

ENERGY

ENERGY IS ALL AROUND US (PAGES 130–131)

- 1 List eight different forms of energy.
- 2 Describe three ways in which we use energy from the Sun.
- 3 What is kinetic energy and when do objects have a lot of it?
- 4 What is potential energy? State an example of an object having a lot of potential energy.
- 5 List examples of how you have used thermal energy today.

ENERGY OF MOTION (PAGES 132–133)

- 6 Define the term 'work'.
- 7 Explain why, according to the scientific definition of work, the beams holding up the roof of a house are doing no work.
- 8 Which has more kinetic energy: a 600-kilogram car travelling at 55 kilometres per hour or a 10 000-kilogram truck travelling at 55 kilometres per hour? Explain your answer.
- 9 How does hydroelectricity work?
- 10 Describe a situation in your favourite sport that involves high kinetic energy.

POTENTIAL ENERGY (PAGES 134–135)

- 11 Describe the main form(s) of potential energy [gravitational, chemical or elastic] of each of the following:
 - a a sling shot ready to be fired
 - b a tonne of coal in a power station
 - c a monkey sitting in a tree
 - d an arrow moving at its highest point
 - e a car battery.

5 DIFFERENT FORMS OF ENERGY (PAGES 136–137)

- 12 Describe thermal energy in terms of the behaviour of particles.
- 13 What is sound energy?
- 14 Briefly describe the source of nuclear energy.
- 15 Name the form of energy emitted by stovetops.
- 16 How far does sound travel through air in one minute?



- 17 What is the main form of energy in each of the following situations?
 - a crops growing in the fields
 - b the Sun shining through a window on a sunny day
 - c a girl riding her skateboard
 - d a stretched rubber band
 - e a train travelling along a track
 - f a litre of petrol
 - g a mobile phone battery
 - h a clap of thunder
 - i a stick of dynamite.

FROM COAL TO ELECTRICITY (PAGES 140–141)

- 18 Draw a simple diagram showing the steps involved in converting the energy stored in coal into electricity.
- 19 What is the function of the following parts of a coal-burning power station?
 - a furnace
 - b turbine
 - c smoke stack
 - d generator

ENERGY FROM THE SUN (PAGES 142–143)

- 20 What is the source of the Sun's energy?
- 21 What is the term used to describe all the different forms of energy released by stars such as the Sun?
- 22 List two advantages and two disadvantages of electricity supplied by solar cells rather than from coal-fired power stations.

ENERGY FLOWS (PAGES 144–145)

- 23 Draw a flow diagram showing the energy changes for the following conversions:
 - a hitting a drum
 - b blasting a rock face with TNT explosive
 - c kicking a football.
- 24 Name a device that will convert:
 - a electricity into kinetic energy
 - b sound into electricity
 - c electricity into sound
 - d potential energy into kinetic energy.

ENERGY EFFICIENCY (PAGES 146–147)

- 25 Calculate the efficiency of an amplifier that converts 1000 watts per second of electricity into 400 watts per second of sound.
- 26 What is the most common form of wasted energy?
- 27 Do you agree with the following statement: 'It is always better to buy an energy-efficient appliance than one that is inefficient'? Give reasons for your answer.

