

Black-Footed Penguin

Objectives:

1. Students will demonstrate knowledge of the basic features of the penguin.
2. Students will identify basic body parts of the penguin as they relate to survival.
3. Students will be able to describe the general habitat of the penguin.

Performance Objectives:

Grade 1: Strand 4: Concept 1 – PO 1-3
Concept 2 – PO 2; Concept 3 – PO 2
NGSS: 1-LS1-2(LS1-B); LS3-1 (LS3-A)
Grade 2: Strand 4: Concept 1 – PO 1-3;
Concept 2 – PO 2; Concept 3; Concept 4
NGSS: 2-LS4-1;

Background Information:

The black-footed penguin is also known as the ‘Cape Penguin’ because they are found in South Africa. They are birds because they have similar adaptations to other birds such as feathers, laying eggs, and having a beak. However, penguins have heavier bones than other birds preventing them from flying. These birds stand 27 inches tall, between 5-8 pounds. They have firm wings that are adapted to be used as flippers to help the penguins swim. They are well adapted to swimming reaching a top speed of 12 mph in the water. They seem somewhat “wobbly” on land. Their side-to-side pace appears awkward as they maneuver on dry ground. These penguins make an odd sound called a bray which sounds like a donkey. Distinctive to penguins is the color of the body and the horseshoe mark on their chest. The front area of the Black-Footed Penguin has speckles of black on the white areas; each penguin’s pattern of speckles is unique, which allows each individual to be easily identified by family members. The black-footed penguin

Grades 1-2

Key Vocabulary:

- **Molting**
- **Habitat**
- **Colony**
- **Waterproof**

Related Literature:

Mr. Popper’s Penguins
Richard Atwater

Penguin Pete & Pat
Marcus Pfister

Commotion in the Ocean
Giles Andraea

also has a small area of pink skin above the eyes and the beak. This patch of skin is called a heat window and allows blood to flow through to cool the bird off. The bare skin here just like on their black feet helps heat to escapes their bodies when they get to warm.

Black-footed penguins generally lay 2 eggs in a nest made by both parents. It takes 40 days for the eggs to hatch, and both parents care for the babies while they grow. Baby penguins are hatched with a fluffy layer of gray feathers. The feathers help keep the baby protected and warm. As the baby grows, the feathers fall off the body and are replaced with new black and white feathers through a process called **molting**. It takes almost 2 to 3 years for them to fully mature into an adult.

The black-footed penguin's natural **habitat** is in the ocean around rocky and sandy areas off the coast of South Africa. There are 24 coastal islands between Port Elizabeth and Nambia that the black-footed penguins call home. This species of penguin is the only one found around the southern coast of Africa, and they are not found anywhere else on Earth. While the land temperatures around the area are warm, the water currents are much colder. Black-Footed Penguins have a triple layer of feathers that overlap to maintain their body temperature and keep them **waterproof**. They secrete natural oils that aid in the waterproofing their feathers so they can effectively swim and feed in the cold ocean waters.

Living in small **colonies**, the black-footed penguins make their way up and down the coastal area of southern Africa looking for food. Individuals have been known to travel 25 or more miles in search of food. Penguins enjoy feasting on squid, anchovies, sardines, and other small fish. A daily fish diet must be equal to 20% of their body weight in order to thrive.

Black-footed penguins can live up to 25 years in human care. Penguins have been on earth for thousands of years, and we want to protect penguins by protecting their natural habitat to be sure they survive. It is important that the penguins have plenty of fish, clean oceans, and space on land to raise their families.


You can help the penguins by sharing all you have learned with family and friends.
Additional Resources

Penguins Braying: <https://www.youtube.com/watch?v=CFjFqlljWHM>

Penguins Swimming: <https://www.youtube.com/watch?v=hkAmMR-HE2Y>

Sources: Wayne/Encyclopedia of Life; Denver Zoo; IUCN Red List 2015; Encyclopedia of Earth; Penguin World.
Photos: OdySea Aquarium; Public domain.

Procedures and Activities:

1. State the learning objective.
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2. Read the related literature and discuss the significant features of the black-footed penguin and the habitat. Discuss the differences between life in the desert and life in the ocean. Ask open-ended questions to check for understanding about the unique habitat of the penguin.
3. Present the background information. Ask questions to check for understanding. Show attached photo.
4. Review the vocabulary as the words relate to the topic.
5. Show pictures of penguins and discuss their unique appearance and habitat.
6. Show and read the African Black-Footed Penguin poem.



Indicates a ‘take along’ activity.

Activity: Give handout “Label Your Penguin” and have students follow directions.

* Tell jokes as students complete the activity:

What do penguins wear on their heads? (Ice caps)

Which side of the penguin has feathers? (The outside)

Why do penguins carry fish in their beaks? (Because they don’t have pockets)

Activity: “Can you spot the African Penguin?” Checks for understanding for penguin species differences.

