

Recording your results

1 Complete this table of your results.

	Substance(s) undergoing change	What are the surroundings?	Temperature of surroundings at start ($^{\circ}\text{C}$)	Temperature of surroundings at end ($^{\circ}\text{C}$)	Overall temperature change of the surroundings - Increase or decrease?
[1]	copper sulfate + zinc	water	25°C	35	increase (exothermic)
[2]	citric acid + sodium hydrogen carbonate	water	25°C	18	decrease (endothermic)
[3]	ice melting	water	25°C	8	decrease (endothermic)

Considering your results/Conclusions

2 a Which changes were example of chemical reactions and which were physical changes?

chemical reactions: [1] and [2]

physical changes: [3]

b Explain how you arrived at your answer for part a.

1 and 2 involves a new substance formation
irreversible

3 \rightarrow no new substance formed, can easily be reversed.

3 a Which changes were exothermic and which were endothermic?

exothermic: [1]

endothermic: [2], [3]

b Explain how you arrived at your answer for part a.

[1], energy is transferred to the surrounding causing the temperature of the surrounding to increase.

[2], [3] Absorb energy from the surroundings, causing the temperature of the surrounding to decrease.