

SCIENCE IN EARLY CHILDHOOD

3rd
edition

Science education is crucial to young children’s discovery and understanding of the world around them. This third edition of *Science in Early Childhood* has been substantially updated to include the most current research, bringing together an author team of respected science education researchers from across Australia.

New chapters address changing priorities in early childhood science education, introducing coverage of STEM, inclusivity, Indigenous understandings of science, science in outdoor settings, intentional teaching and reflective practice.

This text complements the Australian Early Years Learning Framework and the Australian Curriculum: Science. Concepts are brought to life through detailed case studies, practical tasks and activity plans. Instructors can further supplement learning with the extensive materials located on the new companion website.

Renowned for its accessible and comprehensive content, *Science in Early Childhood* is an essential tool for all pre-service early childhood educators.

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Foreword

When I was five years old, an engineer named Jack Kilby demonstrated the first example of an integrated circuit: a computer chip. It was 1958, and I suspect that very few of the grown-ups noticed.

And who could blame them? Computers were in their infancy. Physically, they were enormous, filling entire rooms with heavy, hot and flammable equipment. In every other sense they were practically invisible, locked away in defence agencies or closely guarded university labs.

No-one looked at a young Alan Finkel and imagined that he would one day dictate this message to a device that he stores in his pocket, by the miracle of chips.

How different the world looks to the loving parents of a five-year-old today.

In just five years of life, she has been photographed on five generations of iPhones.

She has lived through the first ever detection of gravitational waves, a feat so stupendous that Albert Einstein himself thought that humans could never achieve it.

She was there for the arrival of technologies that make it possible to edit our basic coding, our DNA, cheaply and precisely.

Perhaps she's already travelled in an electric car. Perhaps her first car will be capable of driving itself. Perhaps she'll be able to travel into space as a tourist.

She can expect to live a full ten years longer than a baby girl of my generation. And however long she lives, we can say for certain that her world will be rich with opportunity, filled with humankind's great unfinished projects, and ripe for her contribution.

It would be easy to conclude that after thousands of years of raising humans, we know everything there is to know about education. It would also be easy to take the opposite position, and give up teaching science completely, thinking that nothing we know today could possibly be relevant to the adults our children will become.

Between the two extremes is the position that the thoughtful society adopts: to learn from the past, adapt to the present and strive to be even better in the future.

For that, we need great teachers, and inspired teaching. And the learning should begin from Day One.

From nought to eight in the lifespan of a human is a time of astonishing growth. As our hundred billion brain cells branch out into perhaps a quadrillion neural connections, we launch into our lifetime of learning.

We have done right by our children in those precious early years if we fire them with passion for that journey: if we help them grapple with questions and bring the role of science and mathematics to the fore.

To our present and future educators, I wish you every success on the path you have chosen. May this book help you to guide our children – and may science guide our nation into the future.

Dr Alan Finkel AO

13 December 2017

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