Activity: Give handout, Birds, birds, birds! that asks students to compare penguins to other birds. As a group, ask students to think about what the birds in their yards look like. After discussion of birds in the yard, ask students to draw a picture of a bird that they have described (box 1). In box 2, have students draw a picture of a penguin. Follow the activity with a brief comparison of the types of birds in their drawings. Ask students to compare the type of food birds in the yard eat and the type of food penguins eat.

Optional Activity:

Students line up and practice the penguin “waddle” to their next activity.

Students will enjoy the craft, “I’m so cute, and I wear a suit.”



Activity: ‘Penguin Trivia’ is a take-along activity that students can complete during their visit to the aquarium.

Snack: Eat like a penguin. Gummy fish and goldfish crackers make a yummy snack.

Reflections and Assessments:

Participation-based assessment.

STEM resources:

littlebinsforlittlehands.com

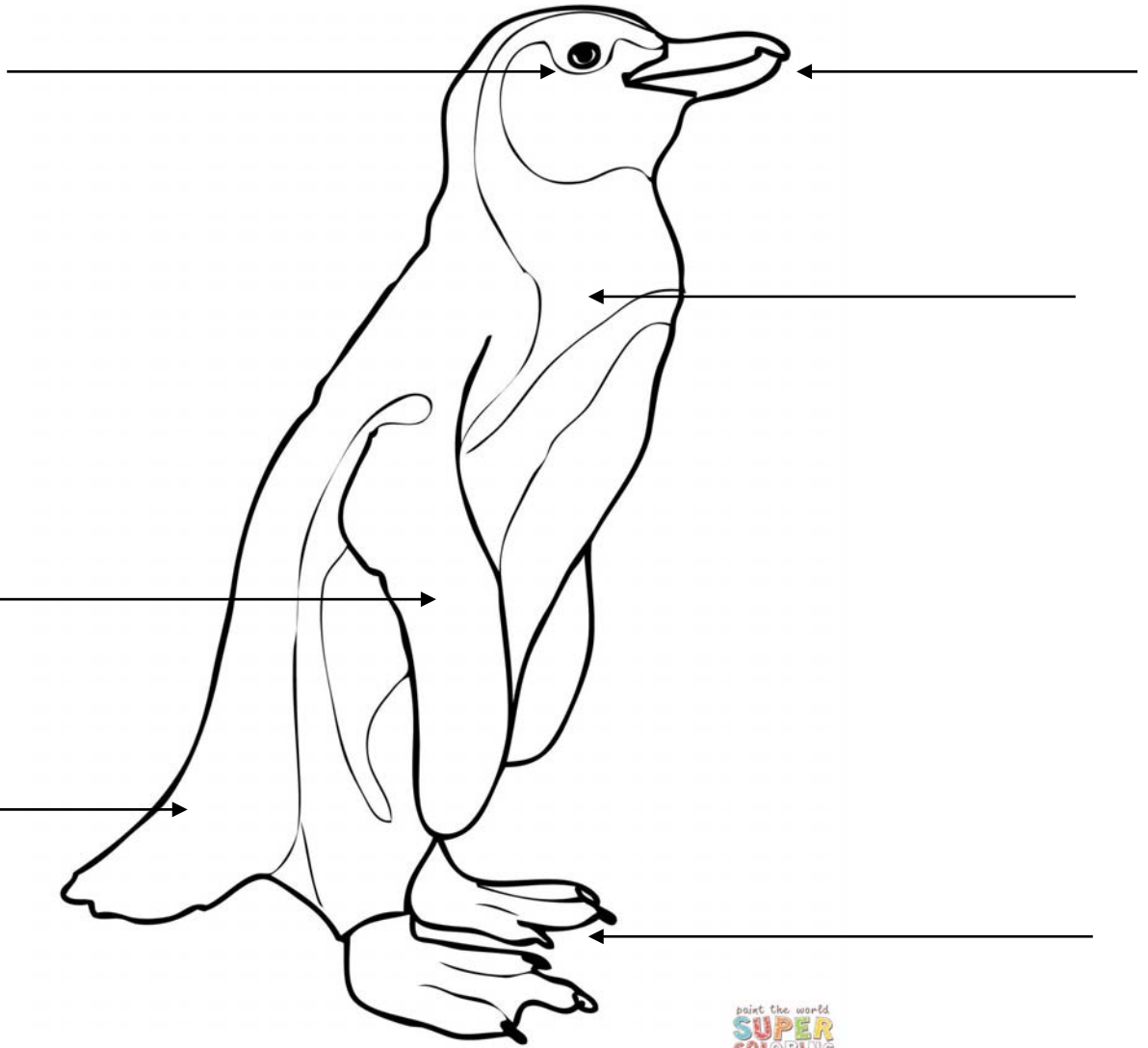
stem-works.com

www.gk12.org/resources/stem

STEM Educator Materials



Label the African Penguin



Word Bank:

Eye

Flipper

Beak

Feathers

Feet

Tail



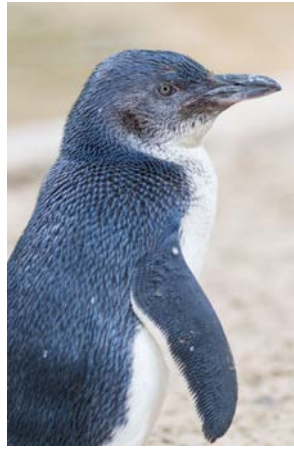
Can you spot the African Penguin?

