: Penguins! by Gail Gibbons, My Season with Penguins by Sophie Webb, A New True Book: Penguins by Emilie U. Lepthien, or Penguins by Seymour Simon, Pencils (one for each student), *My Penguin Book* (one for each student), *My Penguin Book* teacher guide, whiteboard and dry erase marker

Estimated time: 1-2 days

Summary: In the second lesson of the unit, students will continue to learn facts about penguins, while also learning about the life cycle of the penguin. They are going to learn about important vocabulary words when talking about penguin life cycles. They are also going to draw pictures that correspond with the different stages of the penguin life cycle.

Focus and review (gain attention, recall prerequisites): To begin the lesson, read A New True Book: Penguins by Emilie U. Lepthien or Penguins by Seymour Simon aloud to the class. These books will aid students in recalling information about penguins from the previous lesson. The book describes the 17 different kinds of penguins. Ask students if they remember which penguins you told them they would be studying in this unit. Point out the Adélie Penguin, the Chinstrap Penguin, and the Gentoo Penguin, when you come across them in the book, for the class. Continue reading the rest of the book until you have finished.

Statement of objectives: Inform the students that today they are going to learn about the four parts of the life cycle of a penguin.

Key Vocabulary:

Tobogganing – Speeding over snow and ice by sliding on one's belly

Colony (rookery) - A breeding ground for penguins or other birds

Pebble nests – Nests made by the brush-tail penguins, that are made up of pebbles

Fasting - Periods of time during breeding seasons where the penguins do not leave nesting areas to feed

Regurgitates – To bring up food in the stomach by throwing up, so that it can be fed to young chicks

Crèche- A group of young chicks; a nursery where chicks gather for safety while their parents are at sea

Fledglings- A young bird that has just grown its adult feathers

Teacher input (present stimulus material, provide learning guidance): Write the vocabulary words on the board without their definitions. As you read Penguins! by Gail Gibbons and come across vocabulary terms, write their definitions on the board. (At the end, if you have missed any of the vocabulary terms, refer to this lesson plan and use the definitions listed above.)

On the fifth page of Gail Gibbons's book, point to the colored dots on the hemisphere which tells where each of the three penguins lives. Continue to read the story and discuss with students until it is finished. Where does a penguin begin? (The male penguins start to build a nest made of pebbles, then the female penguins help make finish the nest. The male and female penguins mate and penguin chicks are born and begin as eggs.) Who stays with the eggs? (The father stays with the egg while the mother goes to get food after the eggs have been laid.) What do the fathers do while the mothers are gone to find food? (Father penguins fast while watching over the eggs and keeping the eggs warm.) What does the father do with the egg? (He keeps the eggs warm by holding them against his belly. Using the nest, the father penguin is able to keep the eggs off the ice cold ground and keep the eggs warmer. He sleeps standing up, he has no food to eat but his blubber keeps him alive.) About how long does the chick take to hatch? (It takes about 30 days from when the egg is laid for it to hatch. The chicks then peck for about 3 days before the egg cracks open.) When the chick hatches where does it stay? (It stays in the nest for about 21 days.) How does the chick communicate with its parents? (They peep to their parents to let them know they are hungry and their parents will call back to the chicks.) When the chick gets

bigger what does it do to stay warm? (It huddles with the other chicks, and this is called a crèche or a nursery.) When is the chick able to swim in the ocean? (When it is 7 to 10 weeks old they are independent of their parents and they are now called fledglings. They have lost their down and they have their adult feathers at this point, these new feathers help to keep them warm in the water. When the penguins have lost all their baby feathers they are now old enough to swim in the ocean.) What do the chicks do once they are old enough to leave their parents? (Penguin chicks leave the colony when they are independent of their parents. When they are three to four years old, they come back to the colony as adults; they mate and start to lay eggs of their own.)

Guided practice: (elicit performance, provide feedback): Pass out each student's *My Penguin Book*. Instruct students to turn to page two in their book. Demonstrate how the page is to be filled out. Next to Stage 1, draw a penguin with an egg in front of its belly. Underneath the picture write "The female lays an egg. The male and female will keep it warm." Next to Stage 2, draw a picture of both parent penguins and the baby penguin hatching. Underneath the picture write "The chick hatches. Mom and Dad keep it warm." Next to Stage 3, draw a picture of multiple chicks together. Underneath the picture write "The chick stays warm with other chicks." Next to Stage 4, draw a picture of a picture of a juvenile penguin. Underneath the picture write "The chick loses its baby feathers." Next to Stage 5, draw a picture of an adult penguin. Underneath the picture write "The chick has grown up. It is an adult now."

Guide students through the process of drawing and writing in their penguin book.

Independent practice (assess performance): Instruct students to copy the seven vocabulary definitions into their *My Penguin Book* on page four.

Closure (enhance retention and transfer): At the end of the lesson, review with the class what they learned by reading the books today. Ask students to briefly tell you about the stages in a penguin's life, starting as an egg.

Assessment: Informally observe individual student participation during the lesson. After the students have completed pages 2-4 in the *My Penguin Book*, have them turn them in for the teacher to look over them. Use the following rubric for the student's drawings, descriptions, and effort in completing their journal pages in the *My Penguin Book*.

Life Cycle Rubric

	Poor	**Fair**	**Good**	**Excellent**	**Score/ Level**
Presentation	Illegible or messy	Legibly written and presented	Clear, uncluttered, and attractive	Evidence of pride and care for the booklet's daily use and its potential to springboard future writing ideas	
Organization	Pages are out of order and/or physically detached from notebook	Pages are dated and easily navigable	Pages are dated, well-ordered, and titled accordingly	Booklet is navigable according to subject, topic, title, and date so thoroughly that no clarification by the author is necessary.	
Evidence of Assignment Completion	Entry is entirely absent from notebook	Part of the entry is missing from notebook	Entry is present, but may reflect partial, haphazard engagement	Entry is carefully constructed and presented in their entirety	

Comparing and Contrasting Life Cycles

Grade level: 2

Goal/Objective: NC Standard Course of Study:

SCIENCE:

Competency goal 1: The learner will conduct investigations and build an understanding of animal life cycles.

Objective 1.01

Describe the life cycle of animals including:

- Birth.
- Developing into an adult.
- Reproducing.
- Aging and death.

Objective 1.04 Compare and contrast life cycles of other animals such as mealworms, ladybugs, crickets, guppies, or frogs.

ENGLISH LANGUAGE ARTS:

Competency Goal 2: The learner will develop and apply strategies and skills to comprehend text that is read, heard, and viewed.

