

Task Booklet
Year 7 Science



Electricity and Energy



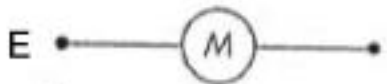
Student Name:
Science Teacher:

Core

Electricity

1.

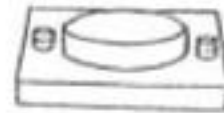
lines to
the circuit



Draw



Battery link



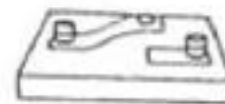
Buzzer



Light bulb



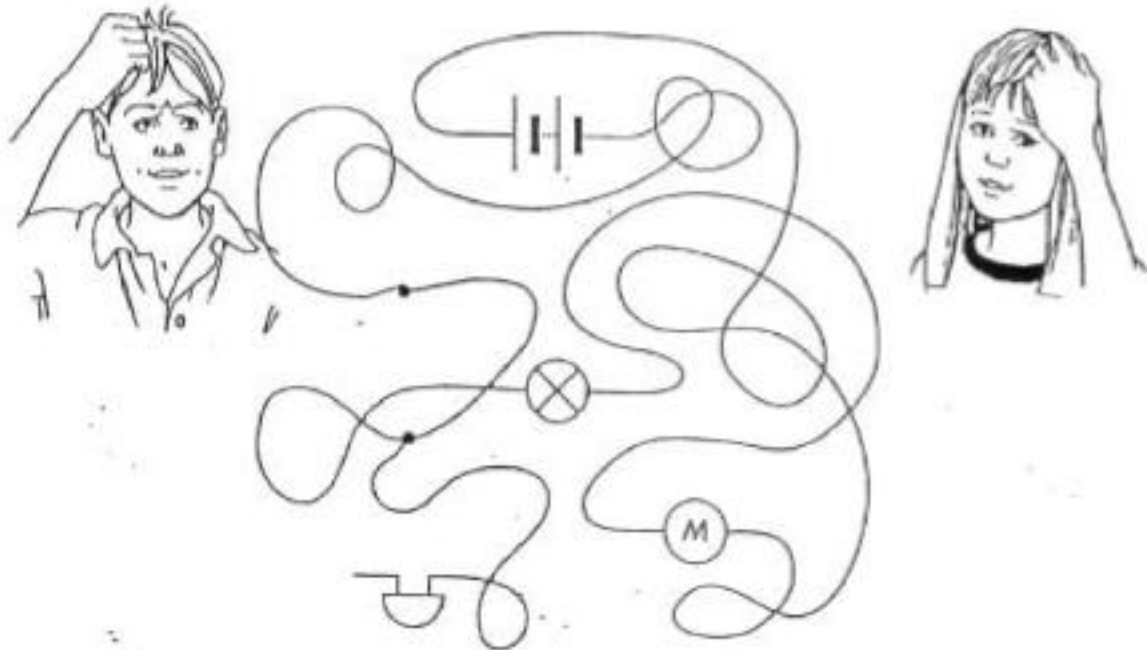
Motor



Switch

Standard

2. Claire and Mark have got their wires tangled.



symbols to the correct components.

(a) Which components are on?

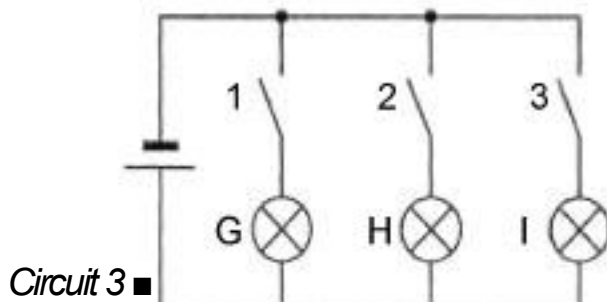
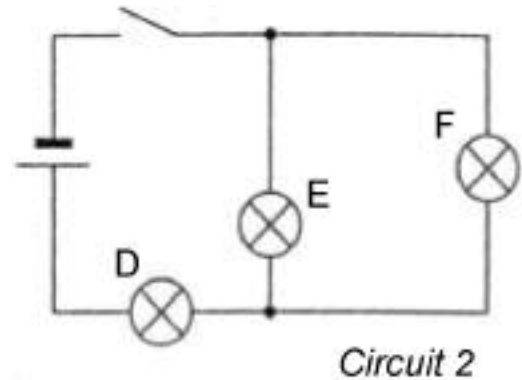
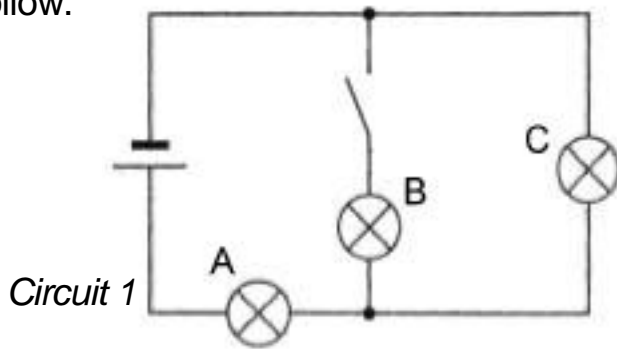
(b) How did you work out your answer?

