



Experiment - Station

The Shadow Effect

EXPERIMENT



The Shadow Effect

Research question:

What influence do plants have on the warming of surfaces?

Your assumption (hypothesis):

Materials:

- ☐ Kitchen thermometer
- ☐ Wooden box or cardboard house
- ☐ Ivy
- ☐ Lamp
- ☐ Ruler
- ☐ Glass of water
- ☐ Clock (mobile phone or iPad)

Experiment procedure:

1. Measure the room temperature with the kitchen thermometer.
Record the measured value in the table (**room temperature 1**).
2. Place the kitchen thermometer in the upturned box.
Place a lamp 20 cm in front of the box. The closed side of the box should be illuminated by the lamp.
Make sure that the thermometer is aligned with this side of the box.
3. Switch on the lamp.
Measure the temperature inside the box after 150 seconds (2:30 minutes).
Record the measurement in the table (**measurement 1**).
Switch off the lamp.
4. Take the glass of water.
Cool the kitchen thermometer to room temperature using the glass of water.
However, the water may not necessarily be the same temperature as the room. Use your body heat as well. Record the measurement (room temperature) in the table (**room temperature 2**).
5. Cover (shade) the closed side of the box with leaves. Place the kitchen thermometer in the box. Place a lamp 20 cm in front of the side of the box that is shaded by the leaves. Switch on the lamp: the closed side of the box covered with leaves is illuminated by the lamp. Make sure that the thermometer is aligned with this side of the box.
6. Measure the temperature in the box after 150 seconds (2:30 minutes).
Record the measurement in the table (**measurement 2**).

Table of measurements

<u>Measurements Box without leaves</u>		<u>Measurements Box with leaves (shading)</u>	
Temperature in °C (room temperature 1)	Temperature in °C (Measurement 1)	Temperature in °C (room temperature 2)	Temperature in °C (Measurement 2)

Describe your test results:

How high was the temperature change in °C for the box without leaves?

How high was the temperature change in °C for the box with leaves?

Experiment evaluation:

Explain the results.

Conclusion:

Compares the results with your assumption (hypothesis).

Tick the box:

- ☐ The hypothesis is correct
- ☐ The hypothesis is incorrect
- ☐ The hypothesis is partly correct