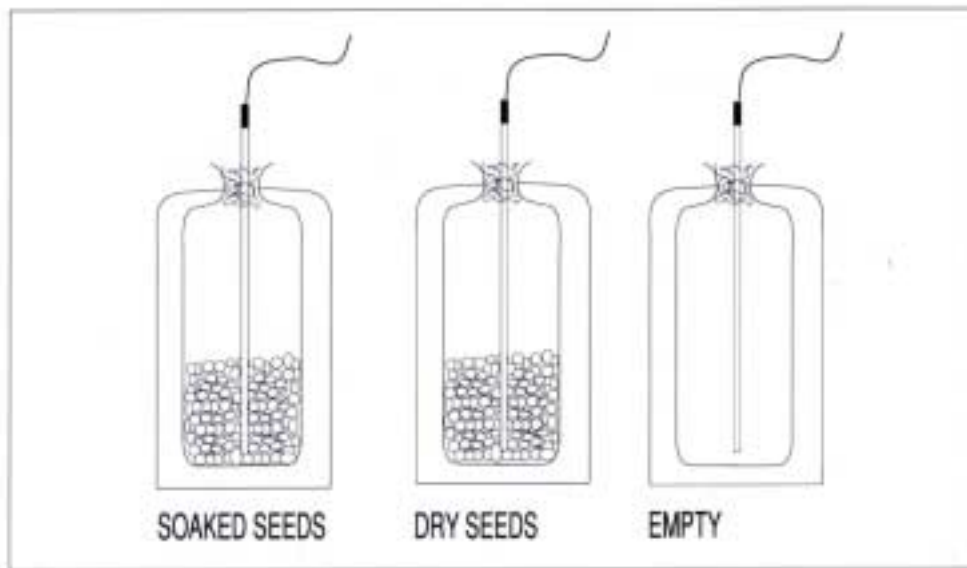


PLANTS AND ANIMALS

1. DO LIVING PLANTS AND ANIMALS GIVE OFF HEAT?

You have been asked to develop a way of testing if living things actually give off heat and to find out if this is a general characteristic of living things.



PLAN What are you going to put into each of the flasks?

Does everything need to be sterile and uncontaminated? Why?

How long do you want the experiment to last?

Choose a suitable temperature range for the probes.

How will you ensure that the experiment is a fair test?

APPARATUS

Temperature probes (4)
Cotton Wool
Thermos flasks (3)
Distilled water
Germinating seeds (wheat, peas)
Dry or boiled seeds (seeds should be sterilized with a 12% solution of bleach (hypochlorite))

COMPUTER

Inputs: 1. Temperature
 2. Temperature
 3. Temperature
 4. Temperature

Timespan: 24 hours

Temperature range: 0 to 45°C

DISCUSS AND FIND OUT

What did you decide to put in the flasks and why?

What was the starting temperature for each flask?

What was the temperature of each flask at the end of the investigation?

Do you think that it is fair to say that this is a characteristic of a living thing?

REPORT

Present a report of your findings showing clearly what you have been able to discover.

GOING FURTHER

Repeat the experiment with any other living organism, or design a different experiment to test your conclusions.

What other living things could you use instead of the seeds?

If the flasks are left for a further 72 hours, does anything happen that you find interesting? Can you explain it?