(c) Which components have voltage across them?

Task Two - Switch On!

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1. Look at the circuit diagrams below and then answer the questions that follow.



- (a) Which lamps will be lit in circuit 1?

- (b) Which lamps will be lit in circuit 1 when the switch is closed?

- (c) Which lamps will be lit in circuit 2?

- (d) Which lamps will be lit in circuit 2 when the switch is closed?

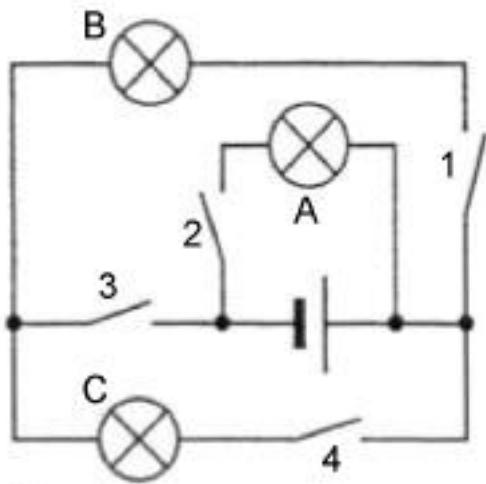
- (e) Complete this table for circuit 3:

Standard

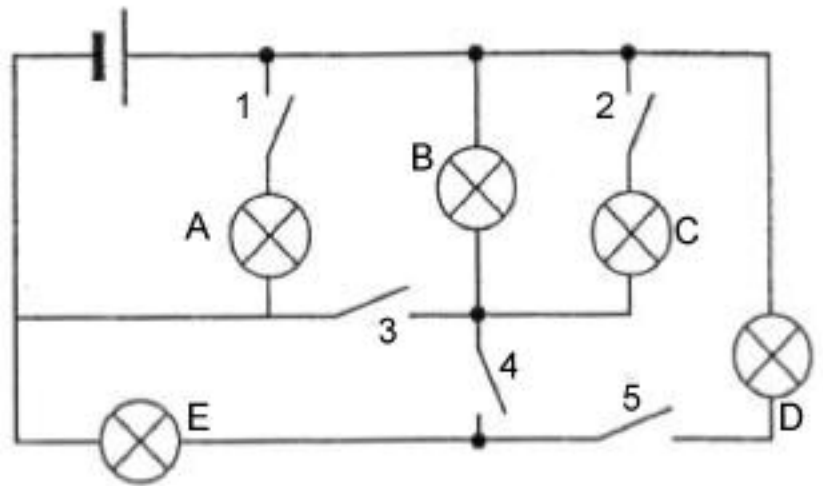
Switches closed...	Lamps lit...
1	
2	
3	
1 and 2	
1 and 3	
2 and 3	
1, 2 and 3	

Extension **Task Three - Switch On! (Extension)**

1. Look at the circuit diagrams below and then fill in the tables underneath.



Circuit 1



Circuit 2

Circuit 1

Switches closed	Lamps lit
1	
2	
3	
4	
1 & 2	
1 & 3	
1 & 4	
2 & 3	
2 & 4	
3 & 4	
1, 2 & 3	
1, 3 & 4	
2, 3 & 4	
1, 2, 3 & 4	

