

Energy forms, changes and sources

Grade 6 science (Year 7 · Class 6) · Test answers (mark scheme)

Model answers and mark allocations are given for every question. Award marks for correct reasoning even when the wording differs, and check that energy chains name the right form at each stage.

Level: Grade 6 science (Year 7 · Class 6) · **Curriculum:** MS-PS3

Question 1 Naming forms (2 marks)

The gas cylinder stores **chemical** energy. The hot milk has **thermal** energy.

Marking: 1 mark for each correct form.

Question 2 Solar street lamp (3 marks)

Day: light → electrical → chemical (stored in the battery). Night: chemical → electrical → light (and thermal).

Marking: 1 mark for the day chain, 1 mark for the night chain, 1 mark for the stored form being chemical.

Question 3 Conservation (2 marks)

Energy is never created or destroyed, only transformed. The kinetic energy of the ball was transformed into thermal energy of the grass and the ball (and a little sound), so it spread out but did not disappear.

Marking: 1 mark for the law, 1 mark for the thermal energy explanation.

Question 4 Diesel generator (4 marks)

- a. $400 - 100 = \mathbf{300\ J}$.
- b. $100 \div 400 \times 100 = \mathbf{25\ \%}$.
- c. It spreads into the surroundings and warms the air and the engine.
- d. Use a more efficient engine, or reduce friction with good lubrication.

Marking: 1 mark for each part.

Question 5 LED torch (2 marks)

$9 \div 12 \times 100 = \mathbf{75\ \%}$.

Marking: 1 mark for the method, 1 mark for the answer with unit.

Question 6 Energy sources (3 marks)

Renewable: wind and sunlight. Non-renewable: coal and oil. Renewable sources are replaced naturally as fast as we use them, whereas non-renewable sources take millions of years to form and will run out.

Marking: 1 mark for two correct renewable examples, 1 mark for two correct non-renewable examples, 1 mark for the explanation.

Question 7 Cooking choices (2 marks)

Solar cooker: free and renewable, no smoke. Charcoal: works at night and in cloudy weather.

Marking: 1 mark for each advantage.

Question 8 Campfire (2 marks)

Thermal energy and **light** energy, transformed from the chemical energy stored in the wood.

Marking: 1 mark for each form.