8. Recall that gravitational potential energy is stored in an object above the ground. Kinetic energy is the energy that an object in motion has.
9. Have pupils turn to Textbook p. 40 and look at the picture of the dam. Explain that a dam is built across a river or reservoir and a hydroelectric power station makes use of a dam to hold back water so that it can be collected at great heights. Ask:
   - What type of energy does the water collected in a dam have? (*gravitational potential energy*)
10. Explain that when the dam is opened, the water rushes down. The gravitational potential energy of the water collected in the dam is converted into kinetic energy of the flowing water.
11. Have pupils look at the picture of the hydroelectric power station and use it to explain how the kinetic energy of running water is used to generate electrical energy.
12. Have pupils turn to Textbook p. 41 and look at the picture of the wave power station. Use it to explain to pupils how the wave power station converts the kinetic energy of the waves into electrical energy.
13. Have pupils look at the 'That's Cool' feature on Textbook p. 41. Elaborate that a tidal power station collects seawater at a high tide. During a low tide, the water will flow out of the tidal power station, which makes a turbine spin and causes the generator to turn and generate electricity.
14. Have pupils turn to Textbook p. 42. Use the diagram of the windmill to explain how the kinetic energy of wind is converted into mechanical and electrical energy.
15. Have pupils look at the picture of the wind turbines. Explain that a wind farm is made up of many wind turbines, which convert the kinetic energy of the wind into electrical energy.
16. Have pupils turn to Textbook p. 43. Explain that coal, petrol and natural gas are examples of fuels and that all fuels store chemical potential energy in them. When fuels are burnt, the chemical potential energy in the fuels is converted into heat and light energy. Use the diagrams of coal mining and oil drilling to illustrate how fuels are collected from the Earth.
17. Have pupils carry out the 'Explore' activity on Textbook p. 43 at home or in a classroom equipped with computers. Discuss possible answers. (*Fossils are the remains of living things that lived thousands of years ago and have been preserved in rocks. Coal comes mainly from plants that grew on the land. Oil and natural gas come from microscopic organisms that lived in the sea. Accept other possible answers.*)
18. Recall that we must handle objects that produce heat and objects that are hot properly so as to avoid getting hurt.
19. Have pupils turn to Textbook p. 45. Explain to pupils the precautions to take when using fuels.

Elaborate (4th E) Application to the real world (50 min)

Purposes: To apply knowledge of how we use different sources of energy through energy conversion and find out how to practise safety precautions in using fuels
Resources: Textbook, Activity Book, a pair of scissors, a paper cup, a pencil, some adhesive gum, a piece of square paper, a straw, a piece of wire and an eraser per pupil

1. Have pupils turn to Activity 15.1 on Activity Book p. 30.
2. Go through the procedures with pupils.
3. Have pupils complete Activity 15.1 on Activity Book pp. 30—31.
4. Discuss answers to Activity 15.1.
5. Have pupils turn to Activity 15.2 on Activity Book p. 32.
6. Go through the procedures with pupils.
7. Have pupils complete Activity 15.2 on Activity Book pp.32—33.
8. Discuss the answers to Activity 15.2.
9. Have pupils think about the 'Explore' question on Textbook p. 45. Discuss possible answers. (*Liquid fuels give off combustible vapours and are fire and safety hazards. They should be kept outside the house at all times. Accept other possible answers.*)

Evaluate (5th E) Assessment (20 min)

Purpose: To assess pupils' understanding of the lesson
Resource: Textbook

1. Ask pupils the key inquiry questions for Section 15.1, Section 15.2, Section 15.3, Section 15.4 and Section 15.5 again. (*The Sun, wind, running water and fuels. The Sun's energy is used by plants to make food. Solar cells and solar panels collect the Sun's energy and convert it into electrical energy. Kinetic energy of running water is used by a hydroelectric power station and a wave power station to generate electrical energy. A windmill uses the kinetic energy of the wind and converts it into mechanical energy and electrical energy. A wind turbine also uses the kinetic energy of wind and converts it into electrical energy. When fuels are burnt, the chemical potential energy that is stored in them is converted into heat and light energy. Power stations use fuels to generate electricity.*)
2. Go through the 'Quick Check' questions on Textbook p. 41 and p. 43. (*A hydroelectric power station makes use of a dam to hold back water, which has gravitational potential energy stored in it. Once the water is released from a great height, the kinetic energy of the running water turns the turbines, which in turn causes the generator to turn and generate electrical energy. A wave power station uses the kinetic energy of waves and converts it into electrical energy. It is converted into heat and light energy.*)

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