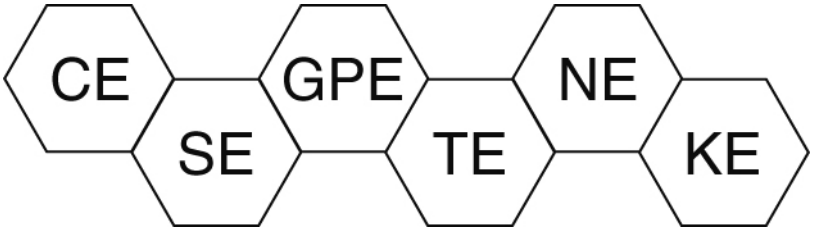
Name _____ **Class** _____ **Date** _____

1 Energy can be stored in different ways. All the energy is the same, but we sometimes give it names to help us to remember the way in which it is stored.



a What CE describes the way energy is stored in a sandwich? _____

b What SE describes the way energy is stored in a stretched spring? _____

_____

c What GPE describes the way energy is stored in a person on a diving board? _____

_____

d What TE describes the way energy is stored in a pan of boiling water? _____

_____

e What NE describes the way energy is stored inside atoms? _____

f What KE describes the way energy is stored in a moving cricket ball? _____

_____

2 Fill in the gaps in the flow charts using words from the box. You can use some words once, more than once or not at all.

electricity	force	heating
light	sound	

a You fire a stone from a catapult.

strain energy in the stretched elastic → energy transferred by a _____ from the catapult → kinetic energy in the moving stone

b You switch on the radio.

energy transferred to radio by _____ →  → energy transferred away from radio by _____

c You switch on a light.

energy transferred to the light by _____ →  → energy transferred from the light by _____

→ energy transferred from the light by _____

I can…

- recall the forms in which energy can be stored and transferred
- identify situations in which energy is transferred.

Energy circus

Answer these questions as you visit each set of apparatus.

A Moving toy

1 The toy transfers energy from a store. How is this energy stored?

2 How is the energy transferred inside the toy?

3 How is the energy finally stored?

B Electric fan

1 How is energy transferred to the fan?

2 How is the energy finally stored?

C Hand fan

1 A store of energy is transferred to make the fan move. How is this energy stored?

2 How is the energy finally stored?

3 Describe the energy transfers in as much detail as you can.

D Electric bell or buzzer

1 The bell or buzzer transfers energy from a store. How is this energy stored?

2 How is energy transferred from the bell or buzzer to the surrounding air?

E Heater

1 The heater transfers energy from a store. How is this energy stored?

2 How is the energy finally stored?

I can…

- identify some ways in which energy is stored and transferred.

Energy sorting

The cards below show energy being used to bring about changes.

1 Cut out the cards and work with a partner to sort them into groups.

You must decide on the groups, and be prepared to explain your groups to the rest of the class.

I can…

- identify some ways in which energy is stored and transferred.

A

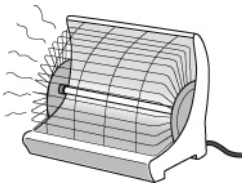
B

C

D

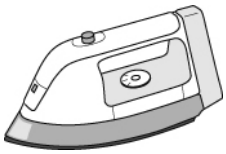
E

F



G

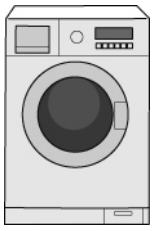
H



I

J

K



L

Match the energies

The cards with words show some different energy stores and transfers. Cut out the cards and match them up with the energies.

I can…

- estimate the amount of energy involved in various situations.

A Energy to lift an apple by 1 metre.	**B** Energy to boil a mugful of water.
C Energy stored in the chemicals in an apple.	**D** Energy stored in 1 kg of rocket fuel.
E Energy stored in the chemicals in one jam doughnut.	**F** Energy stored in AAA cell.
G Energy stored in the movement of a family car travelling on the motorway.	**H** Energy your body needs just to keep alive for one day.
I Energy transferred when you walk up a flight of stairs.	**J** Energy to play games on a computer for an hour.
1 J	5000 J
5000 J	110 000 J
200 000 J	650 000 J
750 000 J	850 000 J
5 000 000 J	130 000 000 J

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1 Look at the picture of a theme park.

a Label with a C all the things that store energy in chemicals.

b Label with a G all the things that are stores of gravitational potential energy.

c Label with a K all the things that store energy because they are moving (we call this kinetic energy).

d Label with an H all the things that are transferring energy by heating.

e Label with an S all the things that are transferring energy by sound.

f Label with an F all the things that are transferring energy by forces.