This is Tux, the African Penguin. African Penguins grow to be 2 feet tall and are known for black spots on their chest. Every African Penguin has different spots on their chest. They also have a black stripe across their neck and white on the sides of their head.



Can you spot the African Penguin?

Help find Tux the African Penguin among his penguin cousins.



Can you spot the African Penguin? KEY

Help find Tux the African Penguin among his penguin cousins.

Macaroni Penguin



Little Blue Penguin



Galapagos Penguin



Chinstrap Penguin



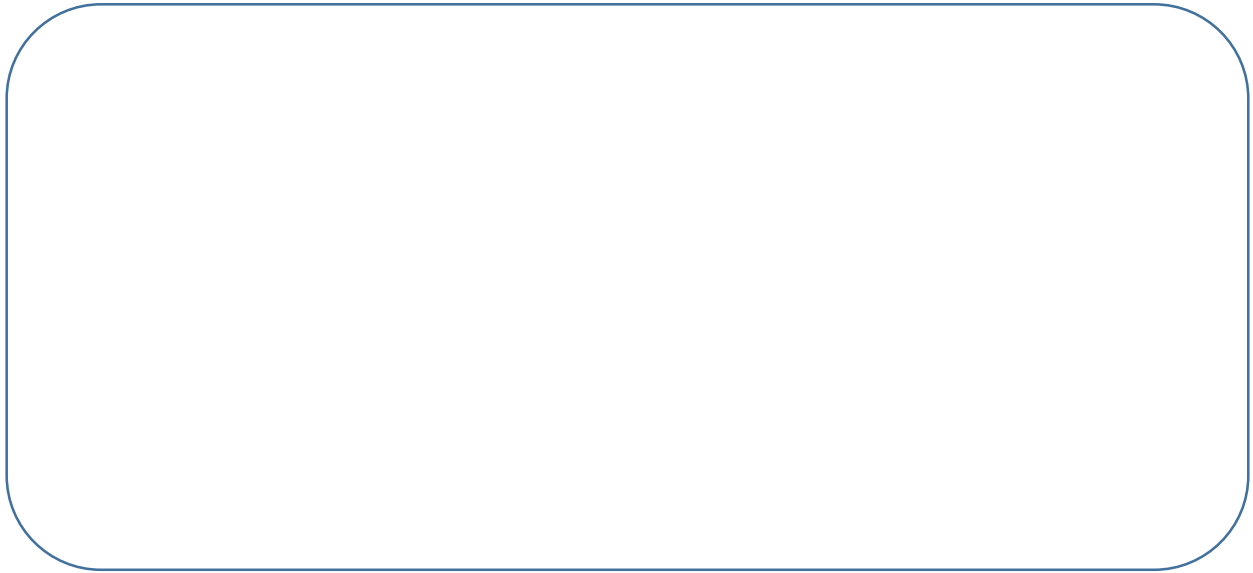
Emperor Penguin




Birds, birds, birds!

What kinds of birds do you see in your backyard? Draw a type of bird you see in your backyard in the first box. Then, draw a penguin in the second box. What are some things that are the same? What are some things that are different?

Backyard Bird:



Penguin:





Penguin Trivia

What kind of feet do penguins have?



What do penguins eat?

How fast can African Black Footed Penguins swim?

Can penguins fly? Why or why not?

Do penguins lay eggs?

What does endangered mean?





Penguin Trivia- KEY

What kind of feet do penguins have?

WEBBED



What do penguins eat? **FISH**

How fast can African Black Footed Penguins swim? **12 MPH**

Can penguins fly? Why or why not? **NO, THEIR WINGS ARE FLIPPERS FOR SWIMMING**

Do penguins lay eggs? **YES**

What does endangered mean?

NOT MANY LEFT



I'm so cute, and I wear a suit!



Materials: Empty toilet paper rolls, black, white and yellow construction paper, glue or tape, black marker or googly eyes (optional).

Directions: Create a pattern for the penguin's feet, bill, eyes, stomach and flippers. Each student cuts out the parts of the penguin. Wrap the paper roll with black construction paper and glue or tape at seams. Glue or tape flippers, white stomach, yellow bill, and feet on the penguin. Glue the white part of the eyes on last and use black marker for the center of the eyes. Googly eyes can be used instead of the paper ones.