Objective 2.07 Discuss similarities and differences in events, characters and concepts within and across texts.

Objective 2.08 Interpret information from diagrams, charts, and maps.

Competency Goal 4: The learner will apply strategies and skills to create oral, written, and visual texts.

Objective 4.04 Use oral communication to identify, organize, and analyze information.

Preparation: Pass out the *My Penguin Book* booklets to all the students.

Materials: *My Penguin Book* booklets (one for each student), *My Penguin Book* teacher guide, First the Egg by Laura Vaccaro Seeger, The Very Hungry Caterpillar by Eric Carle

Estimated time: 1-2 days

Summary: This lesson is the third lesson in the unit about penguins. Inform the class that today they are going to compare (find similarities) and contrast (find differences) between the life cycles of penguins and other living things. In this lesson, students will be reminded of the penguin life cycle. Then they will be asked to compare and contrast the life cycle of penguin to other living things.

Focus and review (gain attention, recall prerequisites): Begin the lesson by reviewing the life cycle of penguins with students. Talk about the five stages that the students outlined in the previous lesson. Stage 1: The female lays an egg. The male will keep it warm while the female finds food and then they switch off to incubate the egg This lasts for 35 days. Stage 2: The chick hatches. Mom and Dad keep it warm. Stage 3: The chick stays warm with other chicks, in a crèche. Stage 4: The chick loses its baby feathers, is called a fledgling, and can now swim in the ocean. Stage 5: The chick is grown up and is considered an adult now. In about two to three years it will find a mate and start its own family.

Read the book First the Egg by Laura Vaccaro Seeger as an introduction to comparing and contrasting life cycles. As you read the book to the class, point out that every living thing has a life cycle.

Statement of objectives: Inform the class that today they are going to compare (find similarities) and contrast (find differences) between the life cycles of penguins and other living things.

Teacher input (present stimulus material, provide learning guidance): Read The Very Hungry Caterpillar by Eric Carle to the class. While reading the book, point out the stages of the butterfly. First, it is an egg. Second, it is a very hungry caterpillar. Third, the caterpillar builds a cocoon, and then in the fourth stage becomes a butterfly.

Conduct a discussion with students about the differences and similarities between the life cycle of a butterfly and the life cycle of a penguin. Accept any answers that compare or contrast the two, however highlight/focus on student responses that are relevant to the life cycles specifically.

Guided practice: (elicit performance, provide feedback): Using the Venn Diagram teacher guide as an aid, open the Smart Notebook software/presentation of a blank Venn diagram. Review what goes in the circles of the Venn diagram. For example when the two circles overlap, those are things that are shared (in common) between the penguin and the butterfly. Elicit responses from students about stages in the penguin life cycle and the butterfly life cycle. Use the teacher guide if necessary to give students hints and help them fill out the diagram.

Independent practice (assess performance): Once the class has finished helping fill in the Venn diagram, have students complete the Venn diagram that compares the life cycles in their *My Penguin Book*. Encourage students to use their own words when filling in their Venn diagram; however they may copy from the diagram from the board as well.

Closure (enhance retention and transfer): Conduct a brief discussion with the class about what they have learned in the last few lessons. For example, ask the class which three types of penguins they are studying (Adélie, Chinstrap, and Gentoo). Ask students what they know/remember about the three different types of penguins. Ask students about the different life stages of the penguin.

Assessment: Informally observe individual student participation during the lesson. After the students have completed the Venn Diagram page in their *My Penguin Book*, have them turn them in for the teacher to look over them. Use the following rubric for the effort in completing their journal pages in the *My Penguin Book*.

Venn Diagram Rubric

	Poor	**Fair**	**Good**	**Excellent**	**Score/ Level**
Placement within the Venn diagram	No statements are placed in the correct circle.	Some statements are placed in the correct circle.	Most statements are placed in the correct circle, but student mixed up a few statements.	All statements noting similarities are placed in the center circle and all statements that note differences are placed in the correct outer circle.	
Information support of comparison statements	None of the statements are supported by the information	Few or none of the statements are supported by the information.	Most statements are supported by the information.	All statements are supported by the information.	
Evidence of Assignment Completion	Entry is entirely absent from notebook	Part of the entry is missing from notebook	Entry is present, but may reflect partial, haphazard engagement	Entry is carefully constructed and presented in their entirety	
Presentation	Illegible or messy	Legibly written and presented	Clear, uncluttered, and attractive	Evidence of pride and care for the entry in the booklet, work is easy to read and well-organized	

Penguin Centers

Grade level: 2

Goal/Objective: NC Standard Course of Study:

SCIENCE:

Competency Goal 2: The learner will conduct investigations and use appropriate tools to build an understanding of the changes in weather.

Objective 2.01 Investigate and describe how moving air interacts with objects.

HEALTHFUL LIVING:

Competency Goal 6: The learner will demonstrate competency in a variety of movement forms and proficiency in a few to gain competence towards lifetime physical activities (NASPE Standard 1).

Objective 6.02 Demonstrate manipulative skills such as throwing, catching, striking and trapping of objects while stationary and/or to a moving partner.

Competency Goal 7: Demonstrates understanding of movement concepts, principles, strategies, and tactics as they apply to the learning and performance of physical activities (NASPE Standard 2).

Objective 7.01 Demonstrate space awareness and movement control in different ways in a large group without bumping into others or falling, such as running, hopping, and skipping.

Preparation: This lesson is designed to be completed over the course of one or two days, depending on your time constraints. Set up Activity 1 and Activity 2 at the same table, since they both require water. Activity 3 and Activity 4 can be set up at a second table, in an area of the room where there is room to walk. Designate an area for Activity 5 that is out of the way and will not disturb the other activities.

For this lesson, it is recommended that you have 5 students or less at each station. Try to make the groups as even as possible for ease of activity completion and transitions.

Materials: Pencils (one for each student), *My Penguin Book* booklets (one for each student), *My Penguin Book* teacher guide, Penguin Coloring Center sheet (one for each student) see Appendix A, crayons, eyedropper, water, Paper (2 sheets per student), plastic container with water (enough room to "paddle"), a fan, Ruler (one for each student), 2 or 3 Plastic containers, water, pebbles or stones, two or three hard-boiled eggs, pillow case (one for each student), designated area to move in, tables for centers.

Teacher input (present stimulus material, provide learning guidance):

Tell the students that today they are going to be completing some experiments that will help them understand what it is like to be a penguin. Inform students that they will be working in centers. Show students where each center is in the room, and how students will be switching from one center to another.

