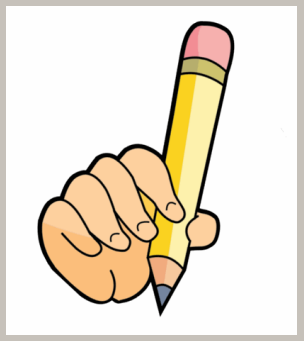
HEAT TRANSFER
HEAT LOSS FROM HOUSES

S2 Physics



RADIATION IS AFFECTED BY BLACK AND SHINY SURFACES.

Black surfaces absorb radiation better than **shiny ones**.

Black surfaces give out (emit) radiation better than **shiny ones**.

shiny surfaces reflect radiation better than **Black ones**..

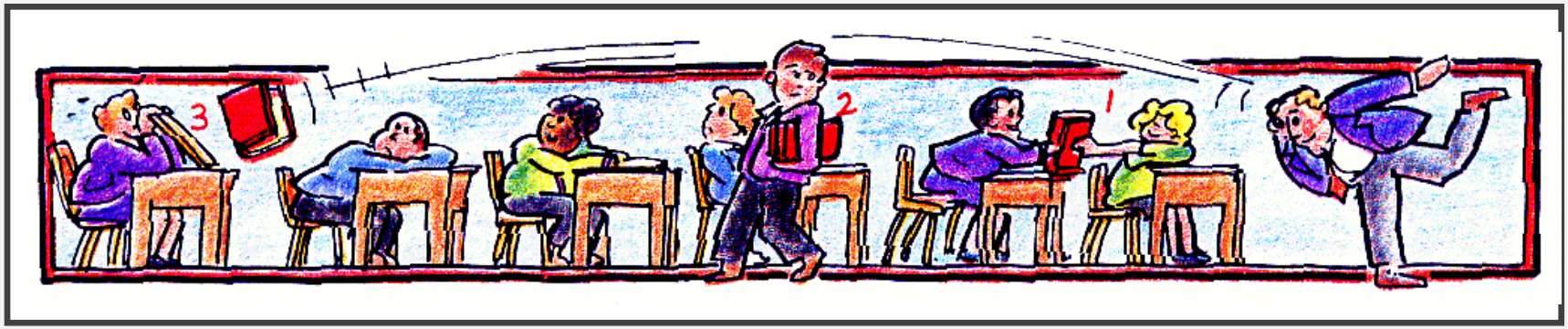
REVISION

- fluids are liquids and gases
- Convection occurs in fluids
- To start a convection current
- The substance is heated
- This causes the particles to spread out (don't say expand)
- There are fewer in the space so become less dense
- The less dense fluid rises
- The fluid cools and the spacing decreases
- The cooler fluid becomes more dense and falls

REVIEW

- Heat can be transferred in 3 ways
  - ✓ CONDUCTION
  - ✓ CONVECTION
  - ✓ RADIATION

- Usually heat is transferred in all 3 ways at once.
- Heat ALWAYS travels from Hot places to cold places



book is like heat energy

3. RADIATION – book thrown to the back of the room.
   The energy does not need particles to transfer the energy.

REFLECTORS OF RADIATION

- Could you design an experiment with a radiant heater, a black and shiny surface to determine which surface REFLECTS more radiation?

- Where would you place the detector?
- What might you use as a detector?

INFRA RED DETECTORS

RADIATION

heat travelling as waves

- also called infra red (IR) or thermal radiation

the way heat reaches us from the sun

does not require a medium (particles)

black surfaces good emitters and absorbers of radiation.

