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Energy resources

In this unit we shall be studying what energy is and how we use it.

71.1 Energy and fuels

Energy is one of the big ideas in science. It is so important that it has its own unit, joules. We measure energy in joules.

What energy is

Anything that involves energy change can be called work. Nothing can happen without energy making it happen.

To do work energy must change in some way. It can:

• move from one place to another – this is called energy transfer;
• change from one type of energy to another – this is called transformation.

1 What is meant by energy?
2 What must energy do to make things happen?
3 Make a list of six things that you think need energy to make them happen or work.
There are different types of energy

We are surrounded by different types of energy. Once you know what they are, you can spot them everywhere.

1. **Gravitational potential energy** is stored in things which are high up.
2. A moving object has **kinetic energy**.
3. **Light energy** is given out by luminous objects.
4. **Elastic potential energy** is stored in things which are squashed or stretched.
5. **Fuels store chemical energy**.
6. **Heat energy** is given out by hot objects.
7. **Electrical energy** is the energy carried by electricity.
8. **Sound energy** is given out by loudspeakers.
9. **DIESEL FUEL**
10. **Gravitational potential energy** is stored in things which are high up.
11. **Elastic potential energy** is stored in things which are squashed or stretched.
12. **Light energy** is given out by luminous objects.
13. **Heat energy** is given out by hot objects.
14. **Electrical energy** is the energy carried by electricity.
15. **Sound energy** is given out by loudspeakers.

4. Name the eight types of energy.
5. List any types of energy that are present in your classroom.

Making things happen

We know that energy needs to change from one type to another to make things happen. We can show some of these changes using an energy transformation diagram. The picture shows an example:

6. What type of energy does a kettle transform electrical energy into?
7. What useful energy does a bulb transform electrical energy into?
**Useful fuels**

Fuels have chemical energy stored in them. We burn fuels to release this stored energy as heat. We use the energy to make lots of useful things happen.

- Most of our electrical energy comes from burning fuels in power stations. This is then transformed into electrical energy by generators.
- In the science laboratory you will use a Bunsen burner. This burns methane or propane gas to release heat energy.

In everyday life we use lots of different fuels to do different jobs. In a car this fuel is usually petrol or diesel. It burns inside the engine.

8. Look at the five pictures showing different fuels being used. Then, list five common fuels.

9. What fuel can be used instead of petrol and diesel?

10. Which fuel was used to light street lights in the 19th century?

We burn fuels to do jobs for us. These jobs mainly fall into one of four categories: transport, heating, cooking and making electricity.

11. What are the four main categories of uses for fuels?

12. Which fuels can be used to heat our homes?

13. Name a fuel (other than the one shown in the picture) that can be used in a power station.