

Writing Mathematical Nursery Rhymes

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Students take ownership of their learning by becoming authors and illustrators of their own work. Students employ a writing technique, copy change, which provides a framework to guide their mathematical writing. The following demonstrates how students can be engaged and thinking about mathematics while constructing their own text.

Introduction

Students and teachers alike bring their own lenses, preconceptions and assumptions that are socially constructed by previous experiences. These beliefs can change as we grow and acquire new knowledge. Knowing that we construct our understandings from experience, the more experiences we can provide students the better understandings they will have. Students have to be able to make connections between their learning experiences and see how they can apply what they're learning in their daily lives. One technique to aid in this process as well as focus on communicating mathematically, which is one of the five goals the National Council of Teachers of Mathematics

(NCTM, 2000) presents for all students, is called a *copy change*. A copy change is a writing technique that utilizes another's writing structure as a skeletal framework for one's own writing (Dierking, 2002).

Nursery Rhymes as a Support for Student Writing

Infusing writing into math, teachers can use nursery rhymes as the framework and have students write their own mathematical nursery rhyme books. Figure 1 shows an excerpt from "Old MacDonald Had an Equation."

Students begin by choosing a favorite nursery rhyme they remember from their childhood or can research to find a

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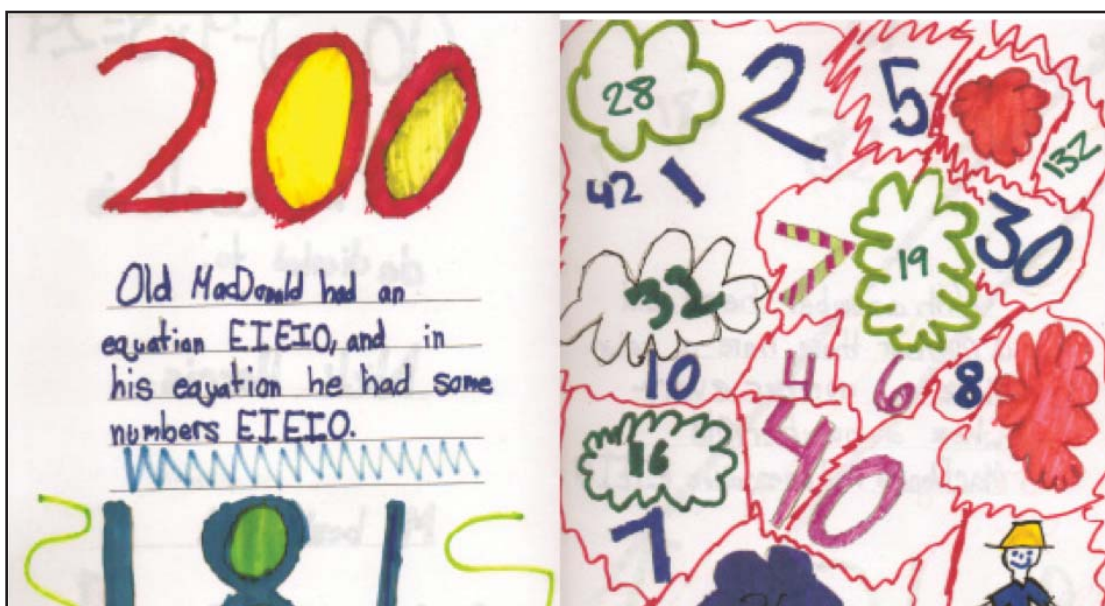


Fig 1 Excerpt from student-authored "Old MacDonald Had an Equation."

new favorite, thus integrating technology as well. Once students have chosen a particular nursery rhyme they can begin brainstorming the mathematical topic they would like to communicate to their readers. Teachers may want to have each student choose a different topic or they can brainstorm a list of topics as a class. Then students can randomly choose a topic from the generated list. To differentiate for students who may begin to struggle in the prewriting stage, teachers might suggest incorporating the use of a graphic organizer to help display their ideas before having them try to fit the rhyme/rhythm of the chosen nursery rhyme.

