Exploring Simple Machines With Creative Movement

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EXECUTIVE SUMMARY

This chapter explores the use of creative movement to extend meaning to inquiry-based science investigations. This process embraces the addition of A to STEM to realize the impact of STEAM. The chapter builds on the import of scientific and physical literacy, interdisciplinary learning, and the power of kinesthetic engagement. Students become active collaborative agents within a dynamic model using creative movement to bring meaning to the science of simple machines. We utilize a Working Words into Movement strategy to help students use their past experiences and motor memory to explore, interpret, and engage with as they seek understanding of simple machines. A Midwest urban elementary school provides the context for a unit plan culminating in a dance performance. The foundational ideas presented within this unit can be enacted within any classroom by creative movement (physical education or dance) specialists, science specialists, or classroom generalists. It follows with a presentation of science content on simple machines exploring the disciplinary core idea of force and motion.

INTRODUCTION

In the current climate of high-stakes testing and educational accountability extreme pressure is being placed on schools. Career and College Ready is a catchy binary that serves the needs of adults to create order out of the messy process of educating young people. Those young people, however, may be better served by the less structured—and admittedly more challenging to evaluate—framing of educational goals as, "Life Ready." To be life ready Learners must achieve alpha and numeric literacy as well as habits of inquiry, understandings of history and systems, skills to effectively steward, aesthetic awareness, physical well-being, and most of all, self-efficacy and critical thinking. To accomplish this more ambitious goal of education rather than schooling, teachers must build meaningful relationships with students and, from an instructional standpoint, use every minute twice. Interdisciplinary teaching and learning is a critical tool in delivering dynamic and engaging content to students at the same time as it supports reflection, creative thinking, and critical problem solving.

In this chapter, we will explore the richness achieved when providing multiple and diverse representations of scientific concepts brought about with an accompanying focus in creative movement. We begin with a pedagogical background from both science and creative movement. This leads to a block plan for a sample unit in simple machines that can be carried out in the classroom while suggesting a framework for visualizing the means to integrate movement into any lesson. Our goal and hope is that the reader can walk away empowered by the interdisciplinary vision of including The Arts in STEM bringing to life the powerful potential of a STEAM-focused curriculum.

LITERATURE REVIEW

Scientific Literacy

Within an increasingly complex and technological world facing growing global sustainability issues, it is critical our nation's students develop a foundational level of scientific literacy. Whether they become scientists, journalists, or refuse handlers, their participation in today's world requires the ability to think critically and act responsibly based on sound information and judgment. It will be the abilities to think and act that allow us to maintain and improve the quality of life for future generations to come. Through the process of teaching STEM concepts through movement and teaching movement competency framed in STEM content we can

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