

Physics

Physics is the area of science that investigates how the physical world and energy behave. This includes how different forms of energy can be generated, including electricity. A scientist who studies physics is known as a **physicist**.

It is important to know the different types of energy and how they can be transformed because we can use energy in many different ways.

One of the most important forms of energy is electricity. In your home and at school, you use electrical energy all the time.

As well as using electricity for lighting and cooking, we use electricity to operate many different types of appliances, including fans, refrigerators and computers. Almost everyone requires access to electricity because so much of daily life is dependent on objects that use electricity.

In this book, you will learn more about electricity, including what it is and how it moves. This book also explains how electricity can be generated and what new technologies scientists are developing to create electricity.



Energy

You need energy to grow and to make appliances work. Animals and plants also need energy to grow. But what exactly is energy?

Energy makes it possible to do work, including moving objects, making sound and generating heat. There are many different types of energy, including electrical energy, heat energy, light energy and sound energy.

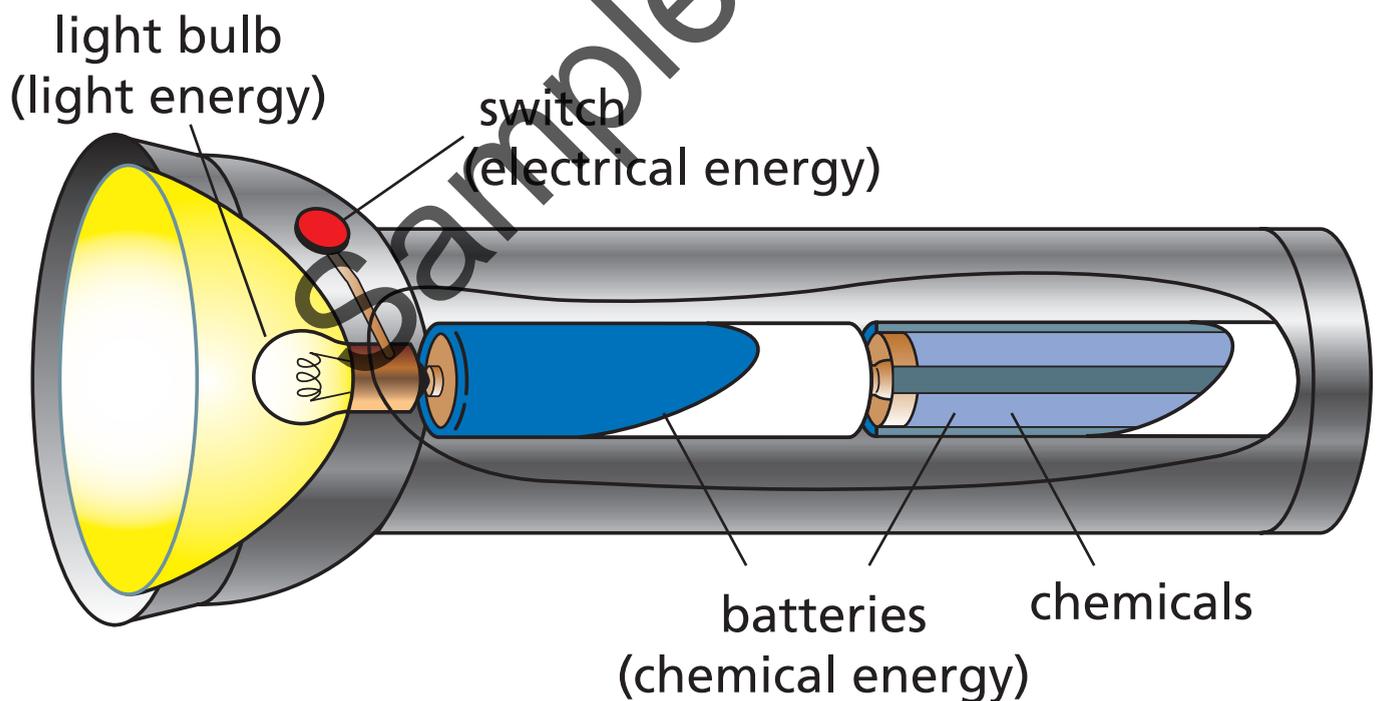
What is significant about energy is that it can never be created or destroyed. Instead, energy comes from other forms of energy. In other words, energy is able to change forms. This means that electrical energy can be changed into heat energy, or sound energy can be converted into light energy. The changing of energy from one

form into another is known as an **energy transformation**.

You see energy transformations every day. Batteries contain chemical energy. Inside a torch, chemical energy is stored in batteries. When the torch is switched on, this chemical energy is converted into electrical energy, and then into heat and light energy.

When you wave your hand or move any part of your body, the chemical energy in your body is converted into moving energy. If you were to clap your hands, then the movement energy would get converted into sound energy.

Movement energy is also known as **kinetic energy**.



In a torch, the chemical energy from batteries is eventually converted into light energy, which enables you to see in the dark.