

Complete these sentences.

- 1 A can of diesel represents 'stored' \_\_\_\_\_ energy.
- 2 Energy in stretched springs is called \_\_\_\_\_ energy.
- 3 Energy in objects because of their high position is called \_\_\_\_\_ energy.
- 4 All forms of energy that are **stored** is called \_\_\_\_\_ energy.
- 5 All objects in motion possess \_\_\_\_\_ energy.
- 6 A battery changes \_\_\_\_\_ energy into \_\_\_\_\_ energy.
- 7 An electric blanket changes \_\_\_\_\_ energy into \_\_\_\_\_ energy.
- 8 As he falls, a skydiver's energy changes from \_\_\_\_\_ to \_\_\_\_\_ energy.
- 9 Kinetic energy is the energy of \_\_\_\_\_.
- 10 When you hit a tennis ball, the \_\_\_\_\_ energy of your arm is changed into kinetic energy of the ball.

Energy changes can often be simplified in an 'energy equation' which summarises the main overall energy changes. Example for a light bulb:

electric E  $\rightarrow$  heat E + light E

Write the main energy equations for each of the following situations.

- 11 An electric toaster.

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- 12 A skateboarder going down a ramp.

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- 13 A car moving at constant speed.

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- 14 A power drill.

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- 15 A computer.

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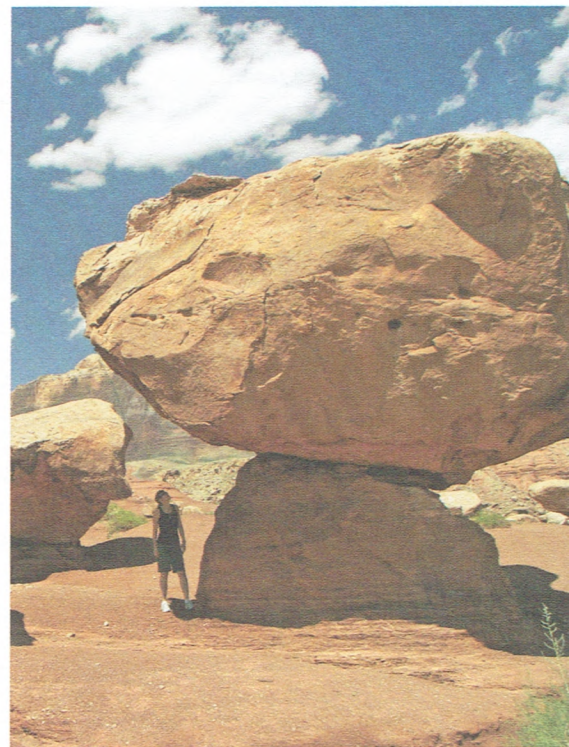


It may not be obvious, but this boulder contains a great amount of energy. It's not moving, it's not electrically charged, and it's not going to explode. However, it holds energy because of its position.

The energy that any object has because of its high position is known as **gravitational potential energy**, or  **$E_p$  (grav)** for short.

The amount of  $E_p$  (grav) of an object depends on two factors:

- Its **mass**. Double the mass means double the energy.
- Its **height**. Double the height means double the energy. This depends where you are measuring the height from. Usually it is taken as the distance above ground level, but you could also calculate  $E_p$  (grav) from floor level, even if the floor is many stories up.



1 Complete these sentences.

Whenever any object is lifted upwards it gains \_\_\_\_\_  
\_\_\_\_\_ energy, often written \_\_\_\_\_ for short. The  
\_\_\_\_\_ it is lifted upwards is a measure of the energy gained. If you lift a  
heavy weight and allow it to fall, its energy is changed to \_\_\_\_\_ as it falls, and  
then at the moment of impact to \_\_\_\_\_ and \_\_\_\_\_.

2 These five grey rocks have different amounts of gravitational potential energy, compared to the level they would fall to if nudged a little to the right. List them in order from the one with most  $E_p$  (grav) down to the least. The three big rocks are all the same mass, and each has exactly three times the mass of a small rock.

