Science Fun

How do penguins stay warm?



Here is an experiments to help your students understand how the different layers protect the penguin.

For the first part of the experiment, have your students place petroleum jelly on the outside of one of their hands. Next, have the students place their hands in a container of water. Have the students observe what happens when they removed both hands. What is happening to the water on the hand with the petroleum jelly?

Students may record their observations on the data recording sheet.

This experiment shows how the oil on the stiff outer feathers acts as a barrier, protecting the soft feathers and keeping them dry.

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Science Fun-Part 2

How do penguins stay warm?

The second part of our experiment will help us understand how the blubber layer keeps the penguin warm. To do this we will be making a blubber giove.

Materials

2-Gallon size Ziploc bags Some duct tape.

I- Large container of vegetable shortening or lard.

I-container of ice water

Create your blubber glove by opening up one of the Ziploc bags and placing the closed one inside it. Next, use the vegetable shortening/lard to fill the pocket created between the closed bag and the outer bag. When you have the entire pocket filled, open the inner baggie. The inner bag is going to be the pocket where you place you hand. To secure everything, tape the top of the outer bag to the inner bag. Remember, you are creating a glove to put your hand in. Do not tape the inner bag shut.

One at a time have the students come up to table. Have the student place one hand in the blubber glove. Next, have the student place both hands in the ice water. Ask them which hand feels warmer?

Have the students record their observations on the data recording sheet.



Glove or No glove CILCIE answer Which hand felt warmer?

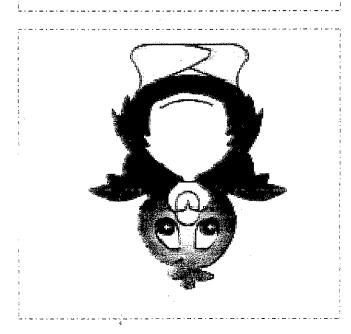
How did your hand feel with the petroleum jelly on it?

petroleum jelly. . experiment. coated with the

Color the hand that you

Observations after the

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How do penguins stay warm- Experiment

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NAME:	Thanks for your help kids! Your insulators kept me cool and stopped the heat
Lists of materials I used:	from getting in!
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the insulator? What do you think yo How could you improve your model	our insulated project. What steps did you take to build ou did well? What do you think you could work on? insulator?

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		Design, draw, label
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	Finally,
My group did/didn't v insulator was	shape ofvork well together. We think our
	could make is

Name:	
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Observe each item in your sample bag. Write as many attributes for each item below.

Think: TEXTURE (How does it feel?), SHAPE, SIZE,

POSITIVE & NEGATIVE (Why would it work? Why would it not work?)

ATTRIBUTES	Styrofoam	Felt	Shredded Paper	Black	White	Fastener	Rubber	Tin Foil
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TEXTURE								
SHAPE								
SIZE								
POSITIVE								
NEGATIVE								

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Penguin Enclosure Testing

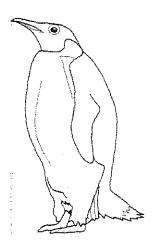
in the table below, record:

- · the start and end time of your test,
- your model penguin's length (in cm) before and after testing.

Remember! You will test your penguin enclosure for five minutes. Then, calculate your model penguin's total change in length.

	Time	Length
Start		
End		
	Total change in <i>cm</i>	

Penguins are most comfortable in temperatures ranging from 14-68° Fahrenheit.



The average summer temperature in Phoenix, AZ is 106° Fahrenheit. The hottest recorded temperature in Phoenix was 122° Fahrenheit!

EiE: What Is Engineering?
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Perspiring Penguins