The recommended time for each center is 5-7 minutes. Students will need time at their desks or a separate place in the room to fill out the questions pertaining to their activity in their Penguin Book. Allow an additional 5-7 minutes after each student has finished a center for them to complete the questions in their booklet.

Explain to the students what is expected of them at each center, and demonstrate how they will complete each activity. Then, show students where they will be documenting their findings in their Penguin Book.

Finally, review the rules and procedures you have in place for using centers in your class. Remind the students when they will be able to move from one station to another, the order of the stations for them to travel to, and the paths in which they should travel for getting from one station to another. Don't forget to remind your class of the signal for them to stop, just in case you need to get their attention quickly.

Due to the nature of the activity, it is vital that the teacher (and teacher assistant if possible) walk around the room or spend the majority of your time at one station.

Guided practice: (elicit performance, provide feedback):

Centers

Activity 1: Waterproof Feathers

Directions: Penguins have a specific feather structure. They are small, densely packed feathers that overlap. Penguins utilize their feather structure and their body oils to make their feathers waterproof. You can use crayons to make paper penguins waterproof. Color only one of the penguins in with crayons. Make sure to color hard and do not leave any spaces blank. Next, using an eyedropper, sprinkle 3 or 4 drops of water on each penguin.

Materials: Penguin Coloring Center sheet (one for each student) see Appendix A, crayons, eyedropper, water, pencil (one for each student), *My Penguin Book* (one for each student) page 7

Activity 2: Why do penguins have different wings?

Directions: Take two sheets of paper and hand them to each student at the center. Have the students take one sheet of paper and cut out a wing that is similar to a bird's wing. With the second sheet of paper have the students fold the paper into a triangle that is similar to the shape of a penguin's wing. Using the fan, have the students hold the two different wings up to the fan. Have the students think about which wings flew better in the wind from the fan. After that, using the plastic container containing water and the two different wings, have the students try to paddle in the water like a bird.

Materials: Paper (2 sheets per student), plastic container with water (enough room to “paddle”), a fan, pencil (one for each student), *My Penguin Book* (one for each student) page 8

Activity 3: The Balance Behind Penguins

Directions: Take your ruler and pretend that it is the body of a bird. First, balance the ruler by placing it horizontally (side to side) on your finger. Second, turn the ruler so it is vertical (up and down) and balance it on your finger.

Materials: Ruler (one for each student), pencil (one for each student), *My Penguin Book* (one for each student) page 9

Activity 4: Build a Nest like a Penguin

Directions: Penguin fathers and mothers work together to build nests out of pebbles. These nests are used to keep the eggs warm during incubation. Have the students pair up for this center activity. The students will then work together to build a pebble nest in their plastic containers. When they think they have the nest high enough from the bottom of the container, have the students put their egg in the middle of the nest. Finally, with the teacher's help, slowly pour water into the container. Then have the students check to see if their penguin nest kept the egg dry or not.

Materials: Plastic containers, water, pebbles or stones, two or three hard-boiled eggs, pencil (one for each student), *My Penguin Book* (one for each student) page 10

Activity 5: Toboggan and Walk Like a Penguin

Directions: Lay a pillow case on the floor and lay down on your stomach. Use your hands and harms to push yourself forward. Your toes can help too. This is how penguins toboggan over ice and snow. Next, try to walk like a penguin. Take off your shoes and hold your feet close together. Walk by shuffling your feet.

Materials: pillow case (one for each student), designated area to move in, pencil (one for each student), *My Penguin Book* (one for each student) page 11

Independent practice (assess performance):

Once the students have completed an activity at the centers, they will be required to answer questions about the centers before moving to the next center. Each center has a page in the *My Penguin Book*. Encourage students to use their own words and remind them to write in complete sentences when answering the questions at each center.

Closure (enhance retention and transfer): Conduct a brief discussion with the class about what they have learned at the centers today. For example, ask the class which activity they enjoyed the most. Also, ask them to explain how each activity relates to being a penguin. Tell students that the next lesson they will learn about how to touch, smell, hear, see, and taste like a penguin.

Assessment: Informally observe individual student participation during the lesson. After the students have completed the pages in their *My Penguin Book*, have them turn them in for the teacher to look over them. Use the following rubric for the effort in completing their journal pages in the *My Penguin Book*.

Centers Rubric

	Poor	Fair	Good	Excellent	Score/ Level
Evidence of assignment completion	Completed less than 1 activity. Poor use of time management at each center.	Completed 2 or fewer activities in the allotted time.	Completed 3-4 activities.	Completed all 5 activities in a timely manner.	
Written responses in Penguin Book	Completed 1 or no sets of activity response questions in Penguin book.	Completed 2 or fewer sets of activity response questions in Penguin book.	Completed 3-4 sets of activity response questions in Penguin book.	Completed all pertinent pages in Penguin Book. Used complete sentences to answer questions. Provided detailed and accurate descriptions.	
Centers- Following procedures	Did not follow classroom or experiment procedures at all.	Somewhat followed classroom or experiment procedures.	Mostly followed classroom or experiment procedures.	Completely followed classroom or experiment procedures at all times.	

Penguin Poetry

Grade level: 2

Goal/Objective: NC Standard Course of Study:

SCIENCE:

Competency Goal 2: The learner will conduct investigations and use appropriate tools to build an understanding of the changes in weather.

Objective 2.01 Investigate and describe how moving air interacts with objects.

ENGLISH LANGUAGE ARTS:

Competency Goal 2: The learner will develop and apply strategies and skills to comprehend text that is read, heard, and viewed.

Objective 2.01 Read and comprehend text (fiction, nonfiction, poetry, and drama) appropriate for grade two by:

- determining purpose (reader's and author's).
- making predictions.
- asking questions.
- locating information for specific reasons/purposes.
- recognizing and applying text structure.
- comprehending and examining author's decisions and word choice.
- determining fact and opinion.
- recognizing and comprehending figurative language.
- making inferences and draw conclusions.

Competency Goal 4: The learner will apply strategies and skills to create oral, written, and visual texts.

Objective 4.07 Compose first drafts using an appropriate writing process:

- planning and drafting.
- rereading for meaning.

- revising to clarify and refine writing with guided discussion.

Competency Goal 5: The learner will apply grammar and language conventions to communicate effectively.

Objective 5.06 Use correctly in written products:

- letter formation, lines, and spaces to create readable documents.
- plural forms of commonly used nouns.
- common, age - appropriate contractions.

Objective 5.07 Use legible manuscript handwriting.

Preparation: To add to the lesson, have students come to school dressed in black and white clothes only. If that is not possible due to uniform restrictions, the teacher can use black kitchen trash bags as their costumes. If the students are not dressed in black and white, then make sure that the trash bags are being worn before the activities start.