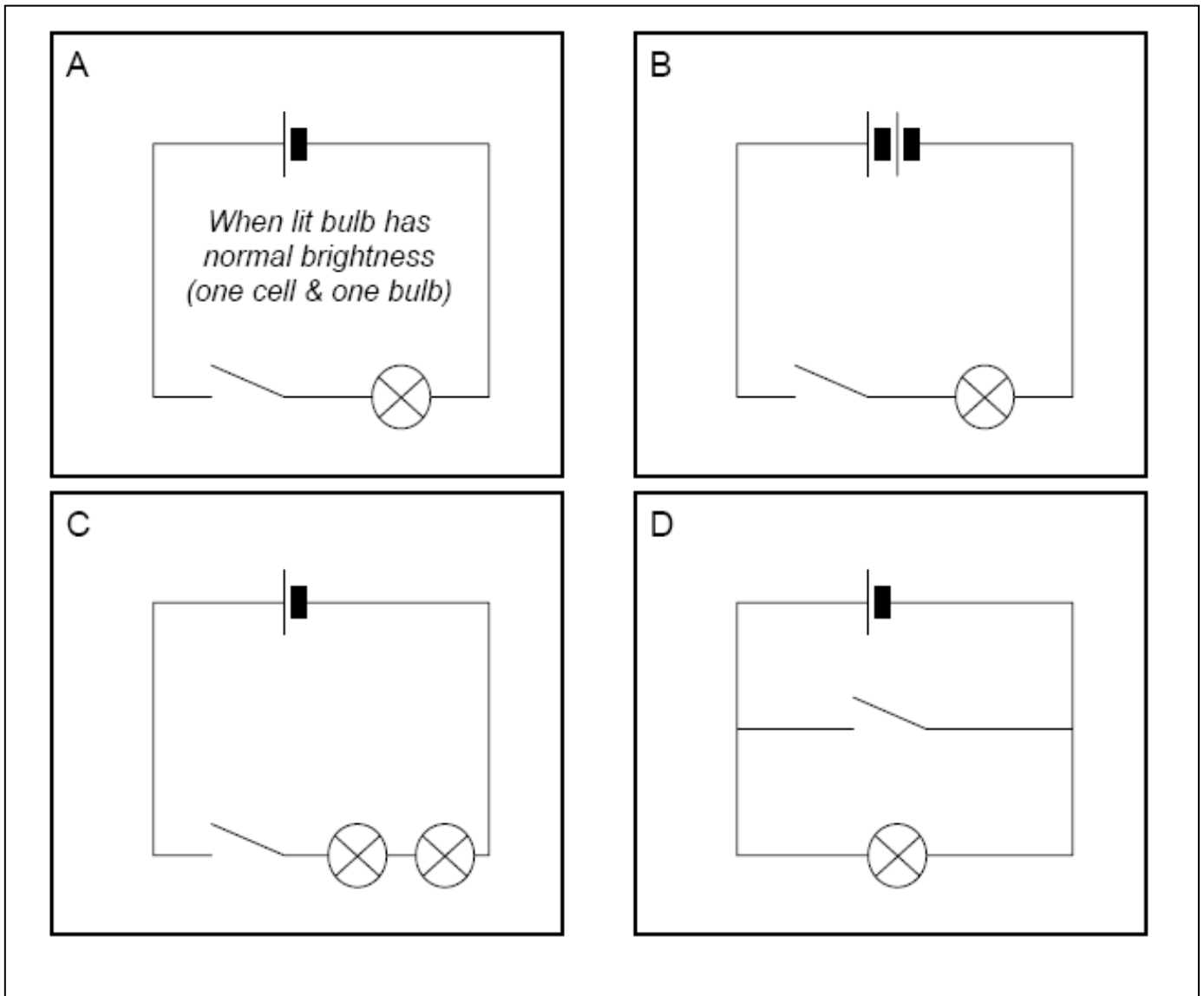
Circuit 2

Switches closed	Lamps lit
1	
2	
3	
4	
5	
1 & 2	
1 & 3	
1 & 4	
1 & 5	
2 & 3	
2 & 4	
2 & 5	
3 & 5	
4 & 5	
1, 2 & 3	
2, 4 & 5	
1, 4 & 5	

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Task Four - Looking at Circuits

1. Look at the circuits below and then answer the questions.



(a) Which circuit would have the brightest bulb (A, B, C or D)

(b) Explain why.

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(c) What would happen in each of the circuits when the switch is pressed?

