

Simple Machines and Energy Changes (KS3)

Section A – Recall (1 mark each)

Q1 (1 mark)

What is the purpose of a simple machine?

Q2 (1 mark)

What happens to force when distance is increased in a simple machine?

Q3 (1 mark)

What happens to distance when force is increased in a simple machine?

Q4 (1 mark)

What is meant by energy?

Q5 (1 mark)

What happens to total energy in a closed system?

Q6 (1 mark)

Name one example of a simple machine.

Q7 (1 mark)

What type of energy is stored in a stretched spring?

Q8 (1 mark)

What type of energy is stored in a raised object?

Q9 (1 mark)

What is chemical energy stored in?

Q10 (2 marks)

What are the types of energy transferred when fuel burns?

Section B – Understanding (2–3 marks each)

Q11 (2 marks)

Explain the relationship between force and distance in a simple machine.

Q12 (2 marks)

Explain why energy is always conserved in a system.

Q13 (3 marks)

Explain what happens to energy when an object is dropped.

Q14 (3 marks)

Explain how stretching a spring involves energy transfer.

Q15 (3 marks)

Explain how burning fuel involves energy transfer.

Section C – Application (3–4 marks each)

Q16 (3 marks)

A ramp is used to lift a heavy box. Explain how it makes lifting easier.

Q17 (4 marks)

A cyclist uses gears to climb a hill. Explain how energy and force are changed.

Q18 (4 marks)

A falling object hits the ground. Describe the energy changes involved.

Q19 (4 marks)

A stretched elastic band is released. Explain the energy changes.

Q20 (4 marks)

A student using *Learntit* has a lesson about energy changes in sports. He learns how the body transfers energy during exercise. A runner uses stored chemical energy while running a race. Explain the energy transfers that take place in the runner's body during the race.

Section D – Extended Response (6 marks each)

Q21 (6 marks)

Explain how simple machines change force and distance but conserve energy. Examples of keywords to include in your answer: force, distance, work done, transferred.

Q22 (6 marks)

A ball is dropped from a height and eventually comes to rest on the ground. Explain the energy transfers that take place from the moment it is dropped to when it stops.

Total: ____ / 55
Percentage: ____%