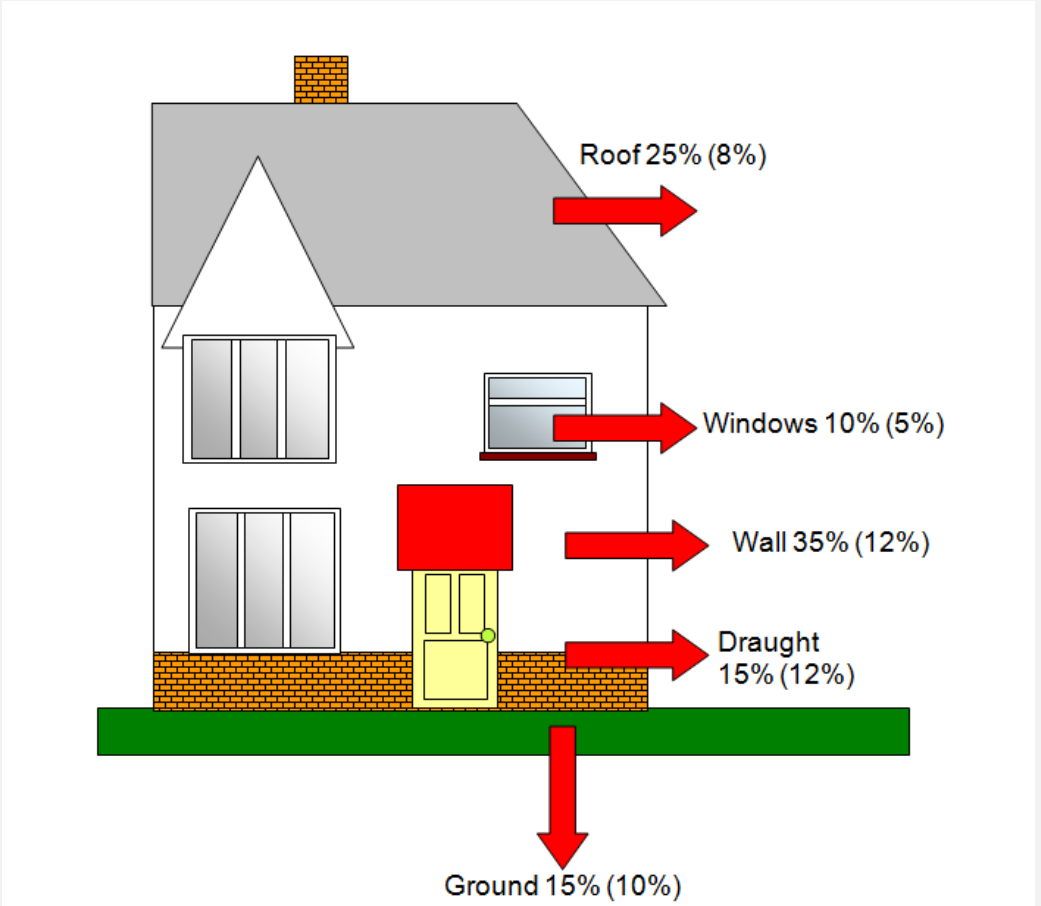
shiny surfaces good reflectors of radiation

HEAT LOSS FROM HOUSES

- How is heat lost from houses?
- How can we test this in the lab?
- How would it depend on ambient (air) temperature?
- Can we do a fair test to find out?

HEAT LOSS FROM HOUSES

- Keith, G., 2021. *schoolphysics ::Welcome::*. [online] Schoolphysics.co.uk. Available at: <https://www.schoolphysics.co.uk/age11-14/Heat%20energy/Transfer%20of%20heat%20energy/text/Heat_loss_from_a_house/index.html>.



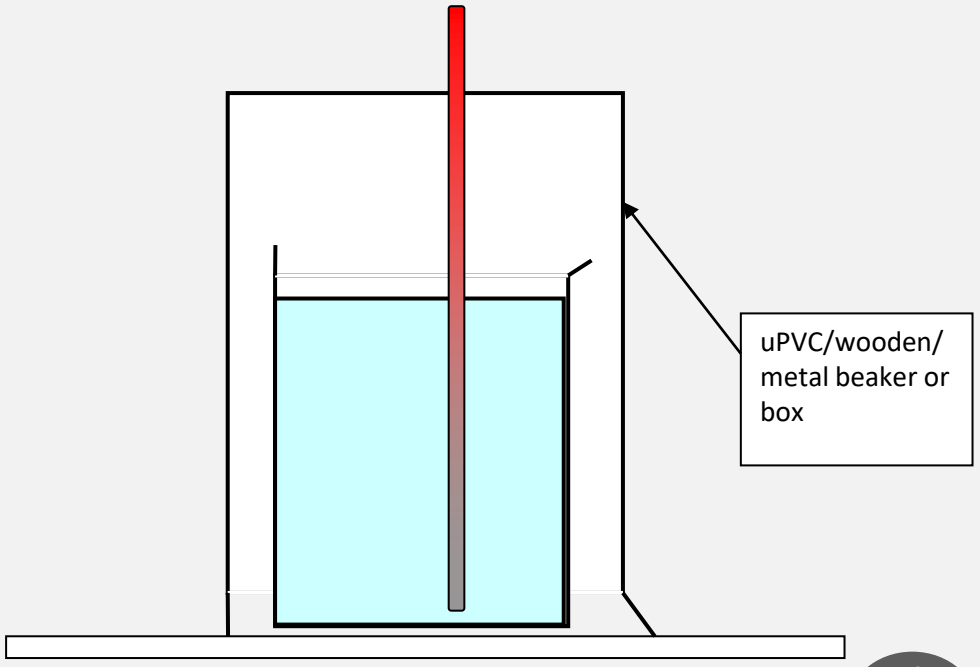
RESEARCH

- Find out ways in which you can stop heat loss from houses.