Materials: Black trash bags (one for each student in the class), Goldfish cheese crackers, 2 to 3 fans, 2 to 3 buckets, 2 bags of ice, paper cups, water, Antarctic Antics: A Book of Penguin Poems By Judy Sierra, poem collection from http://www.canteach.ca/elementary/songspoems25.html, *My Penguin Book* (one for each student), *My Penguin Book* teacher guide, pencil (one for each student).

Estimated time: 1-2 days

Summary: In the fifth lesson of the unit, students will continue to learn facts about penguins, while also learning how to write a sensory poem about a penguin.

Focus and review (gain attention, recall prerequisites): To begin the lesson, read Antarctic Antics: A Book of Penguin Poems By Judy Sierra aloud to the class. This book will aid students in recalling information about penguins from the previous lesson. The book has multiple different types of poems and riddles for the students. Continue reading the rest of the book until you have finished. If you cannot find a copy of the book, go to the following website: http://www.canteach.ca/elementary/songspoems25.html this website has a collection of penguin poems that the teacher can read to the class.

Statement of objectives: Inform the students that today they are going to learn about how it feels to be a penguin. They are going to write a poem about being a penguin using their five senses: hearing, seeing, touching, smelling, and tasting.

Teacher input (present stimulus material, provide learning guidance):

(At this time, make sure that all students are dressed as penguins. Either they have on all black and white clothing or they are now wearing a black trash bag.)

First the teacher will go over some facts about the penguins that they are studying: Gentoo, Chinstrap, and Adélie penguins. Here are the important facts for these penguins:

- They like to hop, toboggan, and dive into the water for fun.
- They all live in Antarctica.
- All three penguins are a part of the group known as the brush-tail penguins.
- They all eat krill.
- Penguins have feathers that are waterproof and help the penguins stay warm.
- Penguins live in a rookery or colony.
- Female penguins lay eggs and male penguins help to incubate the egg until it is ready to hatch.

Now it is time to start the activity. First let's set the climate in the room to reflect one that is similar to Antarctica. Bring in fans and place them around the room. Then get a bucket of ice and place a bucket of ice in front of each fan. The fan will then blow cold air off the ice.

Then the teacher can go around the room putting a cup of water on each student's desk. (Putting ice in each of the cups will also help.) Ask each student to take a sip from their water. At this time, pass out some Goldfish crackers. Have the students pretend that the Goldfish crackers are krill. Remind them that krill is similar to shrimp.

The students will now be asked to close their eyes and think about all the things they know about penguins. Let them think for 90 seconds. While the students are thinking the teacher will ask the following style of questions as the students are thinking: *How does it feel to sit in this room?, What do you think penguins do during the day?, What do penguins eat?, How fast could you swim if you were a penguin?, Would it feel good to jump in the water to swim?, etc.*

Guided practice: (elicit performance, provide feedback):

When the students are done thinking, the teacher will go to the front of the class and get students to help write an example sensory poem. The teacher will ask the same questions they asked while the students were thinking: *How does it feel to sit in this room?, What do you think penguins do during the day?, What do penguins eat?, How fast could you swim if you were a penguin?, Would it feel good to jump in the water to swim?, etc.* Using the answers write a simple sensory poem on the board for the students to use as a guide for

their own poem. Remind the students that having different answers is great because not everyone hears, sees, tastes, feels, and smells the same things. Tell them to use their imagination.

An example poem would be:

I am a Gentoo Penguin.

I slip and slide and feel the cold wetness under my belly.

I taste the cold salt water and it tingles on my tongue.

I smell the crisp air flowing over my beak while I dive in the ocean.

I hear the waves crashing and my penguin friends calling.

I see the krill in the ocean.

Independent practice (assess performance): After the class has worked together to write a sensory poem, the teacher will then ask the students to create their own poem based on one of the three penguins. Remind them that a sensory poem would focus on the five senses: hearing, feeling, smelling, seeing, tasting. The teacher should put the five senses on the board.

Have the students write the poem in their *My Penguin Book* on page 12.

Closure (enhance retention and transfer): After 15 minutes, begin asking students to come up and read their poems. As a class, discuss the individual poems, as well as, the three types of penguins they are studying.

Assessment: Use the Poetry Rubric to assess whether or not the students talked about all five senses in their sensory poems. Also, grade students on their ability to write legibly and grammatically correct.

Poetry Rubric

	Poor	Fair	Good	Excellent	Score/ Level
Poem reflects 5 senses- (hearing, feeling, smelling, seeing, tasting).	The poem reflects 1 or none of the senses- (hearing, feeling, smelling, seeing, tasting).	The poem reflects 2 senses- (hearing, feeling, smelling, seeing, tasting).	The poem reflects 3-4 senses- (hearing, feeling, smelling, seeing, tasting).	The poem reflects all 5 senses- (hearing, feeling, smelling, seeing, tasting).	
The learner applies grammar and language conventions to communicate effectively.	The learner does not apply grammar and language conventions to communicate effectively.	The learner applies basic grammar and language conventions to communicate effectively with errors.	The learner applies basic grammar and language conventions to communicate effectively with some errors.	The learner applies basic grammar and language conventions to communicate effectively with little to no errors.	
Handwriting in the poem is legible.	The handwriting in the poem is completely illegible.	The handwriting in the poem is somewhat legible.	The handwriting in the poem is mostly legible.	The handwriting in the poem is neat, clear, and representative of grade level.	
The learner creates an original poem based on one of 3 penguins: Gentoo, Adélie, or Chinstrap.	The learner does not create an original poem based on one of the 3 penguins studied.	The learner creates a poem similar to the one created in class. The poem reflects vague information about a penguin.	The learner creates an original poem about one of the 3 penguins studied in class. Most of the poem is about one of the penguins studied.	The learner creates an original poem about one of the 3 penguins studied in class. The entire poem is about one of the penguins studied.	

Penguin Web-quest

Grade level: 2

Goal/Objective: NC Standard Course of Study:

TECHNOLOGY:

Competency Goal 2: The learner will demonstrate knowledge and skills in the use of computer and other technologies.

Objective 2.12 Use teacher-selected Internet resources to locate, discuss, and compare information about your local community as a class/group.

INFORMATION SKILLS:

Competency Goal 4: The learner will explore and use research processes to meet information needs.

Objective 4.05 Gather information.

Objective 4.07 Organize and use information.

Materials: Computer (one for each student), Mouse (one for each student), Keyboard (one for each student), *My Penguin Book* (one for each student), *My Penguin Book* teacher guide, pencil (one for each student).

