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Foreword - An Indigenous Sense of Place (GREGORY CAJETE) -- PART I: CULTURE, LANGUAGE, KNOWLEDGE, AND PLACE AS FOUNDATION FOR LEARNING -- Chapter 1. Native Astronomy: A Skyward View (GREG CAJETE) -- Chapter 2. Listening to the People: Reforming science education through incorporation of Chuukese traditional knowledge (MARGARITA B. CHOLYMAY) -- Chapter 3. E ‘Imi I ke ‘Alanui, To Find the Way: A Native Hawaiian educator's Journey (ALYSON NAPUA BARROWS) -- Chapter 4. KahuaAo: Science education through Hawaiian-language newspapers (JASON K. ELLINWOOD AND JOHANNA KAPMAIKA‘I STONE) -- Chapter 5. ‘O kekumukeka‘ao, The story is the source: The discipline of ancestral stories in nurturing Native Hawaiian scientists (HUIHUI KANAHELE-MOSSMAN) -- Chapter 6. Developing a Framework for Integrating Systems of Local Indigenous Knowledge with Climate Education in the Mariana Islands (SHARON NELSON-BARBER, ELIZABETH DIAZ RECHEBEI, JOSE TILIPAO LIMES, ZANETTE JOHNSON) -- Chapter 7. Culturally responsive science education for rural students: Connecting school science with local heritages in Thailand (NANTANA TAPTAMAT) -- PART II: RESEARCH THAT TELLS OUR STORIES AND INFORMS POLICY AND PRACTICE -- Chapter 8. Perspective taking and psychological distance in children’s picture books: differences between Native and Non-native authored books (MEGAN BANG, JASMINE GURNEAU, LORI FABER, ANANDA MARIN, MICHAEL MARIN, DOUGLAS MEDIN, SANDRA WAXMAN, JENNIFER WOODRING) -- Chapter 9. Integrating Place, Indigenous and Western Science: Implications for Teacher Agency, Expertise, and Identity (PAULINE W. U. CHINN) -- Chapter 10. Keystone characteristics that support cultural resilience in Karen refugee parents (SUSAN HARPER) -- Chapter 11. Symmetry and halving: A way to teach mathematical foundations, based on the everyday knowledge of Yupiaq and Caroline Islanders (JERRY LIPKA, DORA ANDREW-IRHKE, MIUTY NOKAR, DAVID KOESTER, DONALD H. RUBENSTEIN, WALKIE CHARLES, EVELYN YANES, CAL HACHIBMA, RAPHAEL JIMMY) -- Chapter 12. Understanding the geology of the Colombian Amazon through indigenous eyes: educational potential of an ethnogeology of the Uitoto territory (CAROLINA LONDOÑO, STEVEN SEMKEN, ELIZABETH BRANDT, CRISTINA GARZON) -- Chapter 13. Indigenous rural students' attitudes and perceptions about ethnoscience in STEM instruction (SHARON NELSON-BARBER, ELISE TRUMBULL, URSULA SEXTON, ZANETTE JOHNSON) -- Chapter 14. Researching Mori and Mori-medium science education (GEORGINA STEWART) -- Chapter 15. Forum Kaupapa Mori science: A science fiction? (ELIZABETH MCKINLEY).

Sommario/riassunto

This book explores ways in which systems of local knowledge, culture, language, and place are foundational for STEM learning in Indigenous communities. It is part of a two-volume set that addresses a growing recognition that interdisciplinary, cross-cultural and cross-hybrid learning is needed to foster scientific and cultural understandings and move STEM learning toward more just and sustainable futures for all learners. Themes of learning from elders, through practice and place-based experiences are found across cultures. Each chapter brings a uniquely Indigenous point of view to the educational transformation efforts taking place in these distinct contexts. In the second section the chapters use authentic research stories to explain many ways in which regular disciplinary policies and practices can impact Indigenous students’ participation in STEM classrooms and careers. These authors go on to discuss ways to engage learners in STEM activities that are interconnected with the contexts of their lives.