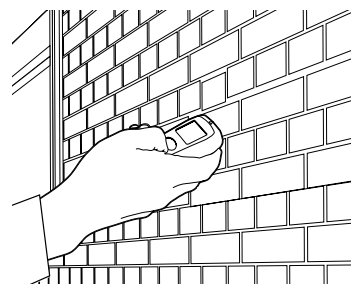


MODELLING CLIMATE CHANGE: INFRARED RADIATION FROM THE EARTH

The Earth's surface and atmosphere give out energy as electromagnetic radiation in the infrared (IR) part of the electromagnetic spectrum. This IR radiation is invisible to our eyes, but can be detected by an IR thermometer. In this activity you will use an IR thermometer to look at the world in infrared. The higher the temperature, the more IR radiation is emitted.

Task A Seeing the infrared world

1. Choose an outdoor area. Point the IR thermometer at some different surfaces to find out their temperature. Record your results in a table like the one shown below.
2. Add information about the colour of each surface that you measure. What do you notice about the temperature and colour of the surface?
3. Identify some similar vertical surfaces that are facing in different directions. Measure their temperatures, and use a compass to find the directions they are facing. What do you notice about the temperatures and the direction of the surface?
4. Using your results, think about what temperature the clouds and the sky might be. Point your IR thermometer upwards and record the temperature of clouds and of clear sky in your table. Are you surprised by your results?



Surface	Temperature (°C)	Colour
Tarmac		
Grass		
Brick		
Glass		
etc.		

Task B Making a thermogram

A thermogram is a kind of picture that uses colours to represent different temperatures.

5. Draw a simple sketch of the area that you investigated for Task A.
6. Choose four colours for different temperature ranges and make a key. Colour in your sketch using your data taken in Task A. How could a thermogram be used? Why might a thermogram be confusing?