Role play notes
Give us some energy!

Setting up
Invite two students to be atoms, say of hydrogen, each seeking a 'partner'.

As such, each atom has energy. Each atom can have up to six packets of crisps (assuming a 12–pack of crisps).

Invite about eight other students to be particles of air or another gas. These can circulate around the hydrogen atoms in a defined area called the 'reaction vessel'.

Action
The atoms and air particles circulate around the 'reaction vessel'.

At the instant the hydrogen atoms make a bond, *eg* by holding hands or coming closer together, the crisp packets are thrown into the air. The air particles should try to catch as many as possible before they fall to the ground.

Review
Afterwards, look at what has happened.
- The atoms have bonded to form a molecule.
- The molecule has less energy than the unbonded atoms.
- The energy released when the bond formed has been distributed out – by chance, some air particles have none, one, two or more crisp packets.

Explanation
- The crisp packets represent energy quanta.
- The role play demonstrates that energy is distributed when a reaction happens – this can be as heat, light or a temperature increase.
- The energy is more disordered than before because it is spread over a larger 'area'.
- The energy cannot be used as easily as before.
- The temperature of the environment has increased.