Estimated time: 1-2 days

Summary: In the sixth lesson of the unit, students will continue to learn facts about penguins, while also learning about how to search the Internet to find facts about penguins. They will use the Internet to search for answers to penguin questions that will be in their *My Penguin Book*. The book will serve as a place for the students to complete assignments designed for this assignment. The directions, as they appear on the website, are located in Appendix A.

Focus and review (gain attention, recall prerequisites): To begin the lesson, inform the students that they will be going to the computer lab to learn more about brush-tail penguins. Tell the students that they will need their *My Penguin Book* to complete the task in the computer lab. Inform the students that they will be completing the assignment individually. Teacher will tell the students that they will go to a specific website to complete the web-quest.

Statement of objectives: Inform the students that today they are going to learn how to use the Internet to find out facts about the penguins they are studying.

Teacher input (present stimulus material, provide learning guidance): The teacher will put the web address for the web-quest on the board in the computer lab. The web address can be found on the Penguins: Past & Present web site, located on the fourth grade curriculum page. The teacher will then use a projector or Smart Board in the computer lab to project their computer screen onto a board in the front of the class. The teacher will then take the students through the process of finding the web-quest by putting the web address in the address bar at the top of the Internet browser.

Guided practice: (elicit performance, provide feedback): In order to make sure that all the students are on the right page. The teacher will walk through the process with the students. After the students have been guided through the process, the teacher will then ask the students to explore and discover the wonderful life of penguins. The teacher will walk around the room assisting students that are having problems. Also, the teacher can talk to the students to see how they are progressing with the assignment.

Independent practice (assess performance): Students will be required to complete all the tasks in the web-quest. After the students are done with the web-quest, they will be given the chance to explore the penguin information on the website. After all the students are done, the class will leave the computer lab and go back to the regular classroom.

Closure (enhance retention and transfer): Once the class has returned, the teacher can open the floor to discussion about what the students learned about penguins. The students can raise their hands and share their answers with the class. The teacher will inform the class that their next penguin lesson will be about global warming and how that affects penguins.

Assessment: Use the Web-quest rubric to assess whether or not the students found all the answers for the web-quest.

Web-quest Rubric

	Not at all	Poor	Good	Very Good	Excellent
Cooperated with group	Did not cooperate	Only cooperate mildly	Cooperates with group	Cooperates and tries to help others	Cooperates and leads the group
Completed paragraph	No sentences completed	1 sentence	2 sentences	3-4 sentences	5 or more sentences
Completed exhibit picture	No exhibit picture created.	Exhibit picture incomplete and does not show best work.	Exhibit picture showing good work.	Exhibit picture showing very good work and some detail.	Detailed exhibit picture showing best work.

Global Warming

Grade level: 2

Goal/Objective: NC Standard Course of Study:

SCIENCE:

Competency Goal 2 - The learner will conduct investigations and use appropriate tools to build an understanding of the changes in weather.

Objective 2.05 Discuss and determine how energy from the sun warms the land, air and water.

SOCIAL STUDIES:

Competency Goal 1: The learner will identify and exhibit qualities of responsible citizenship in the classroom, school, and other social environments.

Objective 1.01 Identify and describe attributes of responsible citizenship.

Competency Goal 6: The learner will analyze how people depend on the physical environment and use natural resources to meet basic needs.

Objective 6.01 Identify natural resources and cite ways people conserve and replenish natural resources.

Objective 6.02 Cite ways people modify the physical environment to meet their needs and explain the consequences.

Preparation: Login onto the Internet and go to the following web page: http://cnettv.cnet.com/polar-penguins-feel-freeze/9742-1_53-50020764.html.

Materials: Projector, computer with Internet connection, CNET video: Polar Penguins Feel the Freeze, pencils (one for each student), *My Penguin Book* booklets (one for each student), *My Penguin Book* teacher guide, baking dish, water, ice, modeling clay, Why Are the Ice Caps Melting?: The Dangers of Global Warming by Anne Rockwell

Estimated time: 1-2 days

Summary: In the seventh lesson of the unit, students will continue to learn facts about penguins, while also learning about how global warming is affecting the habitats of penguins. At the end of the lesson, students will

begin a *My Penguin Book* by documenting their observations of a science experiment. Also, they will be writing up different ways to help prevent global warming, as well as, how global warming affects the penguins they are studying.

Focus and review (gain attention, recall prerequisites): Begin the lesson by showing the class a video clip about global warming and climate change from CNET called Polar Penguins Feel the Freeze. Following the video clip, ask students what they saw in the video. In trying to elicit responses, some sample questions are: What is happening in this video? Are penguins in trouble due to climate change and global warming? What do you think will happen if the climate keeps getting hotter in Antarctica? After 2-3 minutes of student answers and discussion about the affects of global warming on penguins, draw the discussion to a close.

Statement of objectives: Inform the students that today they are going to learn how energy from the sun warms the earth. They are also going to learn about the effects that climate change has on the penguin populations in the Antarctic.

Teacher input (present stimulus material, provide learning guidance): Tell the class that today they are going to do a science experiment. Pass out the *My Penguin Book* to all the students. Then get the class together and talk to the students about global pollution. You can say the following things about global pollution:

Heat energy radiated from the sun warms the earth's surface. The earth radiates heat back into the atmosphere and into space, but at much longer wavelengths. Some of this heat is absorbed by molecules of polluting gases such as water vapor, carbon dioxide, methane, chlorofluorocarbons and nitrous oxide.

This process warms the air and is called the greenhouse effect. It produces a blanket of warm air around the Earth. Without the greenhouse effect, the Earth's surface would be at a constant -30 degrees. This temperature is not warm enough to sustain life on Earth. The greenhouse effect is not a negative thing. It is the releasing of more gases due to human activities that have many scientists feeling that with more gases, we may change world climates. There are many uncertainties, and evidence of global warming is interpreted differently by scientists.

Then start the experiment. The students will work in groups of four. The teacher will need five to six containers of modeling clay, five to six plastic bins, ice cubes, and water.

The teacher will then say: If global climates become very much warmer because of pollution, the ice at the poles could begin to melt. It is unlikely that this will happen on a large scale, but if it did sea levels would rise as they did at the end of the ice ages. This experiment will allow you to see what the result would be for low-lying islands and coasts. The experiment will answer the following questions as well: Is there a difference between ice that is floating in the sea versus ice that melts off of land? Which type of ice leads to water levels increasing?

MATERIALS NEEDED:

1. 2 baking dishes

2. water

3. ice

4. modeling clay

5. marker

Directions:

1. Use some modeling clay to make a “continent” at one end of the dish, almost to the rim. Then make an “island“ in the middle of the dish, about half as high as the dish in both dishes.

