

Two outline approaches to teaching the corrosion of metals

<i>Sequence 1</i>	<i>Sequence 2</i>
<p>Four test tubes containing nails in different conditions present at start of lesson. Title: 'Corrosion' on board and diagram of set up displayed on board. Class brought round front and teacher explains that each nail has been left for several weeks. Results explained to the class. Pupils return to seats and copy the diagrams and results from the board. Teacher explains nature of the processes taking place and dictates notes for the class to copy down. Class given some questions and asked to complete these for homework as a preparation for a short test next lesson</p>	<p>Several pictures presented on board showing examples of different metal objects from around the school/local community, some heavily corroded some not. Class brought round front. Discussion of what they observe and what questions they might ask linked to the title of 'corrosion'. Series of possible questions to investigate drawn up. Prior knowledge and any assumptions listed on large flipchart sheets displayed on wall. Class divided into small groups to plan investigations of their chosen questions. All expected to prepare presentations. Pupils given access to a range of the school's support materials on corrosion. Template for assessment of their work on corrosion shared, including conceptual and process targets. Some groups use the Internet; others decide to do a corrosion survey across the school; some opt for experiments. For homework class asked to gather information from home that might help with their questions.</p>
<p>Short test completed at start of lesson. Teacher goes over answers. Class given textbook showing results of corrosion experiments with different metals. Teacher explains results to group and writes notes on board to copy. Questions from book given to complete. Teacher conducts question and answer sequence to check that the key facts have been understood. Teacher concludes lesson by summarising work covered and relating it to earlier work on the reactivity series. Second set of questions given for homework.</p>	<p>Health and safety issues discussed at start and requirement to gain teacher permission for any experiments. Teacher checks each group properly planned at start, checking for misconceptions. Advice given concerning concepts and misconceptions. Timings given. Support sheets provided to some pupils from school bank of material on corrosion. Librarian and support assistant works with groups who leave the classroom for surveys/research if available/needed. Lesson finishes with group discussion of progress and further decisions on presentations. Some pupils show experiments to the whole class. Groups prepare 'things learnt' posters ready for next lesson.</p>
<p>Homework questions discussed at start of lesson. Title 'methods of protecting against corrosion' given and slides of famous landmarks shown and discussed. Notes written on board for class to copy. Textbook with sections on 'factors that speed up/slow down corrosion' and 'uses of metals' discussed. Class asked to revise for test on corrosion next week as homework.</p>	<p>Posters on wall at start with 'things learnt'. Time limit set of first half of lesson to be ready to present ideas. Peer assessment template to be used later shared on slide. Teacher supports group preparation. 5 minute presentations given. Some involve rap, some posters, some drama, one a PowerPoint presentation. Teacher annotates flipchart sheets on wall from first lesson during the presentations. Groups reassemble and complete one assessment template for each of the other groups. Homework to prepare ready to teach ideas to others next time. Posters used to identify key areas for teaching: necessary factors; slowing/speeding up; nature of metal; link to uses all included.</p>
<p>Past exam paper questions used for test. Last part of lesson used to discuss answers. Formal test signalled for end of year.</p>	<p>Jigsaw activities used for pupils to teach each other the different aspects. Pupils asked to produce revision tools for their portfolio of work. Whole class concept map produced for display, updating flipchart sheets. Teacher checks for misconceptions. Groups complete a self-assessment, drawing on the sheets given by peers in the previous lesson. Individuals update their learning logs. Some experiments left running to look at later in the year. Signal that corrosion will be revisited later.</p>

Inquiry learning: exploring the benefits of IBL

Examine the two outline sequences of lessons for teaching the corrosion of metals.

1. Which characteristics of IBL are supported within Sequence 2? Which of these are largely absent from Sequence 1?

2. What are the potential learning gains from using Sequence 2? What are the risks associated with using the approach in Sequence 2 rather than that in Sequence 1?

3. What are the challenges facing a teacher seeking to gain the benefits claimed from IBL approaches?

