EXPLORATIONS IN SECONDARY SCHOOL SCIENCE

The book successfully merges practice and theory together to provide teacher candidates with a valuable resource as they begin their career as a secondary school science teacher in Canada.

As teachers of science, authors Erminia Pedretti and Katherine Bellomo created this resource to provide teacher candidates with essential knowledge, pedagogy, and skills to be successful in a contemporary science classroom, and to equip them with tools to critique, re-imagine, and transform the secondary school science experience for children. Explorations incorporates a broad range of education research perspectives and activities to support teacher candidates as they explore their beliefs, improve their pedagogical knowledge, and develop their judgement and decision making skills with respect to teaching and pedagogy.

Instructor Resources

- Instructor’s Resource Manual
- PowerPoint Slides
Brief Contents

Part I: A Vision for Science Education
Chapter 1: Teaching Science: Beginning the Journey
Chapter 2: Nature of Science (NOS)
Chapter 3: Equity, Diversity, and Social Justice in Science

Part II: Curriculum Design
Chapter 4: Curriculum That Meets the Needs of Students
Chapter 5: Curriculum Planning and Implementation
Chapter 6: Curriculum Fundamentals

Part III: Scientific Inquiry
Chapter 7: Scientific Inquiry and Laboratory (‘Lab’) Work
Chapter 8: Safety, Demonstrations, and Simulations
Chapter 9: Planning For Science “Labs”

Part IV: Science, Technology, Society, and the Environment (STSE)
Chapter 10: Science, Technology, Society, and Environment (STSE) Education
Chapter 11: STSE Education: Curriculum Planning and Pedagogy
Chapter 12: Environmental Education

Part V: Knowledge
Chapter 13: Knowledge and Learning
Chapter 14: Teaching Content Knowledge: Pedagogy and Principles
Chapter 15: Exploring Subject Matter–Content Knowledge in Science

Appendices
Appendix A: Strategies and Graphic Organizers
Appendix B: Preparing For the Practicum
Appendix C: Making a Successful Beginning to the School Year
Appendix D: Favourite Assignments

Features

- 21st Century Learning Skills and Competencies is a numbered list of the various skills and knowledge that students need to learn in school to meet the demands of the 21st Century appears at the beginning of each chapter.

- Critical research by renowned Canadian and international science educators both provides context unique for Canadian students and exposes teacher candidate to cutting-edge research data.

- Appendices conclude the text, and are designed to help students prepare for their practicum and plan for teaching and learning in their own classroom in the future. The appendices include: Strategies and Graphic Organizers, Preparing for the Practicum, Making a Successful Beginning to the School Year, and Favourite Assignments.

- Bringing it all Together sections provide two or three high-level end-of-chapter questions to stimulate class discussion or assign as homework.