Energy Comparisons MS

Q1 (1 mark)

- Joules (J)

Q2 (1 mark)

- Watts (W)

Q3 (1 mark)

- Kilowatt

Q4 (1 mark)

- A substance that stores energy that can be released

Q5 (2 marks)
Any two:

- Coal
- Gas
- Oil
- Solar
- Wind
- Nuclear

Q6 (2 marks)
Any two:

- Joules (J)
- Kilojoules (kJ)
- Kilowatt-hours (kWh)

Q7 (3 marks)

- Energy is the amount transferred (1)
- Power is rate of energy transfer (1)
- Power measured in watts and energy in joules (1)

Q8 (2 marks)

Two from:

- Different nutrient content (1)
- E.g. fat has more energy than carbohydrates/protein (1)
- Food composition affects energy value (1)

Q9 (2 marks)

Two from:

- Shows energy used (1)
- Shows cost of energy (1)
- Based on fuel/electricity consumption (1)

Q10 (4 marks)

- Microwave has higher power (1)
- 2000 W is greater than 1000 W (1)
- Uses energy faster (1)
- May cost more to run per time (1)

Q11 (3 marks)

Three from:

- More energy use increases cost (1)
- Appliances use electricity/gas (1)
- Higher usage = higher bill (1)
- Efficient use reduces cost (1)

Q12 (4 marks)

Energy transferred = Power × Time (1)

$E=P\times t$

2 kW × 5 h (1)

= 10 kWh (1)

Correct unit included (1)

Q13 (4 marks)

Cost = Energy used × Cost per kWh (1)

Cost=Energy×Price per kWh

4 × 30 p (1)

= 120 p (1)

= £1.20 (1)

Q14 (3 marks)

Subtract smaller energy value from larger value (1)

950 kJ−420 kJ

950 − 420 (1)

= 530 (1)

530 *1000

Answer: 530,000 J (1)

Q15 (6 marks)

Level 1 (1–2 marks)

- Basic statements about energy resources

Level 2 (3–4 marks)

- Some explanation of resources and use

Level 3 (5–6 marks)

- Clear explanation of multiple energy resources and uses

Expected content:

- Fossil fuels are common energy resources (1)
- Renewable resources like wind/solar (1)
- Non-renewable resources will run out (1)
- Used for electricity and heating (1)
- Different resources have different costs/environmental impacts (1)
- Homes use electricity and gas (1)

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Example full-mark answer:
"Energy resources include fossil fuels such as coal, oil and gas, and renewable sources such as wind and solar energy. Fossil fuels are non-renewable and will eventually run out, while renewable resources will not. These resources are used in homes to provide electricity and heating. Different energy sources have different costs and environmental impacts, so they are used in different ways."