Students Realize
Mathematics
Is Everywhere!

When I announced to my fifth-grade students that the books they created would be on display at the local Barnes & Noble bookstore, their faces glowed and their mouths opened wide. I could see that the students felt a sense of accomplishment and pride in their work; I even heard a few cheers! Only a few months earlier, many children would not have believed me when I said that mathematics is everywhere. Children do not usually recognize the significance of mathematics in their daily lives. Instead of letting children continue to see mathematics as an unnecessary chore and to be afraid of it, I decided to create a project that would encourage them to explore mathematical concepts and skills and, at the same time, realize how useful they really are.

“Math Curse” Project
I discovered a way to help my fifth-grade students face their fears of mathematics through a project titled “Math Curse.” I introduced the project by reading Math Curse (1995), written by Jon Scieszka and illustrated by Lane Smith, to the class. Math Curse is a humorous story about a girl who believes that her teacher has put a math curse on her. As she goes through the day, she realizes that her life is made up of word problems and that everything she does somehow relates to mathematics. When she finds that mathematics can be a cure, not a curse, for her daily problems, the curse is broken. As a bonus, I also showed the students part of the Reading Rainbow videotape “Math Cure” (1998), in which Math Curse is the featured book.

To help students see that mathematics is everywhere, and to aid the math phobics, I immersed the class in real-life applications of the mathematical concepts the students had acquired during the school year. For the project, the children were asked to write their own versions of Math Curse, using the picture book as a model. The students’ books were required to have a dedication page, a title page, information about the author, and illustrations; the story itself had to contain at least ten word problems. Answers were to be written on the back cover. I also asked the children to make hard covers for their books. Students used the writing process, which we cover during our communications lesson, in constructing their stories. The writing process involves several stages of development, commonly called prewriting, drafting, revising, editing, and publishing. Students were to ask their peers, parents, and teacher to listen to their stories and help them revise their manuscripts.

The students’ books were to describe their experiences during the day, from the time they woke up until bedtime. Children had the flexibility to create their own types of word problems using a variety of concepts and topics that our fifth-grade curriculum
focused on during the year, including fractions, place value, geometry, decimals, and percent. I briefly reviewed the list of concepts and topics learned during the year, along with various strategies for solving word problems, such as guess and check, make a list, write an equation, solve a simpler problem, and use logical reasoning. To further assist the students, I provided various models for how to create a book.

My goal was for the children to use an interdisciplinary approach combining their deductive reasoning skills, mathematical knowledge, and writing expertise. The project also served as an alternative form of assessment in contrast to a traditional pencil-and-paper test. The students explored mathematics using their imaginations and creativity and were allowed to focus on topics and concepts that interested them. On the day that the books were due, students exchanged them in class. They solved one another’s math curse problems, then held conferences to correct the authors’ or readers’ mistakes.

Each student completed a word problem check sheet (see fig. 1) while solving another student’s problems. Students wrote their answers on the sheet, then checked their answers with the author’s on the back of the book. Incorrect answers were noted on the check sheet, and the student reader and author then held a conference. During the conference, the two students reviewed any word problems that were marked incorrect and worked together to resolve the inaccuracies. Together, they might conclude that the reader overlooked information or misread the problem and the word problem could be solved correctly or that the problem was indeed incorrect. After the students reached consensus on the answers to the problems, the reader noted the number of problems at the top of the check sheet, and the author of the book signed the sheet to acknowledge his or her agreement.
Math Project Sheet: Math Curse Story

Draft of Story Due on: ______________________________
Final Book Due on: ______________________________

Objective: Create your own “Math Curse” book using at least ten word problems throughout the story.

In math class we read Math Curse by Jon Scieszka and Lane Smith. Write your own “Math Curse” book about your day using at least ten word problems—one for each part of your day or event in your day (wake up, lunch time, at school, bedtime, etc.).

Requirements:
1. The story must tell about one day (beginning when you wake up).
2. Use at least ten word problems.
3. Give the answers to the word problems on the back cover. (Answers should be written upside down—as on the cover of the original Math Curse book.)
4. Have an interesting front and back cover. Be sure to include the words “Math Curse” in the title of your book.
5. Answers to the word problems must be correct. (Check your work, and ensure that your word problems make sense.)
6. Have colorful illustrations throughout your story, including the front and back cover.
7. Include “special pages”: title page, dedication page, and “about the author” page. (You may want to include a photo of yourself on the “about the author” page.)
8. Type or handwrite your story in blue or black ink.
9. Be creative, humorous, and accurate. Use your imagination!