2. Pour water into the dish to make a “sea”. It should be high enough to leave only the top of the island above water. The continent remains dry, well above the water. Do this for both dishes as well.

3. Now pick one of the dishes and pack as many ice cubes as you can on top of the continent, out of the water. The ice represents landlocked ice sheets, such as those over Antarctica. Label this as dish 1.

4. Using the other dish, put the ice cubes in the water. Have multiple pieces of ice in the water. Label this as dish 2.

5. On each dish, use a marker to mark how high the water level is when looking at the dish on a level surface. Mark the water level on each dish.

6. Leave them to melt beside a window so the sun can accelerate the melting process.

Guided practice: (elicit performance, provide feedback):

While the students are waiting for their ice to melt, the teacher will read Why Are the Ice Caps Melting?: The Dangers of Global Warming by Anne Rockwell. After reading the story, discuss the main ideas that are represented in the book. Make sure to talk to the class about:

- Global warming
- Greenhouse Effect

At this time, check the experiments. After the ice has melted in each bin, have the students record what they see. Have them write their observations in their *My Penguin Book*. Also, the students will answer the following questions:

Questions for dish 1:What happens to the sea level when the ice melts? What happens to the island as the water level rises?

Answers: The sea level rises when the ice melts off into the baking dish. As a result, the island is closer to being flooded. This is similar to what is currently happening in Antarctica. The ice caps on land are melting and causing more water to enter the ocean.

Questions for dish 2: What happens when the floating pieces of ice melt? Why do you think the water level stays the same?

Answers: Floating ice does not change the sea level. The reason is that the water is already displaced by the ice cube when it is floating. Therefore, when the ice melts the level does not change.

Lastly, have the students answer this question as a class: What do you think will happen to penguins that live on ice in Antarctica? Discuss the different ways that penguins can be affected by global warming. Then separate and have the students complete the independent practice assignment.

Independent practice (assess performance): In the *My Penguin Book*, have the students complete the What Can I Do to Reduce Greenhouse Gases? pages in their books pages .

Closure (enhance retention and transfer): After 15 minutes, begin asking students to share their answers. As a class, discuss ways that the class can help the environment while they are at school too.

Assessment: Informally observe individual student participation during the lesson. After the students have completed the pages in their *My Penguin Book*, have them turn them in for the teacher to look over them. Use the following rubric for the effort exerted during the science experiment and when completing their journal pages in the *My Penguin Book*.

Science Experiment Rubric

	Poor	Fair	Good	Excellent	Score/ Level
Data and Observations	Data and observations are incorrect or missing entirely.	Data and observations are incomplete or do not include sufficient details.	Data and observations are complete and correct.	Data and observations are complete and correct, Student provides a level of detail and organization that goes above and beyond requirements.	
Conclusions and Explanations	Conclusions and explanations are missing.	Conclusions and explanations are incomplete or do not make sense given student's data and observations.	Conclusions and explanations are complete and supported by student's data.	Conclusions and explanations are complete and supported by student's data. Student provides a level of detail and depth that goes above and beyond requirements.	
Collaboration	Student is unable to work cooperatively with class to complete the activity. Requires continual intervention by teacher.	Student simply follows directions and makes little effort to actively contribute.	Student is able to work cooperatively with class to complete the activity, but may not be receptive to others' ideas.	Student works cooperatively with class to complete the activity, emerging as an effective collaborator who supports the ideas and suggestions of his/her peers.	

Evidence of Assignment Completion	Entry is entirely absent from notebook	Part of the entry is missing from notebook	Entry is present, but may reflect partial, haphazard engagement	Entry is carefully constructed and presented in their entirety	

Unit resources

An Introduction to Brush-tail Penguins

Penguins. CLEARVUE & SVE. (1994). Retrieved August 16, 2009, from Discovery Education: http://streaming.discoveryeducation.com/

The Life Cycle of a Penguin

One of the following:

Gibbons, Gail (1998). *Penguins!* Holiday House, NY, NY.

Lepthien, Emilie U. (1983). *A New True Book: Penguins*. Chicago: Children's Press.

Simon, Seymour (2007). *Penguins*. New York: Collins.

Webb, Sophie (2000). *My Season with Penguins: An Antarctic Journal*. Boston: Houghton Mifflin Company.

Comparing and Contrasting Life Cycles

Carle, Eric (1987) *The Very Hungry Caterpillar*. New York: Philomel.

Seeger, Laura V. (2007). *First the Egg*. Connecticut: Roaring Book Press.

Penguin Poetry

Penguin poetry. Retrieved August 16, 2009 from:http://www.canteach.ca/elementary/songspoems25.html

Sierra, Judy (1998). *Antarctic Antics: A Book of Penguin Poems*. San Diego: Gulliver Books.

Penguin Web-quest

Antarctic Connection. (n.d.). Penguins/Wildlife. Retrieved August 16, 2009, from: http://www.antarcticconnection.com/antarctic/wildlife/index.shtml

Arkive: Images of Life on Earth. (n.d.). Macaroni Penguin. Retrieved August 16, 2009, from http://www.arkive.org/macaroni-penguin/eudyptes-chrysolophus/info.html

BBC Science & Nature. (n.d.). Animals: Wildfacts. Retrieved August 16, 2009, from: http://www.bbc.co.uk/nature/wildfacts/factfiles/162.shtml

Davis, Lloyd. (n.d.). Types of Penguin. Retrieved August 16, 2009, from: http://www.penguinworld.com/types/index.html

National Geographic Kids. (n.d.). Animals: Creature Feature Adélie Penguin. Retrieved August 16, 2009, from: http://kids.nationalgeographic.com/Animals/CreatureFeature/Adelie-penguin

National Geographic Kids. (n.d.). Animals: Creature Feature Emperor Penguin. Retrieved August 16, 2009, from: http://kids.nationalgeographic.com/Animals/CreatureFeature/Emperor-penguin

Penguins Around the World: Index of Penguin Pages. (n.d.). Retrieved August 16, 2009, from: http://www.siec.k12.in.us/~west/proj/penguins/index.html

Seaworld. (n.d.). Penguins: Infobook Index. Retrieved August, 16, 2009, from: http://www.seaworld.org/animal-info/info-books/penguin/index.htm

Global Warming

CBS News (Producer). (2008, February 12). Polar Penguins Feel the Freeze. Video posted to http://cnettv.cnet.com/polar-penguins-feel-freeze/9742-1_53-50020764.html.