2 Complete the flow charts to show energy is transferred in each situation. The first one has been done for you.

a

energy transferred to radio by *electricity* →  → energy transferred away from radio by *sound*

b

 energy stored in fuel (we call this _____ energy) → barbeque transfers energy by _____ → energy stored in the hot food (we call this _____ energy)

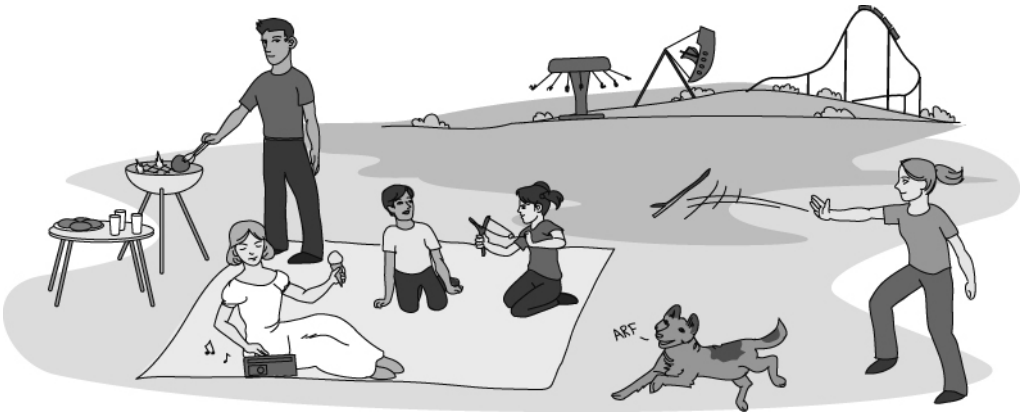
c

energy transferred by _____ →  → energy transferred by _____ and _____

I can…

- identify some ways in which energy is stored and transferred.

1 Look at the picture of a theme park.



a Write a list of all the things that store energy in chemicals.

b Which things are stores of gravitational potential energy?

c Which things are stores of kinetic energy?

d Which things are transferring energy by heating?

e Which things are transferring energy by sound?

f Which things are transferring energy by forces?

2 The flow chart shows the energy being transferred to and from an electric fire.

a Where is the energy that enters the fire transferred to? How is the transferred energy then stored?

b How does the amount of energy in these final stores compare to the amount of energy that is transferred to the fire? Explain your answer.

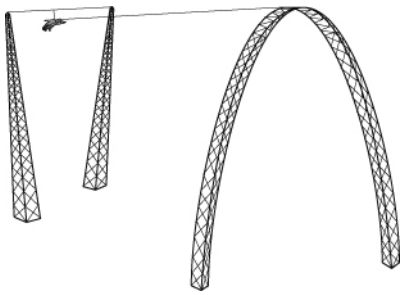
c Draw a flow chart similar to the one above to show how energy is transferred in and out of a television.

I can…

- identify some ways in which energy is stored and transferred.

Name _____ **Class** _____ **Date** _____

The drawing shows a giant swing ride at a theme park. Three people are strapped into a harness that is connected to the top of the arch by a strong wire. Another wire is attached to the towers, and a motor winches in this wire until the people are in the position shown.

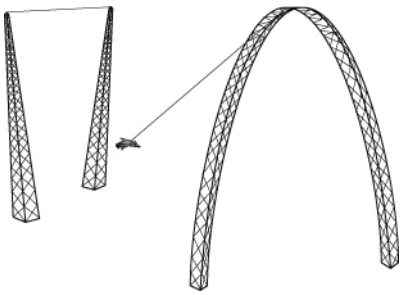


1 **a** Energy is stored in the people when they have been pulled up to the towers. What do we call energy when it is stored in this way?

b How was the energy transferred to the motor?

c Is the total amount of energy stored in the people the same as the total amount of energy transferred to the motor? Explain your answer in as much detail as you can. (*Hint*: the motor gets warm when it is operating.)

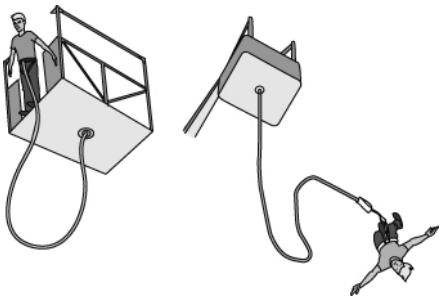
The people release a catch holding them to the second wire, and they swing backwards and forwards under the arch until they eventually come to a stop.



2 As the people swing, energy is transferred between two stores. What are these two stores?

3 When the people eventually stop swinging, they have no extra stored energy. Suggest what has happened to the energy.

You can also do a bungee jump at some theme parks. The bungee cord is made of a very thick elastic material. When the cord is straight and the person is still falling, it begins to stretch. Eventually the person bounces up again. They bounce up and down three or four times before they eventually stop.



4 **a** Describe some ways in which the bungee jump is similar to the giant swing.

b Describe some ways in which it is different.

c Suggest what happens to the energy that was originally stored in the person before they jumped.

I can…

- identify some ways in which energy is stored and transferred
- describe some energy transfer chains.