sequence overview

Redox reactions

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Background

These SPICE resources may be drawn together into a learning pathway to develop students' understanding of oxidation and reduction processes. The pathway is structured around a constructivist model based on the 5-Es where teachers may:

- **Engage** students' interest in the concept of redox. Students watch a video about the occurrence of acidic soils resulting from the oxidation of sulfide compounds in wetland soils.
- Provide opportunities for students to **Explore** the chemical reactions of sulfide compounds. Students perform experiments and develop inferences about sulfide oxidation reactions.
- **Explain** the concept of redox in the context of reactions involved in the formation of sulfide compounds through reduction processes and their subsequent oxidation.
- **Elaborate** on the ideas presented through an investigation of redox reactions involved in bioremediation and application of these and other techniques to acid-sulfate affected environments.
- **Evaluate** students' progress through the pathway.

The resource is designed for students studying year 11 chemistry, but may also be used with students in earlier years at the discretion of the teacher.

Learning resources

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Redox reactions 1: Acid soils

Acid soils comprises a teachers guide and video.

This resource engages students in the chemistry associated with the problems caused by acid sulfate soils. See the teachers guide for detailed information on the purpose and use of this resource.

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Redox reactions 2: Sulfide chemistry

Sulfide chemistry comprises a teachers guide and student procedure sheet with questions.

Students explore the chemistry of sulfide compounds through practical laboratory activities. See the teachers guide for detailed information on the purpose and use of this resource.

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Redox reactions 3: Acid soils and redox

Acid soils and redox comprises a teachers guide, learning object and student worksheet.

This resource explains how sulfide-rich deposits are formed and how acidic solutions result from their exposure. See the teachers guide for detailed information on the purpose and use of this resource.

Redox reactions 4: Bioremediation

Bioremediation comprises a teachers guide, procedure sheet and student worksheet.

This resource shows how scientists endeavour to solve acid sulfate soil problems through a practical investigation and a case study activity. See the teachers guide for detailed information on the purpose and use of this resource.

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