A _____

B _____

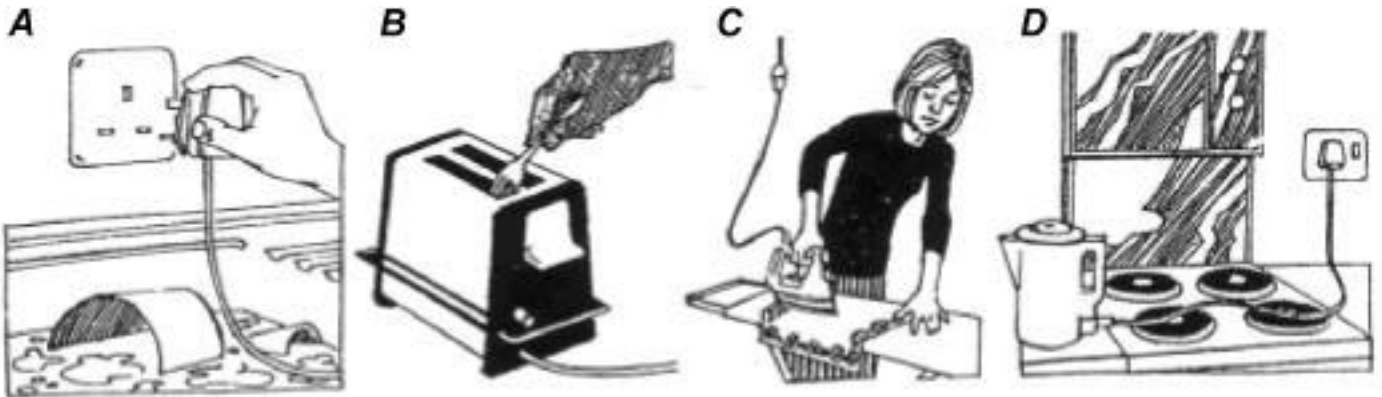
C _____

D _____

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Electrical Safety

1. Look at each of the four pictures below. Explain what the danger is in each one.



A _____

B _____

C _____

D _____

2. Use the words in the box to fill in the gaps in the sentences.

socket wire safety earth wrong outside live kill fuse current electrical plastic conduct

Electricity is supplied to us through a _____. It passes along a _____, through the appliance, and back to the socket along another wire. A third wire acts as a safety device. It is called the _____ wire. If the appliance goes _____ the outside could become _____ - if anyone touched it the electricity would go through them and could _____. Instead the electricity flows through the _____ and blows the _____, cutting off the current. Not all _____ appliances need an earth – some have _____ cases that do not _____ electricity and so cannot become live.

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Different Kinds of Energy

Storing Energy

Energy can be stored up ready for action. For example, energy can be stored in a bow string (when you let the string go there is plenty of action!). The stretched bow has stored energy. So does water held back by a dam, and a sledge at the top of a hill. The battery in a car, watch or radio is a store of chemical energy. So is the food that you eat and fuels like coal and petrol. Nuclear power stations use a fuel called Uranium which stores nuclear or atomic energy.

1. Write down five kinds of energy in action.

2. Write down three stores of chemical energy.

3. Write down three other things (not fuels) that have energy stored in them.

4. Which store of chemical energy
- (a) Keeps a referee's watch working?
 - (b) Gives football players their energy?
 - (c) Keeps the team bus running?

5. Write down four things which

- (a) use electrical energy

- (b) produce heat energy














- (c) have movement energy

Where does energy come from (and where does it go)?

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Here are some ways of producing energy (energy sources) and some users of energy.

Match the pictures. The first one has been done for you.

<i>coal</i>				<i>sail</i>
<i>food</i>				<i>traction engine</i>
<i>urani</i>				<i>car</i>
<i>oil</i>				<i>nuclear power station</i>
<i>gas</i>				<i>boy and girl</i>
<i>wind</i>				<i>bunsen burner</i>

Standard **Renewable Energy Sources**

Fossil fuels will eventually run out and scientists are already developing other ways of generating energy. These methods include using the Sun, wind, sea and plants. These are renewable sources of energy. This means that however much you use the source will not run out. Using these renewable sources of energy can reduce damage done to the environment. They do not produce pollution or nasty waste products but they do have some disadvantages. For example, wind energy:

For...

- energy is produced whenever the wind blows
- however much is used it will not run out

Against...

- only works well in windy places
- large amounts of energy need lots of expensive generators
- generators can be noisy

1. What does 'renewable' mean?

2. What is the advantage of using renewable sources of energy?

3. We depend on the sun for most of our energy needs. Explain how this is true for solar power and for fossil fuels.

4. Why does it make sense to look for alternatives to fossil fuel
