

Temperature changes in exothermic and endothermic reactions

Education in Chemistry

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[rsc.li/2EijKwA](https://www.rsc.li/2EijKwA)

Follow the experiment instructions and safety advice from your teacher. Note your temperature measurements in the table below.

1. Results

Reaction 1

Reactant 1	Reactant 2	Starting temperature /°C		Maximum temperature /°C		Final temperature /°C	
		Reactant solution	Surrounding air	Product solution	Surrounding air	Product solution	Surrounding air

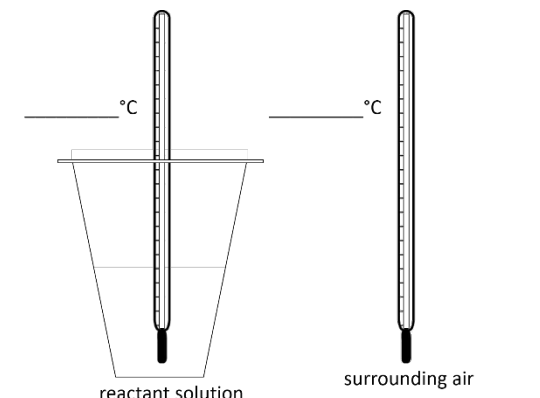
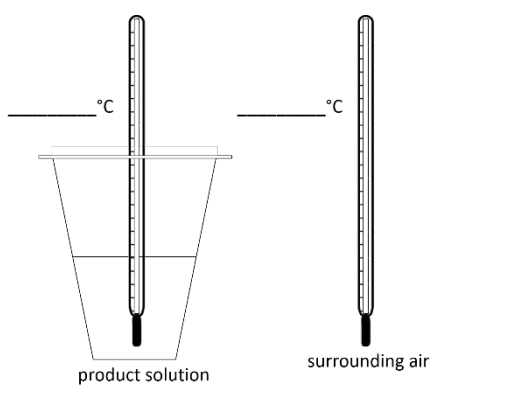
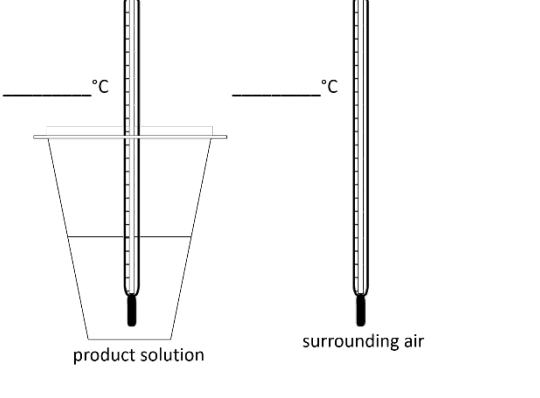
Reaction 2

Reactant 1	Reactant 2	Starting temperature /°C		Minimum temperature /°C		Final temperature /°C	
		Reactant solution	Surrounding air	Product solution	Surrounding air	Product solution	Surrounding air

2. Exothermic reaction

a. Based on your results, decide which reaction was exothermic. Use the results to fill in the gaps in the chemical story.

Chemical story

Starting temperature	Maximum temperature	Final temperature
At the start, the cup contains _____. This reactant is dissolved in water, _____ is added.	The products of the reaction are _____ and _____. The product _____ is dissolved in water.	The products are left in the cup for 15 minutes.
 <p>_____ °C _____ °C</p> <p>reactant solution surrounding air</p>	 <p>_____ °C _____ °C</p> <p>product solution surrounding air</p>	 <p>_____ °C _____ °C</p> <p>product solution surrounding air</p>

b. Circle the correct word(s) in the energy story.

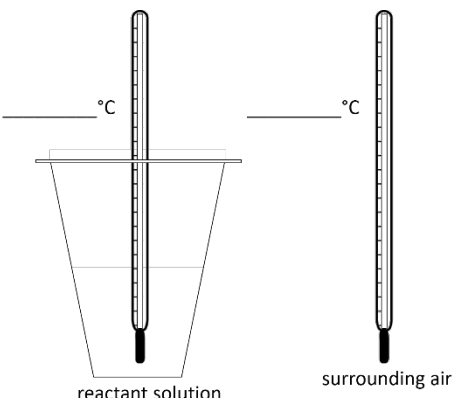
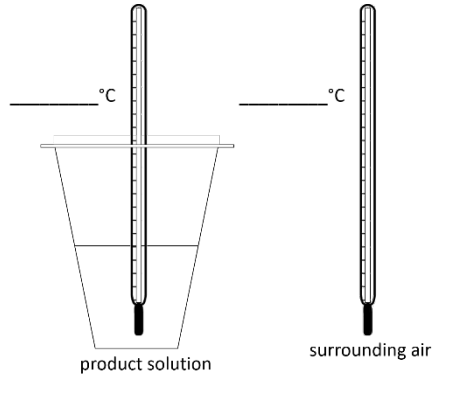
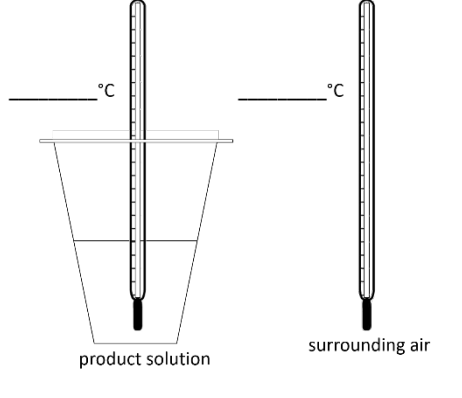
Energy story

The reactant solution and surrounding air are at the same temperature. Energy is/ is not being transferred to or from the surroundings.	During the chemical reaction energy is transferred to/from the water. The product solution is at a higher temperature than the surrounding air. Energy will start to transfer to/from the surrounding air.	The product solution and surrounding air are at the same temperature. The energy has transferred to/from the surrounding air where it has dissipated.
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3. Endothermic reaction

a. Based on your results, decide which reaction was endothermic. Use the results to fill in the gaps in the chemical story.

Chemical story

<p>Starting temperature</p> <p>At the start, the cup contains _____.</p> <p>This reactant is dissolved in water.</p> <p>_____ is added.</p>  <p>_____ °C _____ °C</p> <p>reactant solution surrounding air</p>	<p>Maximum temperature</p> <p>The products of the reaction are _____ and _____.</p> <p>The product _____ is dissolved in water.</p>  <p>_____ °C _____ °C</p> <p>product solution surrounding air</p>	<p>Final temperature</p> <p>The products are left in the cup for 15 minutes.</p>  <p>_____ °C _____ °C</p> <p>product solution surrounding air</p>
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b. Circle the correct word(s) in the energy story.

Energy story

<p>The reactant solution and surrounding air are at the same temperature. Energy is/ is not being transferred to or from the surroundings</p>	<p>During the chemical reaction energy is transferred to/from the water. The product solution is at a higher temperature than the surrounding air. Energy will start to transfer to/from the surrounding air.</p>	<p>The product solution and surrounding air are at the same temperature. The energy has transferred to/from the surrounding air.</p>
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