

# Black absorbs heat radiation

(Ireland)

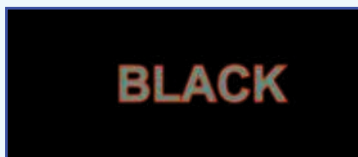
## Background

Thermochromic film changes colour if its temperature changes, within certain limits.



## You will need...

- ✓ thermochromic film
- ✓ an incandescent lamp
- ✓ black text in a large typeface ( preferably upper case about 4 cm high)



## Follow these steps

1. Place the printed text on the thermochromic film and hold them together so that there is no space between them.
2. Quickly move the text across in front of the lamp. (Two or three seconds should be enough.)
3. Move it away from the lamp and quickly drop the printed text.

## So what happened?

An image of the black text should be visible on the thermochromic film. (The edges will be slightly fuzzy.)

The black text gets hot as it absorbs infrared radiation from the lamp. Some of the heat is conducted to the thermochromic film causing it to change colour.

## What next?

- Place a sheet of thermochromic film about 20 cm in front of the lamp. Time how long it takes to change colour.
- Repeat the above but place various materials in between. For example, a sheet of glass or clear plastic, a clear container of water, a black bin bag etc. Estimate how well each material transmits infrared radiation.

## Note

Before each test make sure that the thermochromic film has cooled down to room temperature.