

Chemistry > Big idea CCR: Chemical Reactions > Topic CCR3: Energy and reactions

Progression toolkit: Exothermic and endothermic reactions

Learning focus	During a chemical reaction energy may be transferred to or from the surroundings.				
As students' conceptual understanding progresses they can:					
As students' conceptual understanding progresses they can:	Recognise that energy is conserved during an exothermic reaction.	Describe how the temperature of the chemicals will change with time after an exothermic reaction.	Describe how the temperature of the chemicals will change with time after an endothermic reaction.	Explain the energy changes needed for the rearrangement (breaking apart and combining) of atoms during a chemical reaction. B	Recognise that the overall energy change of a chemical reaction depends on the relative amount of energy needed to separate and combine atoms during the reaction. B
Diagnostic questions	Burning fuel	Temperature change 1	Temperature change 2	Energy and rearranging atoms	Overall energy change
Response activities	Magnesium powder	Exothermic reaction	Endothermic reaction	Molecule models	Energy change diagrams

Key:

P Prior understanding from earlier stages of learning

B Bridge to later stages of learning

<p>Burning fuel</p>	<p>Temperature change 1</p>	<p>Temperature change 2</p>	<p>Energy and rearranging atoms</p>	<p>Overall energy change</p>
<p>Talking heads</p>	<p>Two-tier multiple choice</p>	<p>Two-tier multiple choice</p>	<p>Talking heads</p>	<p>Simple multiple choice</p>
<p>Magnesium powder</p>	<p>Exothermic reaction</p>	<p>Endothermic reaction</p>	<p>Molecule models</p>	<p>Energy change diagrams</p>
<p>Application and practice</p>	<p>Focused cloze</p>	<p>Focused cloze</p>	<p>Critiquing a representation</p>	<p>Clarifying</p>