



Lab: Heat Island Effect

Question: What is the relationship between surface materials and the temperatures on a sunny day.

Materials:

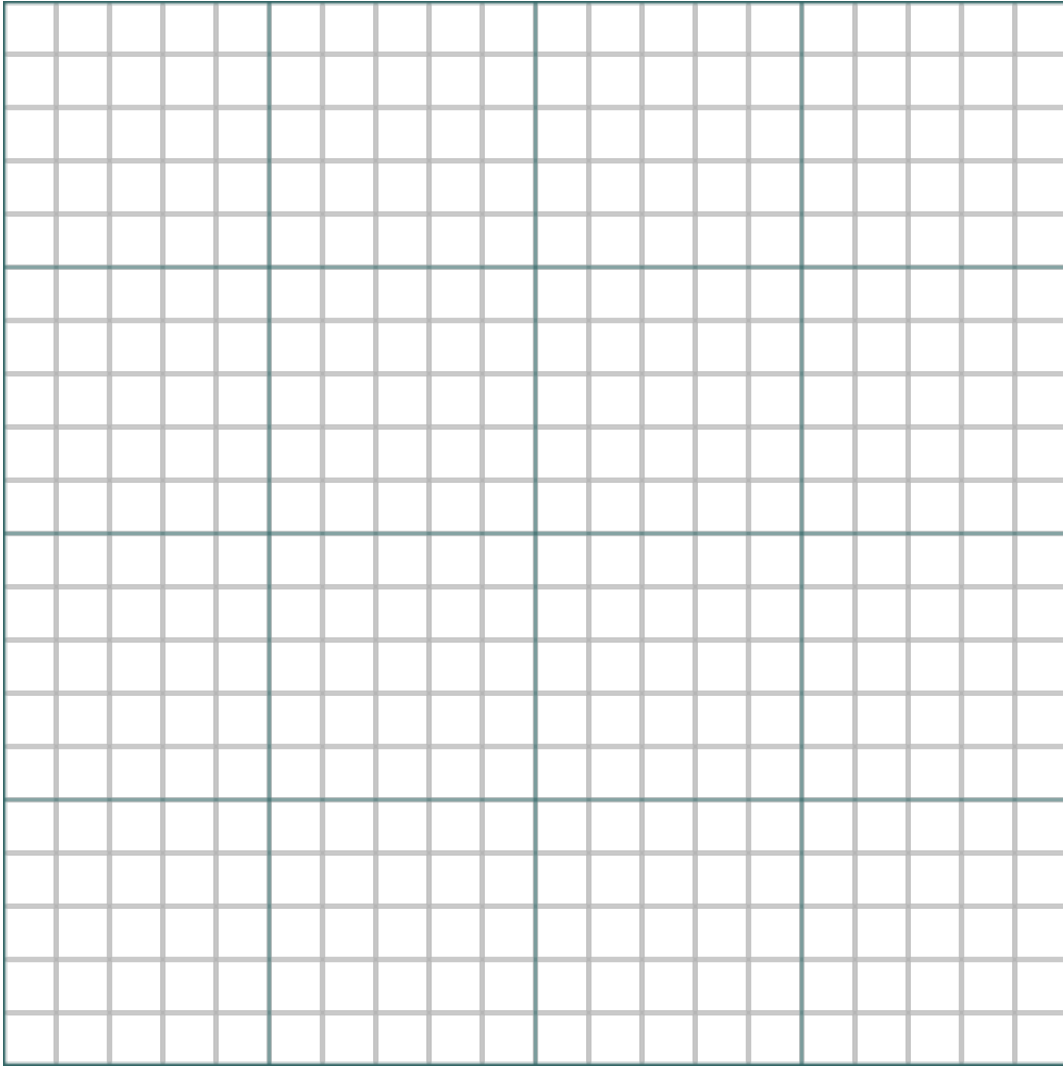
- 5 thermometers or an IR thermometer

Procedure:

1. In the morning, place a thermometer in five different locations: in a parking lot, on the side of building or on a roof, a grassy area, close to tree cover, and a separate location of your choice. Describe the surface materials (metal, pavement, brick, vegetation, etc.) at each location.
2. After 10-15 minutes, record your initial temperature in the chart below. *Hint: try to do this lab on a day that is sunny with minimal cloud cover*
3. Return to your locations in the afternoon and record the temperature in your data chart. Calculate the difference between your two recordings by subtracting the afternoon temperature by the morning temperature.
4. Create a bar graph based on the temperature difference at each location. Place the locations on the x-axis and temperature on the y-axis.

Temperature Data Table

Location	Surface materials	Morning temperature (°C)	Afternoon temperature (°C)	Temperature Difference (°C) [temp diff = afternoon temp – morning temp]
Parking lot				
Side of building or roof				
Grassy area				
Wooded area				
Location of your choice				



Analysis Questions

1. Which variable in your data table is the independent variable? Which was the dependent variable? (what variable did you change for each measurement and which variable responded to those changes?)

2. Which locations had the greatest increase in temperature throughout the day? Did these locations have any similarities in their surface materials?

3. Which locations had the lowest increase in temperature? Did these locations have any similarities in their surface materials?

Conclusions:

Make a claim about the relationship between surface materials and temperature change throughout the day. Use your data as evidence and explain your reasoning in terms of thermal heat and conduction.

Claim: _____

Evidence: _____

Reasoning: _____
