

Energy Transfers in a System

AQA GCSE Physics · Energy

Thermal Conductivity

High thermal conductivity allows a high rate of energy transfer (i.e. conduction). Low thermal conductivity allows a low rate of energy transfer (i.e. an insulator).

Answer structure — build a sentence from these choices

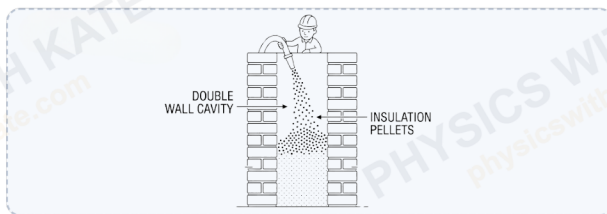
the **material / number of layers** → is a **good conductor / insulator** → with **high / low** thermal conductivity →
so a **high / low** rate of energy transfer → so it **heats up / cools down quickly / slowly**

Example



a)

The figure shows cavity wall insulation being installed in the walls of a house. Explain how the wall reduces unwanted energy transfer. [2 marks]



b)

The figure shows a cold drink in a plastic water bottle. Explain how the water bottle reduces unwanted energy transfer. [2 marks]



4.1.2.1

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REQUIRED PRACTICAL

Thermal Conductivity *(triple only)*

Apparatus

cold drink + insulation — picture

Draw or write the two measuring devices you would need:

1. _____
2. _____

Results table

insulation used	temperature after 10 minutes / °C

Starting temperature = _____ °C

Room temperature = _____ °C

Bar chart of _____

(temperature after 10 minutes, for each insulation)



Conclusion

The insulation with the **highest temperature** after 10 minutes is _____.

This material has the **highest / lowest** thermal conductivity, because it let the **most / least** energy transfer into the drink.

The insulation that kept the drink **coldest** is _____.

This is the **best insulator** for keeping the drink cold — it has the **highest / lowest** thermal conductivity.