Ramps & Pathways: A Constructivist Approach to Physics with Young Children

Rheta DeVries, University of Northern Iowa
Christina Sales, University of Northern Iowa

Description
If you think the words young children and physics don't belong together, think again. Based on the theories of Piaget and the work of DeVries and Sales, this book successfully makes the case for building a constructivist approach to physical science learning in the early childhood classroom. Reviews how children construct content knowledge and the mental ability to organize knowledge (intelligence). Explains why ramps activities engage children deeply in reasoning about physical objects and phenomena such as force and motion, across a range of ages and developmental levels, even over several years. Provides a rationale you can use to explain and defend the educational value of children's play and exploration. Shows you how to apply the 10 principles of constructivist teaching in your classroom. Includes dozens of full-color photographs of children's amazing structures. -- Provided by publisher

Keywords
Physics -- Study and teaching (Primary); Physics -- Study and teaching (Early childhood); Early childhood education;

Document Type
Book

ISBN
9781928896692

Publication Date
2011

Publisher
National Association for the Education of Young Children

City
Washington, DC

Department
Department of Curriculum and Instruction

Object Description
vii, 103 p. : col. ill. ; 21 x 23 cm.

Language
en

Recommended Citation
DeVries, Rheta and Sales, Christina, "Ramps & Pathways: A Constructivist Approach to Physics with Young Children" (2011). Faculty Book Gallery. 197.
https://scholarworks.uni.edu/facbook/197
Young children are engineers in the sense that they modify the world to satisfy their own needs and wants. This paper describes how teachers in a constructivist early childhood program created an environment where young children would naturally gravitate toward designing and building intricate block structures to nurture their developing abilities in engineering and design. The teachers introduced a project called Ramps and Pathways to push children to further develop their emerging abilities. Ramps & Pathways: a Constructivist Approach to Physics with Young Children. National Association for the Education of Young Children, 2011. Reflection: During this lesson, the students were very engaged and seemed very excited to have the opportunity to create a ramp in their own individual way. To begin the lesson Victoria and I sat at the art table with 3 students, and asked if they would like to make a ramp for us. All of the students said yes and were given a white piece of paper and were told they could use any materials they would like to create their ramp. This art lesson was conducive to our book Ramps & Pathways: A Constructivist Approach to Physics with Young Children describes how children learn about force and motion at a practical level so later they can better understand these science ideas at a conceptual level.” From 2001 to 2007, they were part of a team who developed and implemented a demonstration of constructivist education at Freeburg School in Waterloo, Iowa. How did it begin? • The story begins in the 1970's with collaboration with Constance Kamii and teachers at the University of Illinois Chicago's Child Care Center. • They drew from Piaget's work idea of