Grading is based on:
1. Proper punctuation, spelling, and grammar
2. Neat and attractive presentation
3. Story composition
The community relations manager at the local Barnes & Noble bookstore was willing to give the young authors space in the store for display. The children felt a sense of accomplishment and were proud of their hard work. The books were on display in the children’s department, right next to the original version of *Math Curse*. In addition to allowing parents to browse through the children’s work, the display strengthened the parent-school-community connection by showing customers in the community one of the many projects the students do at school.

**Managing the Project**

Because the project requires an extended period of time to complete, students should be given intermediate deadlines for various stages. An initial project sheet (see fig. 2) can be sent home with the due dates of the project. The project sheet also serves as a checklist of all items that need to be included in the book, and tells how to put the book together. Parents are asked to sign the project sheet to acknowledge that they have read and reviewed the requirements with their children and are aware of the due dates.

Breaking the project into two parts helps children handle the requirements more easily. A rough draft of the story is due two weeks after the project is assigned. I simply check that the student has written at least two pages of text to ensure that the story will be long enough for a book. I also remind students that the rough draft must be revised and refined before it becomes a book. Two weeks later, the final book is due. Students are reminded about the project’s due dates throughout the four-week period.

During the project period, to spark creativity and help generate ideas, I periodically read a student’s book from the previous year at the beginning of mathematics class, give an example of a mathematics problem that I encountered that morning, or ask students to share problems that they have faced during the day. Projects from previous years’ students are also displayed as models for the students to examine. Students are encouraged to keep paper and pencil handy to write down their daily activities and ideas for their books, especially those that involve mathematics. I encourage students to be ready for writing because they can never tell when their creativity will rush to their fingertips and flow out onto paper. Students can work on the project during the school day when they have free time, but most of the project is completed at home.

**Problems for the Teacher**

I differentiate instruction for this project by recognizing that each student works at his or her own level of ability to create word problems that range from
The book project can be further modified, if necessary, by reducing the number of problems required in the story from ten to five.

The first year I did the project, I assigned it in November and noticed that the word problems were not very detailed. The mathematical topics the children incorporated into their problems were limited to the few concepts they had learned during the first marking period or what they remembered from fourth grade. The following year, I decided to use the project after many of the topics in the mathematics curriculum had been taught so that the children could touch on a variety of concepts in their problems. The students’ writing was also more mature in the spring than in the fall of the school year. During the year, children are exposed to a variety of writing styles, techniques, and genres that enhance their stories. One student enjoyed reading and learning about the Civil War so much that he based his “Math Curse” book on the war (see fig. 3 for sample problems). His book was entitled “My Civil War Math Curse,” and he integrated places, events, and vocabulary that he had learned into his word problems. Two problems from Dan’s book, “Math Curse: The Case of the Peculiar Plaid Pants,” are shown in figure 4. A problem from Madeline’s book, “Math Curse: Pasta for the Animal Lover’s Soul,” is shown in figure 5.

**Challenges for the Students**

Students faced a variety of difficulties depending on their work habits, motivation, and level of maturity. In particular, I noticed that students needed redirection, guidance, and assistance to meet the following challenges:

- building an overall story that makes sense and is structured around word problems;
- identifying mathematical topics, such as fractions, number theory, measurement, and so on, in their experiences, which means that students must reflect on their daily schedules;
Problems from “Math Curse: The Case of the Peculiar Plaid Pants” by Dan

Then I noticed the wallpaper border in my bedroom with its ferrets and cheetahs. “Hmm, nice pattern there, too,” I thought. I’ve been looking at these ferrets and cheetahs for over ten years. All at once, I wondered how many ferrets and cheetahs there were in my room.

(a)

If there are two ferrets and two cheetahs in every foot of the border, how many bunnies and bears are there in all? Oops, I mean ferrets and cheetahs. I would NEVER have bunnies and bears on my walls. Now you have to understand that the shape of my room is a little odd. There are 6 sections of wall. The sections are 6 feet, 6 feet, 7 feet, 4 feet, 10 feet and 13 feet long.

