LABORATORY LEARNING ACTIVITY

Composite materials: Overview

Summary

This activity is one of a number of activities that has its genesis in the materials science research conducted at Deakin University's Institute of Frontier Materials. The composite materials activity enables student to experience and investigate the way combining the properties of two materials (Styrofoam and duct tape) can result in a composite material of different properties: in this case in significantly increased strength. In the process the students learn about tension and compression forces.

This LLA unpacks how composite materials can respond differently to unbalanced forces.

Curriculum Outcomes: Australian Curriculum - Science F-10

Level 7

Science as a human endeavour

- People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE121)

Science Understanding: Physical sciences

- Change to an object's motion is caused by unbalanced forces, including Earth's gravitational attraction, acting on the object (ACSSU117)

Curriculum Outcomes: Victorian Curriculum F-10

Levels 7 and 8

Science Understanding: Science as a human endeavour

- Scientific knowledge and understanding of the world changes as new evidence becomes available; science knowledge can develop through collaboration and connecting ideas across the disciplines and practice of science (VCSSU089)
- Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (VCSSU090)

Science Understanding: Physical sciences

- Change to an object's motion is caused by unbalanced forces acting on the object; Earth's gravity pulls objects towards the centre of Earth (VCSSU103)
    - investigating the effects of applying different forces to familiar objects.

Curriculum Outcomes: Victorian Curriculum – Technologies F-10

Design and Technologies: Technologies Contexts

- **Engineering principles and systems**. Analyse how motion, force and energy are used to manipulate and control electromechanical systems when designing simple, engineered solutions (ACTDEK031)
- **Materials and technologies specialisation**. Analyse ways to produce designed solutions through selecting and combining characteristics and properties of materials, systems, components, tools and equipment (ACTDEK034)

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