

Chapter 5

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. The authors utilize 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. The catchy binary of “Career and College Ready” serves adults’ need to apply order to 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—“life ready” educational framework. To be life ready learners must achieve alpha and numeric literacy as well as inquiry habits, history and systems knowledge, stewardship skills, aesthetic awareness, physical well-being, and most importantly, self-efficacy and critical thinking. To accomplish the ambitious goal of educating students rather than schooling them, teachers must build meaningful relationships with them and, from an instructional standpoint, use every minute twice. Interdisciplinary teaching and learning are critical tools to simultaneously deliver dynamic and engaging content to students as they support reflection, creative thinking, and critical problem solving.

In this chapter, the authors will explore the richness culminated when multiple and diverse scientific concepts are paired with creative movement in the classroom. First, a pedagogical background from both science and creative movement will be provided. This leads to a block plan for a sample unit in simple machines that can be carried out in the classroom, accompanied by suggestions about ways to integrate movement into any lesson. The authors’ goal and hope are that the reader can walk away empowered by the thought of transforming their classroom into an interdisciplinary space, including the arts in STEM (science, technology, engineering, and mathematics education) and bringing to life the powerful potential of a STEAM₂-focused curriculum.

LITERATURE REVIEW

Scientific Literacy

Within an increasingly complex and technological world facing emergent global sustainability issues, it is critical for American 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. It will be the abilities to think and act that allow our students to maintain and improve the quality of life for future generations. By kinesthetically teaching STEM concepts and teaching movement competency framed in STEM content, educators can empower their students to have the agency and confidence to become active participants rather than mere observers in the world.

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