

### Lesson Plan

<b>Date:</b>	<b>Class: Year 10</b>	<b>Subject: Math</b>
<b>Learning Intention:</b> I am learning to understand factors that affect the rate of reaction		<b>Success Criteria:</b> <ul style="list-style-type: none"> <li>Identify factors that impact on a rate of reaction</li> <li>Predict what impact a factor will have on the rate of reaction</li> <li>Conduct an experiment to investigate rates of reaction</li> <li>Respond to questions that describe and explain rates of reaction</li> </ul>

**Commented [LS1]:** AAP: I am learning to investigate the effects of mixing different chemicals  
 ILG: I am learning to respond to questions about chemical reactions

Lesson Structure			
Stage	Teacher	Students	Key Strategies/Adjustments
<b>Opening</b>	Use a short video and text to introduce the concept of a 'factor' being a condition that has been changed in order to affect the rate of reaction	Engage with the multimodal resources being used to help explain the concept	Multimodal representation Cooperative learning Frayer model
	Use the analogy of souring of milk, and the conditions or factors we use to slow this process down to help explain the concept	Identify factors used to slow the process of souring milk  Co-construct a Frayer model for 'factor'	
<b>I Do</b> <i>(Modelled)</i>	Demonstrate a chemical reaction between copper sulphate and a sheet of aluminium after salt has been added – follow a method and highlight how safety has been considered	Watch the experiment Take note of the chemical reaction occurring over the first 5 minutes	Demonstration Think alouds Prompts Modelling
	Model how to determine and record the rate of reaction Model how to describe the rate of reaction and the effect of adding salt by composing a short statement  Use prompts (written with visuals) and think alouds to support the demonstration	Listening to and watching how the teacher is recording the rate of reaction and composing the short statement	
<b>We Do</b> <i>(Guided/Shared)</i>	Provide a given method for the same experiment but with a factor change to an aluminium ball	Predict if the change of factor will react faster or slower...why?	Guided experiment Cooperative learning
	Ask students to predict if it will react faster or slower  Read through the method again, emphasising safe working practices  Conduct a guided experiment for students wishing to receive further modelling	Conduct the experiment in groups of 4  Opt to participate with the guided group	
<b>You Do</b> <i>(Independent)</i>	Provide a range of scaffolds for students to respond to questions about the rates of reaction: - Written questions from the board with photo prompts	Respond to questions about the experiment: - Describe observations - Describe the rate of reaction	Multiple ways to respond Multimodal supports Prompts Assistive technology Extended teacher guidance

**Commented [LS2]:** AAP & ILG: Targeted questioning

**Commented [LS3]:** AAP: Teacher highlighting the effects of mixing chemicals  
 ILG: Teacher use of PODD to highlight key vocabulary

**Commented [LS4]:** AAP: Prompting to make a prediction about mixing the chemicals again  
 ILG: Respond to a simple question about the demonstrated investigation. Teacher using PODD to highlight key actions of the experiment

**Commented [LS5]:** AAP: Participate in a guided experiment (with peers or teacher)  
 ILG: Make a choice about joining a guided experiment (with peers or teacher). Follow a visual prompt to collect some equipment. Attempt a task associated with the experiment.

**Commented [LS6]:** AAP: Adjusted question questions about chemical reactions. Compare observations with predictions  
 ILG: Adjusted questions about what was observed in the experiment. Using PODD grid.

	from the key points of the experiment - Printed question scaffold with visuals and prompts (eg. sentence starters) - Guided response group - Access to iPads to read questions and/or record responses - Record responses in workbook	- Describe the effect of adding salt - Identify which reaction was faster - Effect a factor has on the rate of chemical reaction  Choose how to access and respond to the questions	
<b>Closing</b>	Provide exit ticket Read out questions	Complete an exit ticket with three 'yes or no' questions about the lesson	Exit ticket Y/N responses
<b>Wrap-up</b>	Exit routines		

**Commented [LS7]:** AAP: Adjusted questions  
 ILG: Adjusted question using PODD grid