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AQA Physics Energy Questions

Energy stores and systems

1. State the 8 stores of energy?

_____

_____

2. Give an example of each energy store

_____

_____

3. What does the word system mean?

_____

_____

4. Switching on a battery powered car: Energy store at the start, Energy store at the end
System: _____
Energy stores: _____→_____

5. Burning gas to heat food on a stove
System: _____
Energy stores: _____→_____

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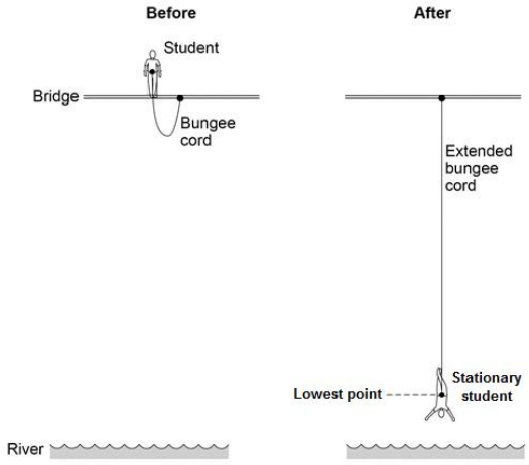
6. The image below shows a student before and after a bungee jump.



The student jumps off the bridge.

Complete the sentences to describe the energy transfers.

Use answers from the box.

elastic potential	gravitational potential	kinetic	sound	thermal

Before the student jumps from the bridge he has a store of _____ energy.

When he is falling, the student's store of _____ energy increases.

When the bungee cord is stretched, the cord stores energy as _____ energy.

Changes in energy

1. What is the law of conservation of energy?

_____

_____

2. What is the equation that links mass, velocity and kinetic energy?

_____

3. What are the units for mass?

_____

4. What is the equation that links mass, gravitational potential energy, gravitational field strength and height?

_____

5. What are the units for height?

_____

6. When will an object have 0 Joules of energy in the kinetic energy store?

_____

_____

7. Calculate the elastic potential energy for a spring which is stretched 0.15m, with a spring constant of 12N/m.

_____

_____

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_____

8. How much gravitational potential energy does a girls of mass 27kg gain when she walks up some stair with a height if 4m. (Gravitational field strength = 9.8N/kg)

_____

_____

_____

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Energy changes in systems

1. What is specific heat capacity?

_____

_____

2. What is the equation linking changing energy, mass, specific heat capacity and change in temperature?

_____

_____

3. Specific heat capacity of water is 4200 J/kg^{0}C. How much energy is needed to raise the temperature of 3kg of water by 4^{0}C?

_____

_____

4. When a cyclist uses the brakes, the bicycle slows down.
This causes the temperature of the brake pads to increase by 50 °C.
The mass of the brake pads is 0.040 kg.
The specific heat capacity of the material of the brake pads is 480 J/kg °C.
Calculate the change in thermal energy of the brake pads.

_____

_____

_____

_____

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Power

1. What is the equation that links power, energy and time?

_____

2. What is the equation that links power, work done and time?

_____

3. What are the units for time?

_____

4. What are the units for power?

_____

5. If a motor does 1250J of work for 50s, what is the power output of the motor?

_____

_____

6. If a 1000w microwave is used for 2 minutes, how much energy has been transferred?

_____

_____

_____

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