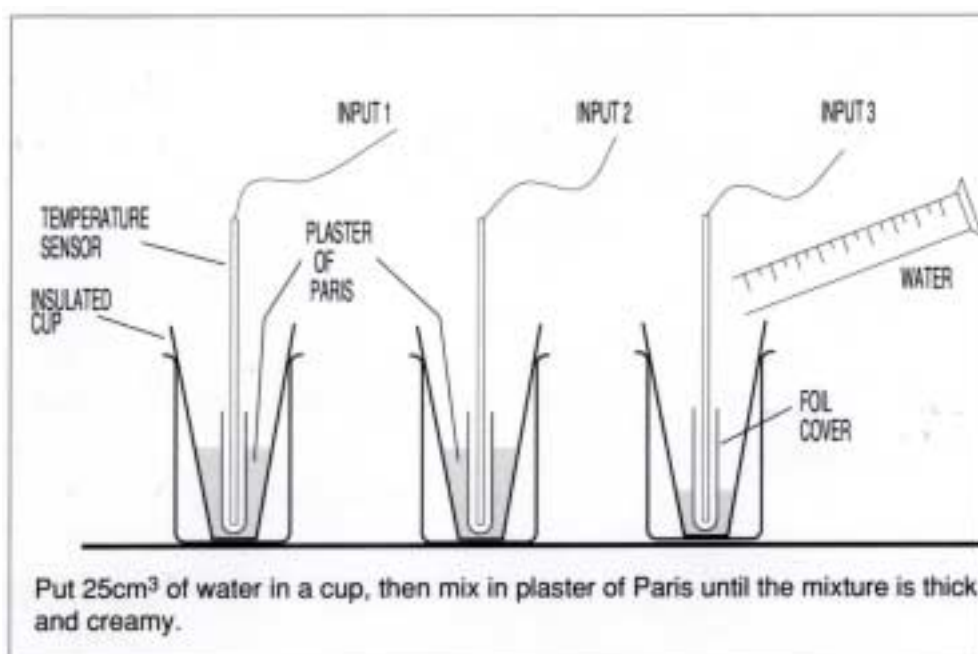


CHEMICAL REACTIONS AND MATERIALS

2. HOW HOT DOES PLASTER OF PARIS GET WHEN MIXED WITH WATER?

Police forensic experts use plaster of Paris to take casts at scenes of crimes. They are worried that the heat from the chemical reaction distorts the moulds they use.

You are asked to investigate how hot different mixtures become and the effect on the speed at which the plaster of Paris sets.



PLAN Look carefully at the diagram as it may help you when you are planning your investigation.

For how long should you allow the investigation to run?

What temperature range do you think you might use?

How will you ensure that all the sensors begin at the same temperature?

Does it matter if they do not start at the same temperature?

How will you make sure your investigation is a fair test?

APPARATUS

Temperature probes (3)
Insulated cups
Beakers to stand cups in
Aluminium foil to cover ends of probes
Water
Measuring cylinder
Plaster of Paris

COMPUTER

Inputs: 1. Temperature
 2. Temperature
 3. Temperature

Timespan: 40 minutes

DISCUSS AND FIND OUT

How hot was the mixture at the start?

What was the highest temperature you recorded?

How long did it take before the temperature started to rise?

Was this the same length of time for each investigation?

REPORT

Prepare a short report of your findings to the forensic experts. They will need to know what you did and what you have found out.

GOING FURTHER

Forensic experts would also like to find out if it takes a different length of time for their casts to set outdoors in winter compared with in the summer.

Plan an investigation that might provide you with the answer to this question.

You will need to think carefully about how you are going to control the temperature.

How will you monitor the temperature of the environment?