Year 6: Science

Activity Sheet 2: Solar radiation

Investigate how different angles affect solar radiation.

Materials

Materials required	Per experiment
Thermometers	2
Matches / small lengths of timber dowel	2
Wire gauze section (A4 size)	2
Sheets of black paper (A4 size)	2
Retort stand (or similar stand)	2
Aluminium foil (A4 size)	4
Tape	

Method

1. Layer each of the following and secure with tape:
    i. Two sheets of foil (bottom),
    ii. One sheet of black paper (middle), and
    iii. One section of wire gauze (top).
2. Repeat Step 1.
3. Lay each section on a flat surface — wire gauze side face down.
4. Secure one thermometer to each section with tape.
    i. Place the thermometer scale side down in the middle of a long edge
    ii. Secure a piece of tape over the base of the scale, just above the bulb (if using a mercury thermometer)
5. Flip each section over.
6. On the opposite long side to the thermometer, insert one match/piece of dowel so that it stands vertical.
7. Attach each section to a single retort stand, by a short edge.
8. Place each stand in full sun.
9. Angle one retort stand so that the match/piece of dowel casts no shadow.
10. Angle the other retort stand so that the match/piece of dowel casts a shadow about twice its length.

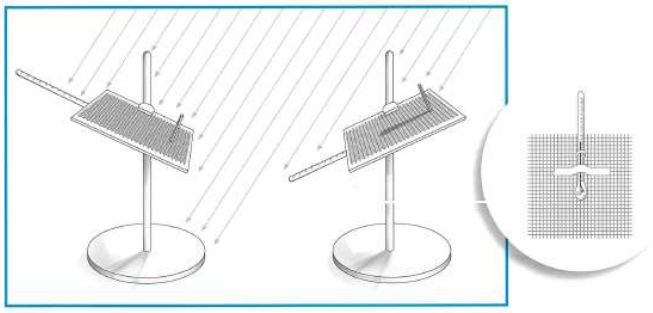

Figure 1: Material set up

Explore

1. Record the temperatures at two minute intervals for 10 minutes.
2. Graph your results.
    a. Which stand recorded the highest temperature readings?
    b. Please explain how the position of each stand is impacted the temperature readings.

Extension

1. The air temperature at the tropics is warmer than the air temperature at the north and south poles.
    a. Explore what this has to do with the angle of the sun.