In creating their books students are not only the authors but illustrators too, giving them ownership of their learning. As students get deeper into the project teachers will find them naturally conferencing with one another and engaging in discussions with their peers to assist in making choices about illustrations, and as part of their revision process. Once students have completed their final copies teachers can have them design a front and back cover. A recommendation would be to laminate at least the front and back covers so they

enjoy a longer shelf life. Then the possible extensions teachers can do are endless. To strengthen the home-school ties, teachers can have a “Meet the Author Night” and allow students to celebrate and share their books with family, friends and the community. Teachers can also pair up with other classes and/or grade levels and allow students to read their books, providing them an opportunity to share their choices for illustrations, characters chosen, mathematical content, design and layout, etc.

In Summary

Mathematical nursery rhymes can be utilized at any grade level as students are challenged with writing about a concept in order to communicate their understanding to others. They provide benefits for both teachers and students. Teachers are able to identify possible misconceptions, use the information obtained to guide future planning, and keep students engaged. Students have to think, reason, and be able to communicate what they’re learning which will in turn build upon their conceptual understandings and foster connections

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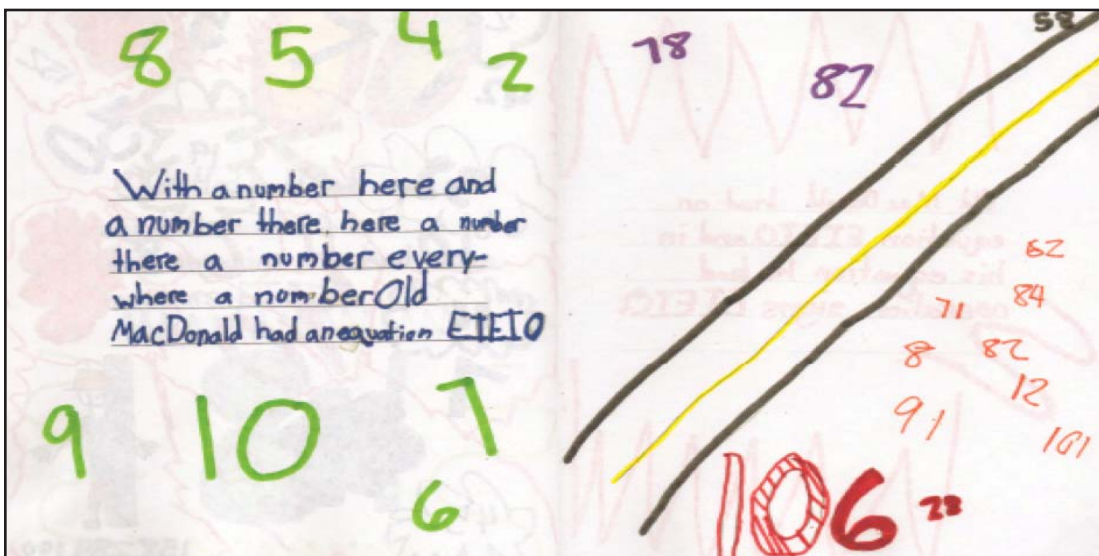


Fig 2 Excerpt from student-authored “Old MacDonald Had an Equation.”

between ideas. These personal self-created products will empower students, give them a sense of ownership for their learning, and will resonate more than just having them calculate answers from a textbook.

References

- Dierking, R. (Fall 2002). Creative copying, or in defense of mimicry. *The Quarterly* 24(4).
- National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Reston, VA: Author.



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In the Cleveland area, historically a center of metalworking and rubber production, more than 40,000 manufacturing workers lost their jobs in the recession, a 21 percent decline, according to an analysis of employment data by Cleveland State University. Since the beginning of the year, the region has added 4,500 positions. Employers say they are looking for aptitude as much as specific skills. "We are trying to find people with the right mindset and intelligence," said Mr. Murphy.

Motoko, R. (2010, July 1). Factory jobs return, but employers find skills shortage. *New York Times*. Retrieved from <http://tinyurl.com/jobs-nytimes>

Think about it!

"... almost all the neuronal activity is entirely internal. Little is dedicated directly to the peripheral tasks of vision, or hearing, or other senses, or motor performance. Most of it is dedicated to thinking."

Lynch, G. & Granger, R. (2008). *Big brain: The origins and nature of human intelligence*, 51. Palgrave MacMillan. New York, NY.