

The Air Through There

Ventilation, or air movement is an important aspect of building design. If fresh air and breezes cannot travel through buildings regularly, they begin to heat up and smell! This activity looks at how quickly rooms can heat up if they are not properly ventilated.

Things to Get

Two polystyrene foam or corrugated cardboard boxes lined with foam
Clear plastic sheeting
Adhesive tape
Thermometers
Sunlight or solar simulator
Graph Paper

Things to Do

1. Carefully tape a thermometer to the inside of both of the boxes, so that they are not in the direct sunlight, but so you can read it without disturbing your experiment too much.
2. In one of the boxes, cut a 5cm x 15cm vent on the bottom of the box about 3cm away from one of the side walls.
3. Cover the front of this box and cut another 5 x 15cm vent in the plastic about 3cm from the wall directly opposite to the vent. This is the test box.
4. Cover the front of the second box with plastic sheeting without cutting a vent hole. This is your control box.
5. Place the test box out in the sun or under the solar simulator so that the sunlight is entering the box and the vent in the plastic is at the bottom. Place the control box next to the test box, so that about the same amount of sun light is entering the box.
6. Record the temperature of each of the boxes every two minutes for twenty minutes.
7. Graph your results on a piece of graph paper.

Results

Table of Results:

Time
Control Box Temperature
Test Box Temperature

How can you explain the differences between the temperature of your control box and your test box?

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