

Experimenting with Electromagnets – Curriculum Links

By Doaa George

Australian curriculum

Year 7

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task.

Year 8

Chemical change involves substances reacting to form new substances

Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management.

Year 9

Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed.

Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer.

Year 10

Different types of chemical reactions are used to produce a range of products and can occur at different rates.

NSW Syllabus

Years 7-8

Appreciates the importance of science in their lives and the role of scientific inquiry in increasing understanding of the world around them

Identifies questions and problems that can be tested or researched and makes predictions based on scientific knowledge

Collaboratively and individually produces a plan to investigate questions and problems SC4-5WS

Follows a sequence of instructions to safely undertake a range of investigation types collaboratively and individually

Processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions

Selects and uses appropriate strategies, understanding and skills to produce creative and plausible solutions to identified problems

Presents science ideas, findings and information to a given audience using appropriate scientific language, text types and representations

Explains how scientific understanding of, and discoveries about, the properties of elements, compounds and mixtures relate to their uses in everyday life

Years 9-10

Appreciates the importance of science in their lives and the role of scientific inquiry in increasing understanding of the world around them

Develops questions or hypotheses to be investigated scientifically

Produces a plan to investigate identified questions, hypotheses or problems, individually and collaboratively

Undertakes first-hand investigations to collect valid and reliable data and information, individually and collaboratively

Processes, analyses and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions

Applies scientific understanding and critical thinking skills to suggest possible solutions to identified problems

Presents science ideas and evidence for a particular purpose and to a specific audience, using appropriate scientific language, conventions and representations

Discusses the importance of chemical reactions in the production of a range of substances, and the influence of society on the development of new materials

Victorian Syllabus

Years 7-8

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

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

Communicate ideas, findings and solutions to problems including identifying impacts and limitations of conclusions and using appropriate scientific language and representations

Chemical change involves substances reacting to form new substances

Years 9-10

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

Advances in scientific understanding often rely on developments in technology and technological advances are often linked to scientific discoveries

Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed

Different types of chemical reactions are used to produce a range of products and can occur at different rates; chemical reactions may be represented by balanced chemical equations

Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer

Guidance

Stage	Demonstrated inquiry	Prescribed inquiry	Structured inquiry	Guided inquiry	Open inquiry
Formulate, question and predict	No question	Provided question	Sharpened question	Learner selects	Learner poses questions
Plan	No planning	Provided procedure	Discussion with teacher	Guided during planning	Learner determines plans
Conduct	Teacher conducts	Conducting and recording method told	Sharpened plan and conduct	Guided during conducting and recording	Learner conducts and records
Process and analyse	Teacher analyses	Analysis method told	Discussed analysis	Guided analysis	Learner analyses data studying trends
Reason, solve and link back	No problem solving	Teacher provides reasoning and links	Discussed reasoning and conclusion	Guided reasoning and formulating conclusion	Learner reasons to formulate conclusions
Communicate and justify	No conclusion	Teacher writes conclusion	Student writes	Guided justification and findings	Learner justifies findings and conclusions