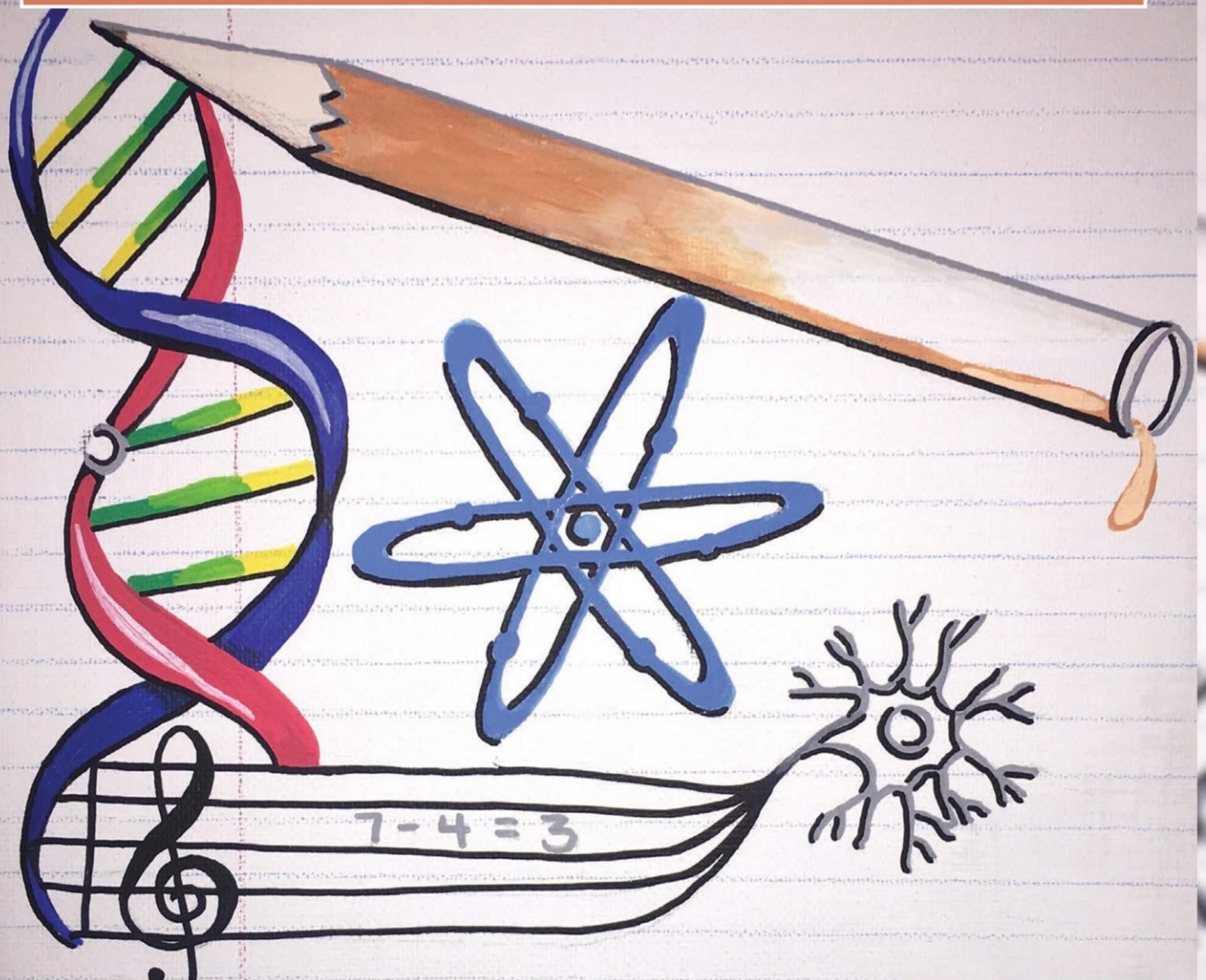


# Pump It Up

## Literacy Activities for the Classroom

Joanne Kilgour Dowdy and  
Yang Gao (Eds.)



*SensePublishers*

**Pump It Up**



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*Literacy Activities for the Classroom*

*Edited by*

**Joanne Kilgour Dowdy and Yang Gao**

*Kent State University, Ohio, USA*



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A. HONIGSFELD

## INTRODUCTION

Literacy is a complex endeavor. Think of a three-year-old, who eagerly listens to the same bedtime story he hears night after night chiming in occasionally and catching you if you miss a word or mistakenly turn the page without finishing the last paragraph. Or picture a four-year-old, who relentlessly scribbles her name on any available surface—walls, kitchen cabinets, and endless reams of paper—to leave a mark. How about the five-year-old who can't wait to go to kindergarten and begin to read and write independently. Throughout a child's and adolescent's literacy life, there are milestones and challenges, successes and struggles. Literacy development becomes a sustained endeavor that spans across the grade levels and is infused in every school activity. Oracy, or oral language development, is intertwined with the emergence of reading and writing skills along with the learning of new content and skills across the core disciplines. This is no small feat for a child to achieve! It must be a concerted effort by all educators to help develop such critical skills for students to be successful in literacy.