In math class, Miss Scubasteve said, “You know, you can see patterns everywhere in math.”
“I’m beginning to see that,” I thought, as my legs continued to tingle.
“Just think about counting by 2’s or 5’s or 10’s, using time, or counting money,” she said. “Think about the patterns in every topic we cover in math, and see what you notice.”
“Can patterns take over your life?” I asked.
“Oh, I don’t think so,” answered Miss Scubasteve.
I wasn’t so sure . . .

(b)

I have three shirts: one with hippos on it, one with Devil Dogs, and one with teddy bears. I also have four pairs of shorts: one green, one blue, one black, and one gray. How many different combinations can I make with these shirts and pants? And . . . if it takes me 7.5 minutes to put on the Devil Dog shirt and the blue shorts with the tricky zipper, how fast can I get into the hippo shirt and the green shorts, if I can do it in 1/2 the time it took me to get into the Devil Dog shirt and the blue shorts?
including all relevant information in their word problems and making sure that their solutions are correct;
• taking ownership of the writing process and sharing their stories with several people, such as the teacher, parents, and peers, to get different points of view;
• reflecting on the writing styles, techniques, and genres they have been exposed to and attempting to incorporate them into their stories;
• budgeting their time appropriately for the various parts of the project, which means focusing on writing the story rather than spending too much time creating the cover or drawing; and
• contemplating their schedules, to write original stories and avoid re-creating Scieszka’s work.

Math Project Evaluation Form: Math Curse Story

Name: ____________________________ Date: ____________________________

Math Curse—Story:
• Minimum ten word problems __________
• Word problems solved (correct information provided in story) and answers agree to answers provided on back cover __________
• Story tells about one day, includes minimum of ten word problems in that one day __________

Math Curse—Book:
• Title page __________
• Dedication page __________
• “About the author” page __________
• Includes colorful illustrations throughout story __________
• Front cover (title, name) and back cover (answers to word problems) __________

Presentation:
• Organized and neat project, including color, use of ruler, etc. __________
• Story must be typed or written in blue/black ink __________
• Proofreading of project (spelling and grammar) __________

Total Score __________
Parent Signature: ____________________________

Problems from “Math Curse: Pasta for the Animal Lover’s Soul” by Madeline

I woke up at 6:00 the next morning. It was clear and cool, and the grass was sparkling from the wet dew. Luckily, we got to ride before we fed the horses. There are 5 horses, each horse is ridden for a half hour. We spend _______ hours riding the horses. It took us 30 minutes to get cleaned up for breakfast. We finally got to eat at ____________.
Assessing the Project
My grading criteria are taken directly from the students’ project sheet. I allocate points to each item, then use the point system to calculate the grade (see fig. 6). Students need to be aware that they are graded on whether their word problems can be solved, the correct information is provided in their stories, and the answers to their problems agree with answers provided on the back covers. I use the word problem check sheet (see fig. 1) that the students used when solving one another’s problems to evaluate the number of correct problems in each student’s book.

Reflections
This project helped students weave together reading, writing, art, technology, and mathematics. Students tapped into their own creativity and pulled out ideas they never even knew they had. Moreover, they enjoyed writing their stories and making the books while they were learning. After creating the books, students realized that mathematics was everywhere and made connections between mathematics and their everyday lives. Students learned that knowledge of mathematics is invaluable.

I learned the value and necessity of immersing students in real-life mathematics applications to help them apply basic and higher-level concepts and skills. This project encouraged students to practice fractions, decimals, place value, geometry, and basic facts and to create word problems using various strategies. The students were able to personalize mathematics to their levels of understanding and were encouraged to be flexible and creative, unlike expectations for a traditional paper-and-pencil test. The project showed children that mathematics can be fun and is applicable to their daily lives.

References

Metric Week
Celebrate Metric Week, October 6–12, 2002 (the week that contains 10/10), with your class. Visit NCTM’s Web site at www.nctm.org/meetings/metric-week.htm, as well as the U.S. Metric Association’s site at lamar.colostate.edu/~hillger/ideas.htm, for some intriguing ideas.