

PREP 5 · LESSON 9

How much is useful?

Efficiency as a decimal and a percentage · Sankey diagrams

SCORE

/10

Name

Class

Due

Do Now

REMEMBER

From earlier lessons · 1 mark each

1

Define power.

[1]

2

State what is meant by dissipated energy.

[1]

3

Two motors lift the same load through the same height. Motor A is quicker. Which is more powerful, and why?

[1]

Key ideas

LESSON 9

Show your working

4

A motor is supplied with 800 J. It transfers 600 J usefully. Use $\text{efficiency} = \frac{\text{useful output}}{\text{total input}}$

Calculate the efficiency of the motor, as a decimal and as a percentage.

[3]

5

A 40 W lamp is 30% efficient. Calculate its useful power output.

[2]

6

A lamp is supplied with 100 J and transfers 20 J by light. In a Sankey diagram, the wasted arrow shows

(20 J / 80 J / 120 J)

[1]

7

Explain why no device can have an efficiency greater than 1 (100%).

[1]