



Narrative – Rates of reaction (experiment)

Year group and curriculum area	Year 10. Science/chemistry.
Activity	<p>Supports a revision or an experimental planning strategy and is designed to engage learners in looking at evidence and to write about it.</p> <p>Learners ask the question 'What is this experiment designed to find out and how does it achieve that?'.</p>
Topic	<p>This particular resource relates to rates of reaction in science/chemistry. Source squares can be used in a wide variety of contexts to support learning. It is used as an exercise to encourage learners to study information provided carefully and systematically, to help learners develop good writing skills, and to explain the difference between describing and inferring. The resource could be used as part of a revision exercise in this topic.</p>
Possible strategy/solution	<p>This is a standard rate of reaction experiment.</p> <p>Requirement</p> <ul style="list-style-type: none">• Activity sheet 'Source square'. <p>Learners are introduced to the question 'What is this experiment designed to find out and how does it achieve that?'.</p> <p>This is done by presenting groups of learners with the source square.</p> <p>First, learners write, either as part of a group or individually, about what they see, e.g. apparatus, equation, symbols, etc. This builds their specific (scientific) vocabulary. The teacher helps to identify, relevance of some of the items. This part is reasonably accessible to all abilities with a basic knowledge of science.</p> <p>Then, in groups, learners start to make links with the information provided and their own knowledge of science to try to make sense of the text, image and chemical equation, e.g. how they are linked, using the terminology and vocabulary that they have just established in the first part. This is also good practice for the whole range of learners, and is designed to make them write</p>

	<p>more coherently and purposeful. Much of what is here is still descriptive. This is the first step to joining up their thinking.</p> <p>Finally, they add what they can infer from this information which is not directly given in the text, image or equation. This involves higher-order thinking and adds the upper challenge to the activity, e.g. a chemical reaction occurs, what will happen during the reaction, what is the significance of the cross under the conical flask, what is the purpose of the watch, etc. Learners might need to write down their initial ideas, and then discuss them as a group, finalising their thoughts. They then share their ideas with the rest of the class.</p>
<p>Links with the LNF</p>	<p>Skills</p> <ul style="list-style-type: none"> • Generating and using a strategy to solve problems. • Working collaboratively to solve a problem. <p>Literacy component</p> <p>Strand: Oracy across the curriculum (Year 10)</p> <p>Element: Developing and presenting information and ideas (Year 10)</p> <p>Aspect: Listening (Year 10) Learners are able to:</p> <ul style="list-style-type: none"> • respond to the ideas of others in thoughtful and considerate ways, seeking clarification through appropriate questioning • listen to a range of information and ideas from different viewpoints, identifying how different speakers present specific points of view. <p>Aspect: Collaboration and discussion (Year 10) Learners are able to:</p> <ul style="list-style-type: none"> • use a range of options and strategies to enable the group to progress and reach agreement. <p>Strand: Reading across the curriculum (Year 10)</p> <p>Element: Responding to what has been read (Year 10)</p> <p>Aspect: Response and analysis (Year 10) Learners are able to:</p> <ul style="list-style-type: none"> • synthesise and analyse information to gain in-depth understanding from sources which may have conflicting views • understand and distinguish between facts/evidence and bias/argument commenting on both obvious points and inferences • comment on different interpretations of issues and ideas, using the text to support opinions.

Strand: Writing across the curriculum (Year 10)

Element: Organising ideas and information (Year 10)

Aspect: Meaning, purposes, readers (Year 10)

Learners are able to:

- write both extended pieces, which include detailed evidence and information, and shorter pieces which summarise concisely, showing clear awareness of the reader or intended audience
- construct responses that connect and develop ideas to fully cover the topic.

Aspect: Structure and organisation (Year 10)

Learners are able to:

- write independently in an appropriate form with increasing confidence, ensuring content is organised, detailed and relevant, *e.g. how best to present opinions, information and explanations*
- show clear awareness of different readers by selecting from a range of styles and structures, and adapting their use of language
- organise writing in an appropriate form, ensuring content is detailed within and between paragraphs or sections.

Element: Writing accurately (Year 10)

Aspect: Grammar, Punctuation, Spelling, Handwriting (Year 10)

Learners are able to:

- vary sentence structures to engage and sustain the reader's interest and write with grammatical accuracy
- use the full range of punctuation in order to vary pace, clarify meaning, avoid ambiguity and create deliberate effects
- use a variety of strategies and resources to accurately spell an increasing range of familiar, unfamiliar and subject-specific words
- present their handwritten or on-screen work effectively, choosing form, images and graphics to enhance meaning
- Welsh-medium statement: write grammatically accurate sentences ensuring that the verb tense and person is correct in context
- Welsh-medium statement: use a range of mutations correctly (soft, nasal and aspirate mutations) in context.