

https://www.kerboodle.com/users/login

kerboodle

Lessons, Resources, Assessment,
and Kerboodle Books

[What is Kerboodle?](#)

Username/Email
khancock

Password
.....

Institution Code
fru6

Remember me

Log in

[Trouble logging in?](#)

Go to www.kerboodle.com

Sign in – your username is your own name first initial followed by surname, password is whatever you have changed it to, if you need it resetting – ask your teacher! The institution code is always the same - fru6

Find the Activate 9-1 App

https://www.kerboodle.com/app/

My Home My Courses

kerboodle Miss K Hancock Messages 19 Help Log out

Administrator
Your school's Administrator is Kerboodle Admin. Contact them by email about adding students to your Kerboodle school.

Students
There are 1284 students in your Kerboodle school. You can now add students to teaching groups. Find out more.

Your Favourites

AQA GCSE Sciences
9-1
0 Due this week
0 For manual marking

Science GCSE for AQA 2014
0 Due this week
0 For manual marking

Scroll across to the 'for Combined Science' books or, if you are studying separate science choose the Physics, or Chemistry book for example

The screenshot shows the Kerboodle website interface. At the top, there is a navigation bar with 'My Home', 'My Courses', and 'kerboodle'. Below this is a banner for 'AQA GCSE Sciences (9-1) First examination 2018'. A menu bar contains 'HOME', 'LESSONS', 'RESOURCES', 'ASSESSMENT', 'MARKBOOK', 'DIGITAL BOOK', and 'USER MANAGEMENT'. The 'DIGITAL BOOK' section is active, showing three book covers: 'AQA GCSE Chemistry Third edition', 'AQA GCSE Physics for Combined Sciences: Trilogy Third edition', and 'AQA GCSE Physics Third edition'. Below each cover are details like 'Availability Teacher Student'. A blue arrow points from the top right towards the book covers.

Type in the page you need / scroll through using the arrows, you can add notes, bookmarks, highlight etc. If you click resources, you might also find interactives you can complete

The screenshot shows a page from the 'AQA GCSE Physics for Combined Sciences: Trilogy' digital book. The page title is '1 Conservation and dissipation of energy' and the section is '1.1 Changes in energy stores'. The page includes a 'Learning objectives' section, a 'On the move' section with a photo of a train, and several diagrams illustrating energy transfer. A blue arrow points from the top right towards the page content.

Learning objectives
 After this topic, you should know:

- the ways in which energy can be stored
- how energy can be transferred
- the changes in energy stores that happen when an object falls
- the energy transfers that happen when a falling object hits the ground without bouncing back.

On the move
 Cars, buses, planes, and ships all use fuels as chemical energy stores. They carry their own fuel. Electric trains use energy transferred from fuel in power stations. Electricity transfers energy from the power station to the train.

Figure 1 The French Train à Grande Vitesse electric train can reach speeds of more than 500 km/hour.

Energy can be stored in different ways and is transferred by heating, waves, electric current, or when a force moves an object. Here are some examples:

- Chemical energy stores include fuels, foods, or the chemicals found in batteries. The energy is transferred through chemical reactions.
- Kinetic energy stores describe the energy an object has because it is moving.
- Gravitational potential energy stores are used to describe the energy stored in an object because of its position, such as an object above the ground.
- Elastic potential energy stores describe the energy stored in a springy object when you stretch or squash it.
- Thermal energy stores describe the energy a substance has because of its temperature.

Energy can be transferred from one store to another. In a torch, the torch's battery pushes a current through the bulb. This makes the torch bulb emit light, and also get hot (Figure 2).

When an electric kettle is used to boil water, the current in the kettle's heating element transfers energy to the thermal energy store of the water and the kettle.

Figure 2 Changes in energy stores in a torch lamp

Energy transfers
 When an object starts to fall freely, it speeds up as it falls. The force of gravity acting on the object causes energy to be transferred from its gravitational potential energy store to its kinetic energy store.

At Figure 3, it shows an object that hits the floor with a thud. All the energy in its kinetic energy store is transferred by heating to the thermal energy store of the object on the floor, and by sound waves moving away from the point of impact. The amount of energy transferred by sound waves is much smaller than the amount of energy transferred by heating.

Figure 3 An energetic drop. On impact, energy is transferred to the thermal energy store of the surroundings by heating and by sound waves.

Key points

- Energy can be stored in a variety of different energy stores.
- Energy is transferred by heating, by waves, by an electric current, or by a force when it moves an object.
- When an object falls and gains speed, its store of gravitational potential energy decreases and its kinetic energy store increases.
- When a falling object hits the ground without bouncing back, its kinetic energy store decreases. Some or all of its energy is transferred to the surroundings – the thermal energy store of the surroundings increases. Sound energy is also transferred by sound waves.

1 Describe the changes to energy stores that take place when:
 a a ball falls in air. (2 marks)
 b an electric heater is switched on. (2 marks)

2 a List two different objects you could use to light a room if you have a power cut. For each object, describe the energy transfers and changes to energy stores that occur when it lights up the room. (4 marks)
 b Which of the two objects in a is:
 i easier to obtain energy from? (1 mark)
 ii easier to use? (1 mark)

3 Describe the changes in energy stores of an electric train as it:
 a moves up a hill at constant speed. (2 marks)
 b approaches a station and brakes to a halt. (2 marks)

4 Describe the changes in energy stores that take place when food is heated in a microwave oven. (2 marks)