

## Rationale

Science provides an empirical way of answering interesting and important questions about the biological, physical and technological world. The knowledge it produces has proved to be a reliable basis for action in our personal, social and economic lives. Science is a dynamic, collaborative and creative human endeavour arising from our desire to make sense of our world through exploring the unknown, investigating universal mysteries, making predictions and solving problems. Science aims to understand a large number of observations in terms of a much smaller number of broad principles. Science knowledge is contestable and is revised, refined and extended as new evidence arises.

AusVELS Science provides opportunities for students to develop an understanding of important science concepts and processes, the practices used to develop scientific knowledge, of science's contribution to our culture and society, and its applications in our lives. The curriculum supports students to develop the scientific knowledge, understandings and skills to make informed decisions about local, national and global issues and to participate, if they so wish, in science-related careers.

In addition to its practical applications, learning science is a valuable pursuit in its own right. Students can experience the joy of scientific discovery and nurture their natural curiosity about the world around them. In doing this, they develop critical and creative thinking skills and challenge themselves to identify questions and draw evidence-based conclusions using scientific methods. The wider benefits of this "scientific literacy" are well established, including giving students the capability to investigate the natural world and changes made to it through human activity.

The science curriculum promotes six overarching ideas that highlight certain common approaches to a scientific view of the world and which can be applied to many of the areas of science understanding. These overarching ideas are patterns, order and organisation; form and function; stability and change; systems; scale and measurement; and matter and energy.

## Aims

AusVELS Science aims to ensure that students develop:

- an interest in science as a means of expanding their curiosity and willingness to explore, ask questions about and speculate on the changing world in which they live

**Bellbrae Primary School**

50 School Road  
Bellbrae, 3228  
Victoria

(03) 5261 2660

bellbrae.ps@edumail.vic.gov.au



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June 2015

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- an understanding of the vision that science provides of the nature of living things, of the Earth and its place in the cosmos, and of the physical and chemical processes that explain the behaviour of all material things
- an understanding of the nature of scientific inquiry and the ability to use a range of scientific inquiry methods, including questioning; planning and conducting experiments and investigations based on ethical principles; collecting and analysing data; evaluating results; and drawing critical, evidence-based conclusions
- an ability to communicate scientific understanding and findings to a range of audiences, to justify ideas on the basis of evidence, and to evaluate and debate scientific arguments and claims
- an ability to solve problems and make informed, evidence-based decisions about current and future applications of science while taking into account ethical and social implications of decisions
- an understanding of historical and cultural contributions to science as well as contemporary science issues and activities and an understanding of the diversity of careers related to science
- a solid foundation of knowledge of the biological, chemical, physical, Earth and space sciences, including being able to select and integrate the scientific knowledge and methods needed to explain and predict phenomena, to apply that understanding to new situations and events, and to appreciate the dynamic nature of science knowledge.

## Science Strands and Sub Strands

AusVELS: Science is organised around three interrelated strands: *Science Understanding, Science as a Human Endeavour and Science Enquiry Skills.*

Science Understanding	Science as a Human Endeavour	Science Inquiry Skills
<i>Biological Sciences</i>	<i>Nature and Development of Science</i>	<i>Questioning and Predicting</i>
<i>Chemical Sciences</i>	<i>Use and influence of Science</i>	<i>Planning and Conducting</i>
<i>Earth and Space Sciences</i>		<i>Processing and analysng data and information</i>
<i>Physical Sciences</i>		<i>Evaluating</i>
		<i>Communicating</i>

## Science Understanding

**Biological Sciences:** is developed around the understanding of living things

**Chemical Sciences:** is developed around understanding the composition and behaviour of substances.

**Earth and Space Sciences:** develops understanding about Earth's dynamic structure and its place in the cosmos.

**Physical Science:** develops an understanding of the nature of forces and motion, matter and energy.

## Science as Human Endeavour

**Nature and development of science:** This sub-strand develops an appreciation of the unique nature of science and scientific knowledge, including how current knowledge has developed over time through the actions of many people.

**Use and influence of science:** This sub-strand explores how science knowledge and applications affect peoples' lives, including their work, and how science is influenced by society and can be used to inform decisions and actions.

## Science Inquiry Skills

**Identifying and predicting:** Identifying and constructing questions, proposing hypotheses and suggesting possible outcomes.

**Planning and conducting:** Making decisions regarding how to investigate or solve a problem and carrying out an investigation, including the collection of data.

**Processing and analysing data and information:** Representing data in meaningful and useful way; identifying trends; patterns and relationships in data, and using this evidence to justify conclusions.

**Evaluating:** Considering the quality of available evidence and the merit or significance of a claim with reference to that evidence.

**Communicating:** Conveying information or ideas to others through appropriate representation, text types and modes.

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## Additional Information:

The AusVELS document will be used as a framework to plan the program in conjunction with other support material.

1. The Science Coordinator will oversee the implementation of the program throughout the year.
2. Where appropriate, Science will be integrated with other Learning Areas. Science curriculum content defined in AusVELS will guide a structured teaching and learning program across the year levels.
3. Science equipment and resources will be updated as required and within budgetary constraints.
4. The staff will be encouraged to attend professional development to ensure current knowledge and teaching methods are used.
5. The learning environment will be supportive, enabling students to develop scientific skills through experimenting, posing questions and taking risks.
6. As much as possible students will be involved in hands on, inquiry based activities.
7. Science excursions and incursions will be planned.
8. Where possible, a whole school science event will be planned at least every two years.

## Evaluation

- This Policy and Program will be reviewed as part of the school's three year review cycle.

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