

Heat Investigation Experiment

Question: Do the temperatures of different materials change in the same way?

Hypothesis: I think the temperature in the box of _____ will change the most rapidly.

Procedure: Follow the procedure on C19 of the Heat Unit.

Observe and Collect Data:

When the boxes are in the sun (or under a heat lamp), record the temperatures in this table every 10 minutes for 40 minutes.

<u>Matter</u>	<u>Time</u>	<u>Temperature</u>
Air	Start (0 minutes)	
Water	Start (0 minutes)	
Soil	Start (0 minutes)	
Air	10 minutes	
Water	10 minutes	
Soil	10 minutes	
Air	20 minutes	
Water	20 minutes	
Soil	20 minutes	
Air	30 minutes	
Water	30 minutes	
Soil	30 minutes	
Air	40 minutes	
Water	40 minutes	
Soil	40 minutes	

When the boxes are in the shade (or a cooler), record the temperatures in this table every 10 minutes for 40 minutes.

<u>Matter</u>	<u>Time</u>	<u>Temperature</u>
Air	40 minutes (same as other side)	
Water	40 minutes (same as other side)	
Soil	40 minutes (same as other side)	
Air	50 minutes	
Water	50 minutes	
Soil	50 minutes	
Air	60 minutes	
Water	60 minutes	
Soil	60 minutes	
Air	70 minutes	
Water	70 minutes	
Soil	70 minutes	
Air	80 minutes	
Water	80 minutes	
Soil	80 minutes	

Communicate: Show your data in a multiple line graph (3 lines).

Temperature Changes in Various Materials

<u>Key</u>	
<input type="checkbox"/>	air
<input type="checkbox"/>	water
<input type="checkbox"/>	soil

Draw Conclusions:

1. What does your graph show about the rate at which different materials increase in temperature?

2. What relationship does your graph show between the rate of heating and the rate of cooling?

3. Scientists measure the temperature of the air inside a rabbit's burrow in summer and in winter. It is 15 °C during both seasons. Can you give a reason for this, based on the experiment?
