1. Record Nr. UNINA9910961814403321

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Titolo	Inquiry-based science education / / Robyn M. Gillies
Pubbl/distr/stampa	Boca Raton : , : CRC Press, Taylor & Francis Group, , 2020
ISBN	9781000036213 1000036219 9781000036312 1000036316 9780429299179 0429299176
Edizione	[First edition.]
Descrizione fisica	1 online resource : illustrations
Collana	Global science education
Disciplina	507.1
Soggetti	Science - Study and teaching Inquiry-based learning SCIENCE / Chemistry / General
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1: Inquiry-based science BACKGROUND INQUIRY-BASED SCIENCE USING INQUIRY-BASED SCIENCE TO CHALLENGE THINKING Cooperative Learning Activities Strategies to help students learn to work cooperatively together Group size Group composition. Type of task Individual reflection activity Groups Action Plan Characteristics of Complex Tasks CHALLENGES IMPLEMENTING INQUIRY-BASED SCIENCE CHAPTER SUMMARY ADDITIONAL READINGS Chapter 2: Visual, embodied and language representations in teaching inquiry based-science: A case study INTRODUCTION TYPES OF REPRESENTATIONS Purpose of the case study METHOD Context for the study Inquiry-based science unit Data collection Teacher measures RESULTS AND DISCUSSION The inquiry-based science lessons Lesson 1: Engage Lesson 2: Explore Lesson 3: Explain Lesson 4: Elaborate Lesson 5: Evaluate CHAPTER SUMMARY ADDITIONAL READINGS Chapter 3: Developing scientific literacy INTRODUCTION BACKGROUND SCIENTIFIC LITERACY Questions that challenge childrens understandings Question Stems and Cognitive Processes The discourse of science Encouraging

audience participation Linguistic Tools that promote student discussion Accountable Talk Exploratory Talk Philosophy for Children (P4C) CHAPTER SUMMARY ADDITIONAL READINGS Chapter 4: Promoting scientific discourse INTRODUCTION DIALOGIC TEACHING Example of Dialogic Teaching Dialogic interactions in a cooperative group setting STRATEGIES TO PROMOTE DIALOGIC INTERACTIONS DIALOGIC STRATEGIES FOR STUDENTS Critical Thinking Skills CHAPTER SUMMARY ADDITIONAL READINGS Chapter 5: Structuring cooperative learning to promote social and academic learning INTRODUCTION COOPERATIVE LEARNING BENEFITS OF COOPERATIVE LEARNING Advantages of small, cooperative group instruction Types of cooperative learning groups KEY ELEMENTS IN COOPERATIVE LEARNING Skills that Facilitate Interpersonal Communication STRATEGIES FOR CONSTRUCTING COOPERATION IN GROUPS STRATEGIES FOR ASSESSING COOPERATIVE LEARNING CHAPTER SUMMARY ADDITIONAL READINGS Chapter 6: The Structure of Observed Learning Outcomes (SOLO) Taxonomy: Assessing students reasoning, problem-solving and learning INTRODUCTION THE SOLO TAXONOMY FIVE LEVELS OF THE SOLO TAXONOMY INTENDED LEARNING OUTCOMES Examples of the increasing complexity in students language: Using the SOLO Taxonomy CHAPTER SUMMARY ADDITIONAL READINGS

Sommario/riassunto

Students often think of science as disconnected pieces of information rather than a narrative that challenges their thinking, requires them to develop evidence-based explanations for the phenomena under investigation, and communicate their ideas in discipline-specific language as to why certain solutions to a problem work. The author provides teachers in primary and junior secondary school with different evidence-based strategies they can use to teach inquiry science in their classrooms. The research and theoretical perspectives that underpin the strategies are discussed as are examples of how different ones areimplemented in science classrooms to affect student engagement and learning. Key Features: Presents processes involved in teaching inquiry-based science Discusses importance of multi-modal representations in teaching inquiry based-science Covers ways to develop scientifically literacy Uses the Structure of Observed learning Outcomes (SOLO) Taxonomy to assess student reasoning, problem-solving and learning Presents ways to promote scientific discourse, including teacher-student interactions, student-student interactions, and meta-cognitive thinking