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Nota di contenuto	1. Introduction; Judy Anderson and Yeping Li -- Section 1 Approaches to STEM Integration -- 2. STEM Education for the 21st Century; Russell Tytler -- 3. Facilitating STEM Integration through Design; Lyn English -- 4. A Review of Conceptions of Mathematics in Integrated STEM Education; Erin E. Baldinger, Sue Staats, Lesa M. Covington-Clarkson, Elena Gullickson, Fawnda Norman, and Bismark Akoto -- 5. What is the Role of Statistics in Integrating STEM Education? Jane Watson, Noleine Fitzallen, and Helen Chick -- 6. STEM and Numeracy in the Australian Curriculum; Anne Bennison and Vince Geiger -- 7. Investigating the epistemic nature of STEM: Analysis of curriculum documents from the USA using the Family Resemblance Approach; Wonyong Park, Jen-Yi Wu and Sibel Erduran -- 8. Using a proposed Integrated STEM Framework for Designing Lessons in the Singaporean Context; Tang Wee Teo, Aik-Ling Tan, & Kuang Wen Chan -- 9. Approaches to effecting an integrated STEM education in Southern Africa; Judah Makonye and Reuben Dlamini -- Section 2 Designing Integrated STEM Approaches for Students -- 10. Connecting mathematics and science in a US elementary classroom: Investigating computational thinking and the particle nature of matter through project based learning; Emily Miller, Samuel Severance and Joe Krajcik -- 11. Developing US elementary students' STEM practices and concepts in an after school integrated STEM project; Sasha Wang, Steve Swanson, Yuhui Ching, Youngkyun

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### Sommario/riassunto

This book provides a platform for international scholars to share evidence for effective practices in integrated STEM education and contributes to the theoretical and practical knowledge gained from the diversity of approaches. Many publications on STEM education focus on one or two of the separate STEM disciplines without considering the potential for delivering STEM curriculum as an integrated approach. This publication analyzes the efficacy of an integrated STEM curriculum and instruction, providing evidence to examine and support various integrations. The volume focuses on the problems seen by academics working in the fields of science, technology, engineering and mathematics (STEM) and provides valuable, high quality research outcomes and a set of valued practices which have demonstrated their use and viability to improve the quality of integrated STEM education.

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