

Materials Testing - Adhesives: Overview

Summary

Arising out of materials science research into the resins used in the manufacture of carbon fibre composite, this multi-part activity involves students in the testing of various adhesives. Beginning with testing of the putty-like adhesive Blu Tack and similar generic products, students investigate how adhesives stick to different surfaces. In the process, they apply the particle model of matter to develop an understanding the way cohesive and adhesive forces are responsible for the properties of adhesives. The second part of the activity involves students making their own glues from household products and testing the properties of these glues.

This laboratory learning activity (LLA) addresses a range of outcomes described in the Australian and Victorian Curriculum. It particularly addresses outcomes related to the particle model of matter, science inquiry and the application of science understanding in solving problems.

Curriculum Outcomes: Australian Curriculum - Science F-10

Levels 5 and 6

Science as a human endeavour: Use and influence of science

- Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083 & ACSHE100)

Levels 7 and 8

Science as a human endeavour: Use and influence of science

- People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE121 & ACSHE136)

Science Understanding: Chemical sciences

- Properties of the different states of matter can be explained in terms of the motion and arrangement of particles (ACSSU151)

Curriculum Outcomes: Australian Curriculum - Technologies F-10

Levels 5 and 6

Design Technologies

- Explore the characteristics and properties of materials and components that are used to produce designed solutions (ACTDEK004)

Curriculum Outcomes: Victorian Curriculum F-10

Levels 5 and 6

Science Understanding: Science as a human endeavour

- Scientific understandings, discoveries and inventions are used to inform personal and community decisions and to solve problems that directly affect people's lives (VCSSU073)

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: Chemical sciences

- The properties of the different states of matter can be explained in terms of the motion and arrangement of particles (VCSSU096)

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)

Curriculum Outcomes: Victorian Curriculum – Technologies F-10**Design and Technologies: Technologies Contexts**

- Engineering principles and systems. Investigate and make judgements on how the characteristics and properties of materials are combined with force, motion and energy to create engineered solutions (VCDSTC056)
- Materials and technologies specialisations
- Analyse ways to create designed solutions through selecting and combining characteristics and properties of materials, systems, components, tools and equipment (VCDSTC048)

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