

STEM-CIP: The Great Mixing Bowl (Complete Set)

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Date 14 November 2011
Available:
ISBN: 978 1 74239 530 2
Code: CUR5264
RRP: \$199.00
Format: 204-page A4 binder, CD-ROM
Age Group: Years 5–10
Learning Area: Science; Maths; Technology
Category: Inquiry Learning; Activities and Exercises



Summary:

The revolutionary new practice of STEM teaches the related disciplines of Science, Technology, Engineering and Mathematics as one unit, emphasising their close relationship, rather than separately as in the past. In this module, students study how living and non-living things interact in an ecosystem. Students design and construct an instrument called a hydrometer and use it to measure different salinity levels in water samples. They then make decisions on how the hydrometer could be used to establish the correct salinity level for an aquarium. Students conduct web searches to locate pertinent information that they can apply to several performance-based products. In addition, students classify animals according to how and what they eat (herbivore, carnivore or omnivore), describe the interdependence of living things within an ecosystem (predators, available food and shelter) and describe behavioural and physical adaptations of life forms.

This binder and CD-ROM set holds the complete *The Great Mixing Bowl* unit – Teacher's Guide, containing background information, questions and answers, and classroom implementation instructions; Student Curriculum Module, the primary student text containing information, readings and instructions; and the Student Data and Response section, where students record and evaluate their work as they progress.

The CD-ROM contains PowerPoint presentations that serve as visual enhancements to the activities, and a complete copy of the contents of the binder in PDF form for ease of reproduction.

Related Resources:

- *STEM CIP: Motoring with Magnets: Complete Set* (CUR5261)
- *STEM CIP: 3-2-1 Lift Off: Complete Set* (CUR5262)
- *STEM CIP: Chip Off the Old Block: Complete Set* (CUR5260)
- *STEM CIP: Riding on a Pendulum: Complete Set* (CUR5263)

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The Great Mixing Bowl – Module Overview

Student Challenge: Write an informed letter to an environmental group, telling them whether an invasive species poses a potential environmental threat.

<p>Module Intent: Designing and conducting well-designed scientific investigations</p>	<p>Module Science Concepts:</p> <ul style="list-style-type: none"> • Ecosystems • Watersheds • Invasive species 	<p>Module Maths Concepts:</p> <ul style="list-style-type: none"> • Formula to calculate density • Calculating salinity • Temperature
<p>Module Engagement Introduces module ideas. Assesses background knowledge.</p>	<p>Activity 3: How Dense Are You? <i>Structured Inquiry</i> Concepts: Explores salinity and density</p>	<p>Activity 6: Look What Cargo Ships Dragged In <i>Guided Inquiry</i> Concepts: Explores cargo ships and ballast water, and the role of ballast water in the spread of the zebra mussel</p>
<p>Activity 1: Hitchhikers Create Menace <i>Structured and Guided Inquiry</i> Concepts: Explores and explains invasive species with emphasis on the zebra mussel and invasive species in Australia and local areas</p>	<p>Activity 4: Build and Calibrate a Hydrometer <i>Structured and Guided Inquiry</i> Concepts: Students engineer a hydrometer to measure levels of salinity</p>	<p>Activity 7: Chesapeake Bay: Food Chains and Food Webs <i>Structured and Guided Inquiry</i> Concepts: Explores food chains and food webs of the Chesapeake Bay</p>
<p>Activity 2: Water is Amazing <i>Structured Inquiry</i> Concepts: Explores properties of water, both chemical and physical</p>	<p>Activity 5: The Chesapeake Bay and Its Watershed <i>Structured and Guided Inquiry</i> Concepts: Investigates the concept of watersheds, the Chesapeake Bay watershed and the distribution of organisms in it based on salinity, water temperature and circulation of water</p>	<p>Activity 8: Stop the Invasion <i>Guided and Open Inquiry</i> Concepts: Students explore the zebra mussel in depth and apply their understandings to writing a persuasive letter to the Citizens of the Chesapeake Bay, informing them of the threat the zebra mussel poses to the Bay ecosystem</p>