Malanson, Linda F. (2009). Global Pollution: Experiment: Drowning in Meltwater. Retrieved August 16, 2009 from: http://www.yale.edu/ynhti/curriculum/units/1997/6/97.06.01.x.html

Rockwell, Anne (2006). *Why Are the Ice Caps Melting? The Dangers of Global Warming*. New York: Collins.

Additional Recommended Resources

Davis, Lloyd S. (1994). *Penguin*. San Diego: Harcourt Brace & Company.

Hewett, Joan (2004). *A Penguin Chick Grows Up*. Minneapolis: Carolrhoda Books, Inc.

Jenkins, Martin (1999). *The Emperor's Egg*. Massachusetts: Candlewick Press.

Kalman, Bobbie (1995). *Penguins*. New York: Crabtree Publishing Company.

Lester, Helen (1994). *Three Cheers for Tacky*. Boston: Houghton Mifflin Company.

Lester, Helen (2000). *Tacky and the Emperor*. Boston: Houghton Mifflin Company.

Lester, Helen (2005). *Tacky and the Winter Games*. Boston: Houghton Mifflin Company.

Lester, Helen (1988). *Tacky the Penguin*. Boston: Houghton Mifflin Company.

Markle, Sandra (2002). *Growing up Wild: Penguins*. New York: Atheneum Books for Young Readers.

McMillan, Bruce (1993). *Penguins at Home: Gentoos of Antarctica*. Boston: Houghton Mifflin Company.

Pfister, Marcus (1993). *Penguin, Pete Ahoy!* New York: North-South Books.

Pfister, Marcus (1988). *Penguin Pete's New Friends*. New York: North-South Books.

Rockwell, Anne (2006). *Why Are the Ice Caps Melting? The Dangers of Global Warming*. New York: Collins.

Stone, Lynne M. (1998). *Penguins*. Minnesota: Lerner Publications Company.

Tatham, Betty (2002). *Penguin Chick*. New York: Harper Collins.

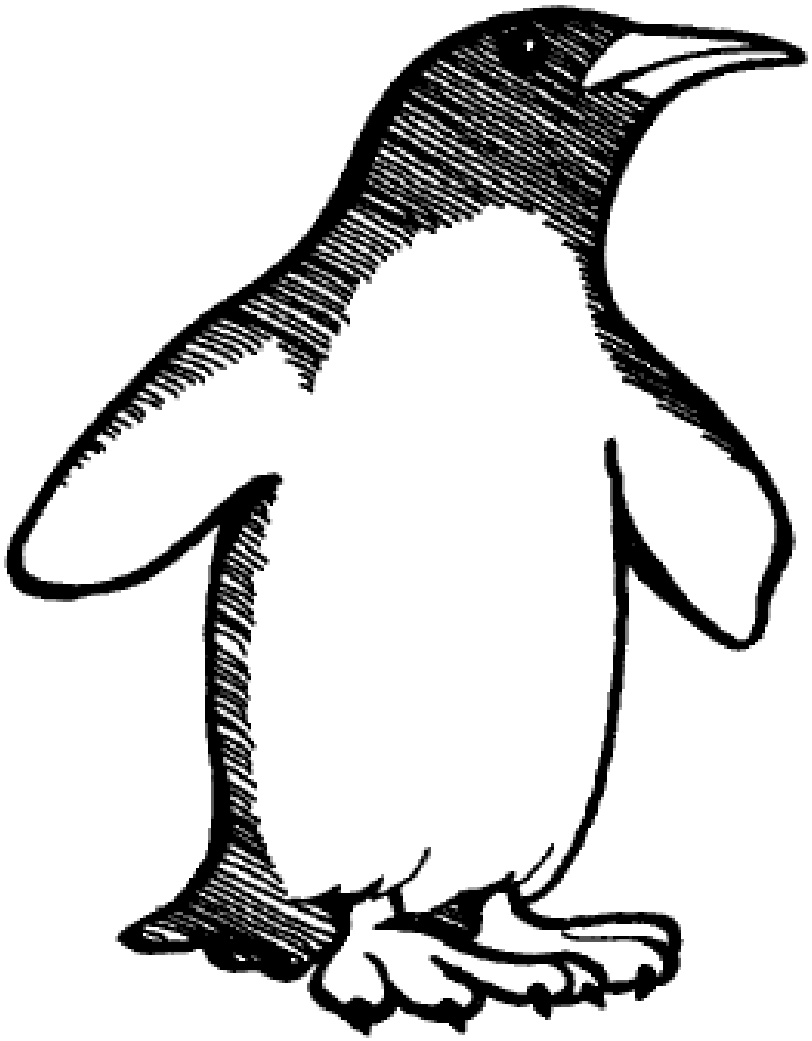
Wexo, John B. (1988). *Penguins*. Minnesota: Creative Education.