Have you heard, spoken, pondered or perhaps protested the idea that “all teachers are reading teachers?” Would it be more accurate to say that all teachers must nurture their students' literacy development, regardless of the grade level they teach or the content area in which they specialize? Literacy may be conceived to be at the core of all instruction that prepares students not just to be college- and career-ready but life- and world-ready as well, thus it deserves special attention.

It has been established that during their academic career, children progress through four major literacy roles as they develop more and more advanced literacy skills (Fang, 2012). These four roles are developmental and incremental as well as interconnected and interdependent in their trajectory. Students develop their skills as code-breakers, meaning-makers, text-users, and text analysts/critics, while also acquiring new conceptual understandings across the core content areas in the process:

1. As code-breakers, students begin by developing foundational literacy skills that provide the basis for decoding text written in English, whether presented in print or digital formats.
2. As meaning-makers, they begin to make sense of what the text they are reading means. First they are most likely to figure out the literal meaning of any text; however, with appropriate scaffolding and support, students begin to unlock further layers of meaning and uncover text complexity.

#### A. HONIGSFELD

3. As text-users, readers start to expand their reading skills and tackle a range of text types and genres. They not only comprehend what they read, they also become apt at reflecting upon and responding to those texts. When students make reading choices for themselves, their literacy lives become more authentic and enriched as well.
4. As text analysts and critics, students take the next steps to independence and respond to what they read analytically and critically: they analyze, synthesize, and evaluate the readings while also participating in meaningful discussions with peers and their teachers.

These four roles offer a possible frame of reference for understanding literacy development. The contributors to the *Pump It Up: Literacy Activities for the Classroom* volume recognize that developing literacy is an intricate process that requires highly engaging and motivating learning experiences at every stage and in every content area. The seven sections of the book are thematically organized to allow for interrelated teaching ideas to be presented together. In *Section I: Exploring the Scientific World*, chapter authors connect science learning to a specific literacy and literary experiences as they share practical strategies for creative writing (Sarah Raven), vocabulary development (Jessica Wilson), and dramatic exploration of the scientific method (Amber Poponak).

*Section II: Becoming an Artist* contains a collection of chapters that connect literacy learning to visual and performing art. Each author takes a unique approach while offering step-by-step directions for both novice and experienced teachers to explore different art forms—music (Kayla J. Titko), mask making (Joanne Kilgour Dowdy), poetry (Mary E. Weems) and art and drama (Lauren J. Lutkus)—through literacy activities. The next section offers a rich collection of literacy and language arts strategies. *Section III: Appreciating the Beauty of Languages* helps uncover deeper levels of language using word associations (Rachel Foot), photography (Jessica Cervenak), poetry making (Tarah Kerr), video technology (James Nageldinger) and maga(zine) publishing techniques (Karen Andrus Tollafield).

To further expand and deepen the power of literacy learning, social studies, politics, and history are connected to literacy development in *Section IV: Embodying Social Justice*. Through topics of equity, diversity, identity development, and ethical dilemmas, chapter authors present both theories that support the suggested activities and specific steps for implementing the strategies they describe: how to use picture books for identity construction (Brenda Boshela), exploring a sense of belonging (Kenneth Cushner) and the means to construct family narratives (Gabriel Swarts).

*Section V: Developing a Healthy Mind and Body* takes the reader beyond the core subject matters and infuses literacy learning into Health and Physical Education through language awareness activities (Takahiro Sato) and through exploring social inequalities (Jennifer L. Walton-Fisette). As poignantly suggested by Molina (2012), the problem with math is English. Understanding and effectively using the language and literacy of mathematics must be well supported with experiential, meaningful

writing activities. Chapter authors contributing to *Section VI: Playing with Numbers* offer several powerful writing strategies within the context of mathematics instruction, with the purpose of helping students better formulate mathematical problems (Joanne Caniglia), deconstruct complex information (Karl W. Kosko) and enhance their mathematical reasoning and communication through electronic journaling (Margaret Bruder).

Finally, in *Section VII: Teaching in a Multicultural World*, literacy is explored through the lens of working with English learners while celebrating the richness of their lived experiences and enhancing their schooling with well-supported, scaffolded learning opportunities. The range of approaches shared in this section include game-like activities to enhance ELL's reading and writing skills (Yang Gao and Joanne Kilgour Dowdy), culturally-relevant pedagogy achieved through ethnoautobiography (Natasha H. Chenowith), a visually enhanced thematic unit on friendship (Jennifer L. Nigh), the use of fiction to increase motivation and comprehension (Aseel Kanakri), sharing children's literature (Mariana Romero), and using personal narrative writing (Steven L. Turner).