EXPERIMENTAL SHEET

- AIM
- To find out _____ _____ _____
- HYPOTHESIS
- I think _____
- _____
- METHOD
- We cannot use a real house as it would not be practical so can you think of a way this could be done in the lab without using the doll's house? We can use

- DESIGN AN EXPERIMENT
- Design an experiment that will show which _____



THINK ABOUT THE FOLLOWING

- What could you use as a source of heat?
- How could you log (measure) the temperature?
- How long will your experiment last?
- What materials could you use to represent what you're trying to do?
- How will you set up your experiment?
- What results would you look for?
- How will you present your information?
- What will be your control?
- How will you make your experiment fair?

AFTER THE EXPERIMENT

RESULTS

- Draw a table of your results. You need to show the starting temperature and final temperature of your heat source with

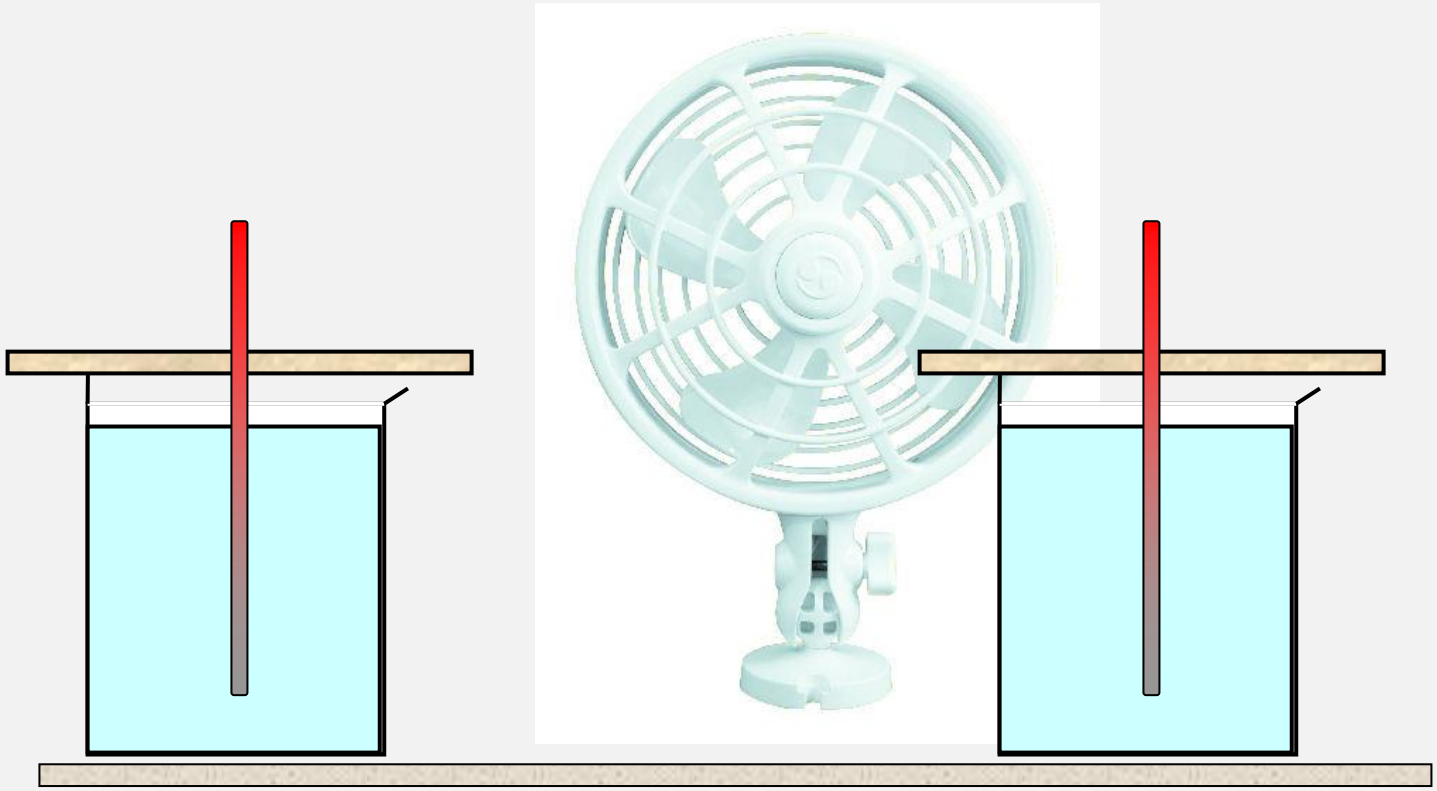
  _____.

  How will you get all this information into the table?
- Can you plot a graph of your results?

CONCLUSION & EVALUATION

- What do your results show? How can you tell? Look back at your aim, are you able to answer that question?
- Do you think that this experiment truly represents what might happen in a real house

DRAUGHTS



GLAZING