Appendix

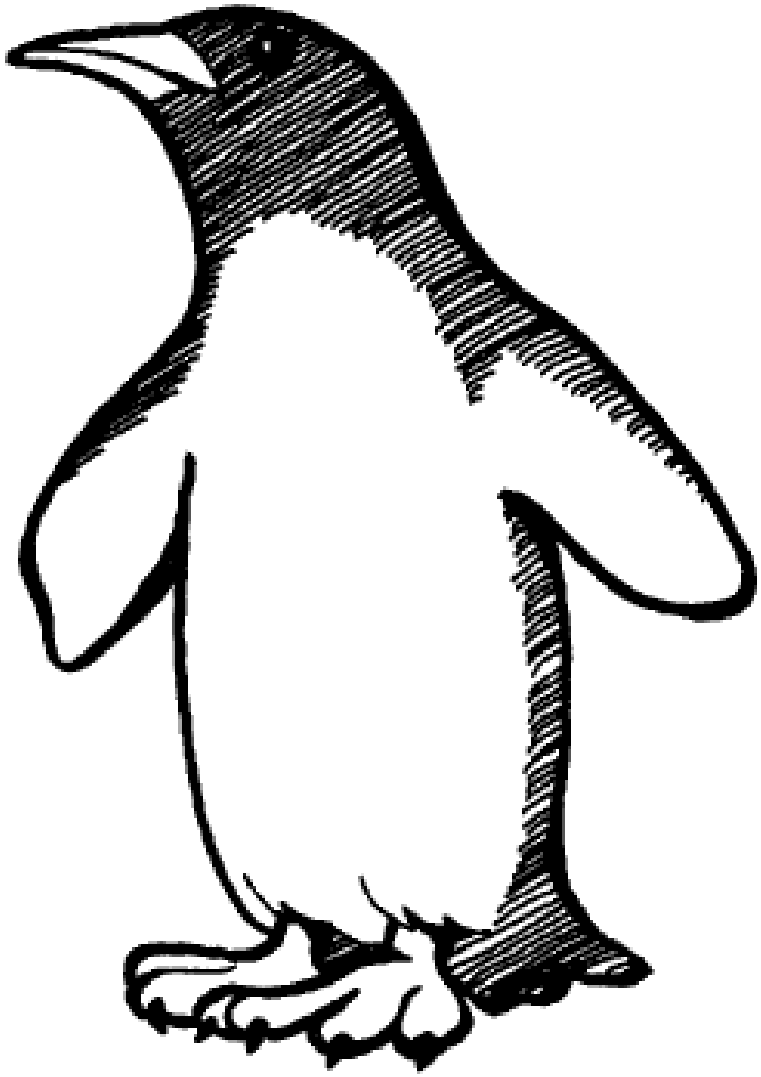
Appendix A

Penguin Coloring Center

Do Not Color This Penguin. Leave this penguin blank.



Color this penguin. Remember to color the penguin completely. Do not leave any spaces blank.



Appendix B

Penguin Web-quest

Introduction- The North Carolina Zoo is extending their Antarctic exhibit to include penguins. It is going to be called Penguins: Antarctica Live! The zoo is hiring researchers to develop the exhibit and make it a perfect home for the penguins.

Task- Your job is to assume the role of one of the researchers.

Heidi Habitat- Heidi Habitat is an expert at where the penguins live. He studies their environment and the weather where they live.

Debbie Diet- Debbie Diet researches what the penguins eat, and is in charge of making sure the zoo orders the right food for them.

Nestor Nesting- Nestor Nesting studies how the penguins build their nests and take care of their eggs.

Timmy Tuxedo- Ted Tuxedo is the penguin expert. He studies the penguins' appearances and how they move.

Process-

1. You will be divided into groups of four.

2. Each group will pick two penguins to learn about (One that you are already learning about and one free pick).

Adelie	Chinstrap	Gentoo	Emperor
King	Macaroni	African	Rockhopper
Little Blue	Yellow-eyed		

3. Each group member will be assigned a role.

4. Explore the websites and research your penguins.

5. Each member must write a paragraph about their research. Put all four paragraphs in a report using Microsoft Word.

6. Draw a detailed picture of what the Penguins: Antarctica Live! exhibit looks like.

Resources

Adelie: http://www.siec.k12.in.us/~west/proj/penguins/adelie.html

http://kids.nationalgeographic.com/Animals/CreatureFeature/Adelie-penguin

Chinstrap: http://www.siec.k12.in.us/~west/proj/penguins/chinstrap.html

http://www.penguinworld.com/types/chinstrap.html

Gentoo: http://www.siec.k12.in.us/~west/proj/penguins/gentoo.html

http://www.penguinworld.com/types/gentoo.html

Emperor: http://www.siec.k12.in.us/~west/proj/penguins/emperor.html

http://kids.nationalgeographic.com/Animals/CreatureFeature/Emperor-penguin

King: http://www.siec.k12.in.us/~west/proj/penguins/king.html

http://www.penguinworld.com/types/king.html

Macaroni: http://www.siec.k12.in.us/~west/proj/penguins/mac.html

http://www.arkive.org/macaroni-penguin/eudyptes-chrysolophus/info.html

African: http://www.bbc.co.uk/nature/wildfacts/factfiles/162.shtml

http://www.antarcticconnection.com/antarctic/wildlife/penguins/african.shtml

Rockhopper: http://www.siec.k12.in.us/~west/proj/penguins/rock.html

http://www.antarcticconnection.com/antarctic/wildlife/penguins/rockhopper.shtml

Variety of information: http://www.seaworld.org/animal-info/info-books/penguin/index.htm

Evaluation

	Not at all	Poor	Good	Very Good	Excellent
Cooperated with group	Did not cooperate	Only cooperate mildly	Cooperates with group	Cooperates and tries to help others	Cooperates and leads the group
Completed paragraph	No sentences completed	1 sentence	2 sentences	3-4 sentences	5 or more sentences
Completed exhibit picture	No exhibit picture created.	Exhibit picture incomplete and does not show best work.	Exhibit picture showing good work.	Exhibit picture showing very good work and some detail.	Detailed exhibit picture showing best work.

Conclusion

Congratulations, you have finished your penguin web-quest! Now you are an expert about penguins and you can share your research with your classmates.

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National Geographic Kids. (n.d.). Animals: Creature Feature Emperor Penguin. Retrieved August 16, 2009, from: http://kids.nationalgeographic.com/Animals/CreatureFeature/Emperor-penguin

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Simon, Seymour (2007). *Penguins*. New York: Collins.

Webb, Sophie (2000). *My Season with Penguins: An Antarctic Journal*. Boston: Houghton Mifflin Company.

Unit Plan and Lessons for Curriculum Alignment between the â€œPenguins: Past & Presentâ€ Research Study and Local Elementary Schools Funded By: the National Science Foundation Instructional Developer Erin Gunter Supervisors: Dr. Steve Emslie Mike Polito â€“ PhD Student in Marine Biology University Supervisor: Dr. Mahnaz Moallem University of North Carolina at Wilmington Masterâ€™s of Instructional Technology Professional Internship Summer 2009 1 Contents.Â 43 Bibliography . 44 3 Introduction The Brush-tail Penguins instructor's guide is for fourth grade. It was developed at UNCW to help teach local elementary school students about the brush-tail penguins of Antarctica. An elementary school is an institution where children receive primary education, which is obligatory in most of the countries. Teaching there involves work with small children whose age differs depending on the country's education system. In most of the cases they start at six years old and their education continues for four or five years in elementary school. Compulsory education gradually spread in 19th and 20th centuries.Â School teachers prepare for every class and by writing a lesson plan. The plan allows teachers to achieve their main goal â€“ measurable student learning. The plan contains the lesson objectives which are in line with the education standards in the country. The teacher situates the plan in the context of her or his students' knowledge. Unit Plan and Lessons for Curriculum Alignment between the â€œPenguins: Past & Presentâ€ Research Study and Local Elementary Schools Funded By: the National Science Foundation Instructional Developer Erin Gunter Supervisors: Dr. Steve Emslie Mike Polito â€“ PhD Student in Marine Biology University Supervisor: Dr. Mahnaz Moallem University of North Carolina at Wilmington Masterâ€™s of Instructional Technology Professional Internship Summer 2009 1 Table.Â This unit was developed to be used in local elementary schools to enhance the collaboration between local schools and the UNCW faculty researchers.