

# Energy objectives

**Correctly define:** absolute zero, condensation, conduction, convection, kinetic energy, potential energy, radiation, refraction, solidification, specific heat, temperature, vaporization

## ENERGY TRANSFER AND TRANSFORMATION

- Describe the difference between kinetic and potential energy and give one real-life example of each.
- Describe the three ways energy is transferred between objects.
- Give at least one real-life example for each type of energy transfer.
- Explain how electromagnetic energy travels.
- Explain how different types of energy are told apart.
- Give examples of materials which make the best absorbers and reflectors of energy.

## TEMPERATURE

- Convert temperatures between the three temperature scales.
- Describe the relationship between temperature and molecular motion.
- Describe absolute zero in terms of molecular motion.

## SPECIFIC HEAT

- Explain the concept of specific heat in your own words and with real-life examples.
- Use the ESRTs to predict which earth materials will heat the fastest or slowest based upon their specific heats.
- Identify that water (liquid) has the highest specific heat of any Earth material.
- Explain why, in terms of specific heat, materials that are good absorbers are also good radiators.

## HEATING OF WATER

- Correctly label the water heating graph with the following characteristics: freezing, melting, condensing, and evaporating.
- Identify when heat is being gained or lost by water on the water heating graph.
- Explain which phase changes require the biggest gains/losses of energy for water.
- Calculate the rate of temperature change for water.