

Intermediate Science 7
Unit 2: Heat
Core Lab 1: “The Plateau Problem”



Name: _____

Date: _____

Partners:

Problem: How can you compare surfaces to see which one absorbs radiant energy (electromagnetic waves) the most efficiently? What will you measure?

Materials:

- | | |
|--------------------|--------------------------------|
| 2 empty cans | Light and dark material/ paint |
| 2 thermometers | 100W light |
| Ruler | Aluminum foil |
| 200 mL cooking oil | Tape or rubber bands |

Hypothesis 1: [2]

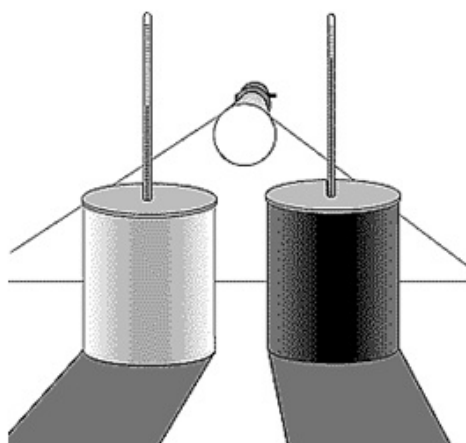
Hypothesis: Which type of surface absorbs radiant energy best? (2 marks)

(a) Dark or light?

(b) Shiny or dull?

Procedure:

Refer to page 184 of text. Identify the following



In this Activity, you are measuring time and temperature. Indicate the: [2]

Independent Variable:

Dependent Variable:

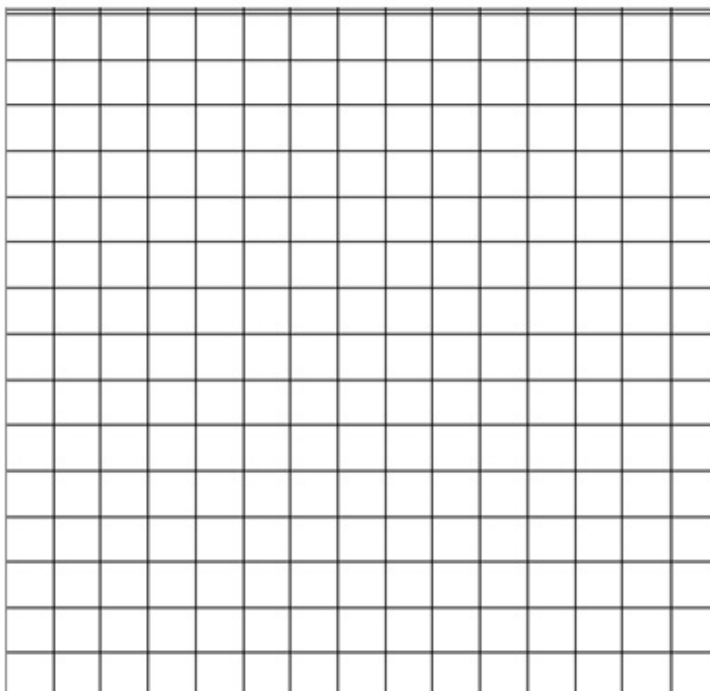
Observations: [5]

Time (minutes)	Temperature (°C)	
	Dark / Shiny (Circle one)	Light/ Dull (Circle one)
0		
5		
10		
15		

Analysis:

1. Draw a double line graph for the information collected above. Be sure to label completely. A key will also be required. [6]

Title: _____



2. What factors other than the ones that you tested could be affecting the temperature change of the oil in the cans? [2]

3. According to scientific theory, the same materials that absorb radiant energy efficiently should also emit the radiant energy efficiently. Suppose that you have pairs of similar objects with different surfaces as listed below. Which type of surface radiates energy better and therefore cools down more quickly? [2]

- (a) A light-colored surface or a dark-colored surface?

- (b) A dull surface or a shiny surface?

4. Using what you learned in this activity, provide explanations for the following: [2]

- (a) When you travel to a warm climate (ex. Cuba), it is recommended that you bring light-colored clothing with you.

- (b) A gardener will often mix soot into their soil mixture in the spring when setting up their garden.

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