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978-1-107-43226-0 - Science in Early Childhood: Second edition
Edited by Coral Campbell, Wendy Jobling & Christine Howitt
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Science in Early Childhood

Second edition

Science education in the early years is vital to assist young children to come to know and understand the world around them. This second edition of *Science in Early Childhood* has been substantially updated and revised to include comprehensive coverage of the birth-to-8-years age group. Drawing on the most up-to-date research, this edition presents current issues and debates that are relevant to pre-service teachers of early childhood science, both at pre-school and in the early years of schooling.

This text complements the Australian Early Years Learning Framework and the Australian Curriculum: Science. Each chapter helps develop knowledge of key areas of science and explains how to guide children's learning. Learning objectives and chapter overviews help readers identify key themes that will be covered, and the theory is brought to life through the use of detailed case studies and practical examples.

Written by experts in the field, *Science in Early Childhood* is essential reading for pre-service teachers.

Coral Campbell is Associate Professor in the School of Education at Deakin University.

Wendy Jobling is Lecturer in the School of Education at Deakin University.

Christine Howitt is Associate Professor in the Graduate School of Education at The University of Western Australia.

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Foreword

Teaching science to young children is a vitally important role. Taking natural curiosity and engaging with it in a way that encourages learning requires not just dedication, but a good understanding of education theory and its application.

If we are to have a prosperous, equitable future, we need good teachers who can impart scientific knowledge, focus intellect and nurture skills such as research, inquiry and problem-solving. These skills will be in high demand in the new economy and are central to us tackling challenges already identified and those yet to come. Whether it is our climate, our health, our ageing population, our food supply, our economy or our security, scientific discovery and the use of scientific knowledge will be at the core of our ability to respond.

That is not to say that every child who learns science will go on to be a scientist and nor do we want them to be. But we need all children to develop more than a passing knowledge of how science works, of statistics and probabilities, and of the need to seek out the evidence behind assertions. An understanding of the history of science and the importance of the scientific method will allow children to grow into people who have important contributions to make to society.

As the world continues to change at a rapid pace, science teaching must remain dynamic and reflect the latest and best techniques for guiding children’s exploration of that world. This book is an important resource for those who have been given the responsibility of teaching science.

I wish the authors every success.

Professor Ian Chubb
Australia’s Chief Scientist
April 2014

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Contributors

Elaine Blake is an early childhood education consultant based in Perth, Western Australia. Her career of more than 25 years has included teaching young children, working with undergraduate students in two Western Australian universities, coaching in-service educators and serving as Head of an independent junior school. Elaine’s PhD from Curtin University (in Perth) investigated, from a sociocultural perspective, science learning experiences of young children in early learning centres. Elaine is co-editor of the teacher resource book *Planting the Seeds of Science* and has taught and studied internationally. She was awarded Fellowship of the Australian College of Educators in 2011. Currently she serves on the Publications Committee of the Australian College of Educators and continues her work planning and delivering undergraduate course work in early childhood science education at Curtin University.

Coral Campbell is Associate Professor at Deakin University, Geelong, Victoria, teaching science education in the early childhood and primary pre-service bachelor’s and master’s degree courses. She has an undergraduate science degree, a postgraduate education degree and a PhD in science education. Over three careers spanning 42 years, Coral has contributed significantly to the fields of science, education and educational research. She is on the Editorial Board of the *Journal of Emergent Science* and a Director on the Board of the Australasian Science Education Research Association. Coral’s recent research has focused on early childhood science education, young children’s learning in science and teacher professional learning.

Kate Chealuck is Lecturer at Deakin University, Geelong, Victoria. She has worked at the university’s Institute of Koorie Education since 2008, having previously taught in primary and secondary schools for close to seven years. Currently completing a Master of Education in science education, Kate works with undergraduate students studying early childhood and primary education and with postgraduate pre-service teachers. Her interests are in science education, inclusive teaching practices and integrated learning. As a mother of four children under 7 years of age, Kate lives the early childhood experience in her daily life.

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Christine Howitt is Associate Professor in Early Childhood and Primary Science Education at the Graduate School of Education at The University of Western Australia, Perth. Her interests include early childhood and primary science teaching and learning, and curriculum development. Christine’s research has focused on young children’s science learning in both formal and informal contexts, more recently concentrating on the science teaching and learning opportunities provided within early learning centres. Christine is co-editor of the science resource *Planting the Seeds of Science*, the product of a two-year nationally funded project to develop science resources for early childhood teachers. She has been awarded various teaching excellence awards at the state and national levels.

Wendy Jobling is Lecturer at Deakin University, Burwood, Victoria. She joined Deakin University in July 2006 after having taught in Victorian state primary schools for more than 20 years. Her doctorate focused on the factors affecting the implementation of science and technology curricula in primary schools. Wendy has a long-held interest in teaching and learning in science education and has published extensively in the field. Since joining Deakin, Wendy has taught undergraduate primary and early childhood teacher education students, and postgraduate primary and early childhood teacher education students in science and design, creativity and technology units. She has also been involved in research into early childhood science and technology learning.

Jane Johnston is a retired Reader in Education (Associate Professor) at Bishop Grosseteste University, Lincoln, United Kingdom. She has taught and researched extensively, both nationally and internationally, in three distinct areas: early childhood studies, primary science education and practitioner research. She has worked as a primary classroom practitioner, undertaking projects in early childhood and primary science education. Jane has particular interests in children’s emergent scientific skills; among other things, she set up the international emergent science research network and coordinates the early years special interest group of the European Science Education Research Association. She is co-editor of the *Journal of Emergent Science* and the author of many books, chapters and journal articles

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Kathryn Paige is Senior Lecturer at the University of South Australia, teaching in the areas of primary school science and mathematics. She taught for 17 years in primary classrooms in a range of settings: rural, inner-city and in the United Kingdom. This was followed by three years as a Curriculum Officer in science and technology for the Education Department in South Australia. Her doctorate investigated primary teachers' beliefs and practices in thinking and working scientifically and technologically. Kathryn's research interests include pre-service science and mathematics education, education for sustainability and place-based education. She has written many chapters and journal articles, focusing on transdisciplinary approaches to the science curriculum.

Jill Robbins is Adjunct Senior Lecturer at Monash University, Frankston, Victoria. She has worked in the field of early childhood and primary science education for many years, with her teaching experience including master's and bachelor's degrees and pre-service programs. Jill's research interests have focused on these areas: young children's thinking; sociocultural perspectives on early childhood education; young children's understanding of natural phenomena; early childhood science; and mathematics in pre-school. Jill has presented her research at national and international conferences and has published widely in journals.

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