

Name _____

Date _____



Save the Penguins



Lesson 1

Background: You are going on a field trip and must pack a lunch to take with you. You put a cold drink in your lunch bag in the morning, but when you opened your lunch later that day it was warm! What happened?

What is the difference between Heat and Temperature?

Heat is....

Temperature is...

This experiment is designed with some things found around your house that might be good at keeping a drink cold. One bottle should be insulated with one layer of your choice of insulation.

Rank the materials from most (#1) effective to least (#6) effective at keeping the cans cold.

Material	Rank
Paper Towel	
Cotton	
Plastic Wrap	
Wool	
Class Choice	
Nothing (control)	

1. Which material would be **most** effective at keeping the drink cold? _____

Why? _____

2. Which material would be **least** effective at keeping the drink cold? _____

Why? _____

3. Record the data on the table.

Effect of Different Insulators on Cold Drink Temperatures

Material	Starting Temperature of Drink-T1	Final Temperature of Drink-T2	Change in Temperature- ΔT $T2-T1=\Delta T$
Paper Towel			
Cotton			
Plastic Wrap			
Wool			
Class Choice			
Nothing (control)			

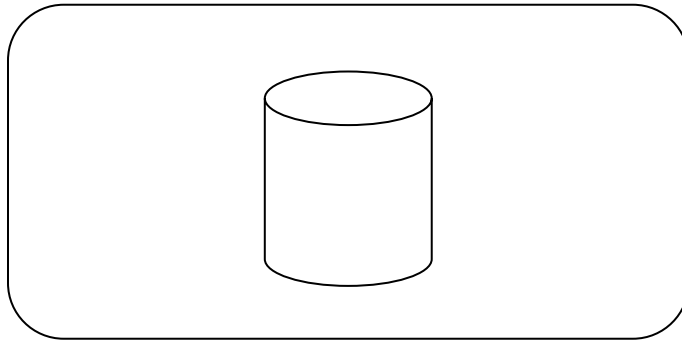
4. Create a bar graph of your data.



Color T1 (starting temperature) _____

Color T2 (final temperature) _____

5. In the box, draw the direction of heat flow of the can/bottle and air with nothing around it. Use arrows.



Materials that can decrease the rate of energy transfer are called insulators.

6. Which is better at slowing down the rate of heat transfer, wool or cotton?

a. What did the wool slow down? _____

b. Did the wool trap "coldness"? _____

7. Why did we include a can with no wrapping in the experiment? _____

8. Why do people wear wool in the winter, and cotton in the summer? _____

9. What does any of this have to do with penguins? _____
