2(a)	**M1** all masses of sodium carbonate and citric acid correct (5.0, 5.0, 5.0, 5.0, 5.0 and 1.0, 2.0, 4.0, 5.0, 6.0)	**1**
	M2 and M3 all temperatures correct (25.0; 11.5; 5.0; 0.5; –1.0; –2.0)	**2**
	M4 all values shown to 1 dp	**1**
2(b)	**M1** *y*-axis scale in linear and points extend over halfway up scale above zero	**1**
	M2 and M3 all points plotted correctly	**2**
	M4 curved line of best-fit	**1**
2(c)	endothermic **and** because the **temperature** decreased	**1**
2(d)	experiment 6	**1**

Question	Answer	Marks
2(e)	**M1** working shown on graph at 3.5 g	**1**
	M2 correct value from their graph	**1**
2(f)	any 2 from: • so that the sodium carbonate mix together • so they react • so the temperature is the same throughout the mixture	**2**
2(g)	**M1** insulation	**1**
	M2 reduces heat being gained from the surroundings / keeps temperature lower / stops temperature going up **OR** **M1** prevents heat loss / prevents heat gain / prevents energy exchange with surroundings **M2** stops temperature going up / reduces increase in temperature (after reaction has ended)	**1**

Question	Answer	Marks