

Energy Transfers

Name:

Date:

INQUIRY

Every time energy transfers, some is 'wasted' as heat. Can we ever be 100% efficient?

Discuss with your partner. Write your initial ideas below:

Key Vocabulary

Term	Definition
Useful energy	Energy transferred to where it's wanted.
Wasted energy	Energy transferred to unwanted stores (usually thermal).
Efficiency	Useful output / total input x 100%.

Part A — Sankey Diagrams

1. A light bulb uses 60 J. 15 J becomes light, the rest becomes heat. Draw a Sankey diagram. Calculate efficiency.
[4 marks]

Part B — Calculating Efficiency

2. A Korean LED bulb: input 10 J, useful light 8 J. Efficiency? [2 marks]

Show your working:

3. A German car engine: input 1000 J, useful kinetic energy 250 J. Efficiency? Where does the rest go? [3 marks]

Show your working:

Part C — Reducing Waste

4. Explain two ways to reduce wasted energy in a Nanjing apartment (hint: insulation, LED lighting, double glazing).
[3 marks]