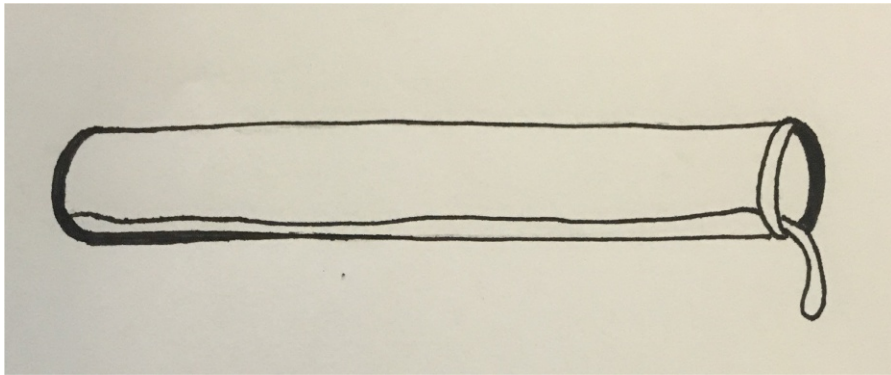
These chapters offer a unique approach to literacy education. Theory and practice are thoroughly intertwined, the clarity of each activity is carefully established, and ease of implementation is ensured through specific steps authors describe based on authentic classroom scenarios. ***Pump up your literacy instruction*** with *Pump It Up!*

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**SECTION I**  
**EXPLORING THE SCIENTIFIC WORLD (SCIENCE)**



SARA RAVEN

## 1. PROMOTING CREATIVITY THROUGH WRITING IN SCIENCE

*The greatest scientists are artists as well.*

– Albert Einstein

### ABSTRACT

Writing is an essential aspect of science, yet in science classrooms, the writing tasks usually assigned stem from written lab reports, which emphasize neither the creative nor personal aspects of science. In this activity, students will display their knowledge of science by creating a children's book that distills a complicated science concept into an easily understandable text. This activity provides students with an opportunity to create, engage, and discover their own misconceptions.

### BACKGROUND AND PURPOSE

Writing is an essential aspect of science: we document and interpret data, communicate with colleagues, organize and record thoughts, and disseminate written results. In middle and secondary science classrooms, science-writing tasks usually revolve around lab reports. Reports are an important aspect of writing in science, as they are one of the most common documents that postsecondary science students will be asked to create. However, while lab reports can help students focus on some essential aspects, other forms of writing can provide additional learning opportunities. Writing helps students learn in multiple ways: As they try to explain the concepts they are learning, they may discover gaps in their knowledge. When they use analogies to describe how something new is like something they already know, they link new knowledge to prior knowledge, strengthening both. In translating between everyday language and scientific language, they clarify their ideas (Wheeler-Toppen, 2011).

Most importantly, writing gives students permission to be creative in science and to uncover how their personal experiences connect to the content (Montgomery, 2005), two aspects of science that are notoriously difficult to address.

There are many ways that science teachers can address these essential aspects through writing. Turner and Broemmel (2011), describe several writing tasks that provide “legitimate, purposeful writing practice while promoting solid science learning and review” (p. 18), including: writing hypothetical letters to a scientist, writing technical or scientific directions, scientific reporting, writing fictional

explanations of scientific phenomena, or news clip observations. Although each of these activities is useful, I wanted to focus on providing students not only with opportunities to practice writing, but to practice seeing the creative side of science. Focusing on the creative aspect in science is immensely useful. The Next Generation Science Standards address creativity in both the section on scientific practices (“... the work of scientists and engineers is a creative endeavor—one that has deeply affected the world they live in”) and the nature of science (“Scientists and engineers rely on human qualities such as persistence, precision, reasoning, logic, imagination and creativity”) (NGSS Lead States, 2013). In addition, leading students to create engages higher order thinking processes (Krathwohl, 2002).

In this activity, each student is asked to choose a science concept from the unit that they self-identify as difficult or challenging. They are then tasked with creating a children’s book, including illustrations, that explains the concept(s) in a way that an elementary school-level student could understand. This activity can be used as a formative or summative assessment for students in grades 7–12 with a wide variety of science units (examples provided in Table 1). In the sections that follow, I outline the learning objectives, procedure, and provide an example of the outcome.

#### LEARNING OBJECTIVES

*Students will be able to:*

- Explain a science concept through writing;
- Create illustrations that explain a scientific concept;
- Uncover lingering misconceptions about a particular science concept; and
- Practice the creative aspect of the nature of science.

#### PROCEDURE

The following procedure depends on the grade level and unit in which the activity is being used. Each step is designed for individual students to follow, with prompts for teachers to assist:

1. *Select a concept from the science unit* that proved difficult or challenging to understand. The concept should be something that is discussed at both the middle/high school level and the elementary school level. For instance, the Next Generation Science Standards focus on plant needs for growth in the grade 2 standards and the high school standards: “Plants depend on water and light to grow. (2-LS2-1)” and “Photosynthesis and cellular respiration (including anaerobic processes) provide most of the energy for life processes. (HS-LS2-3)”
2. *Create a concept map or graphic organizer* to break down the details of the topic and highlight the important aspects. For this step, prompt students to think about the ways in which they would explain the concept to a fellow student or to a member of their family.