



# **Children's Literature and Mathematics**

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# Mathematics & Children's Literature

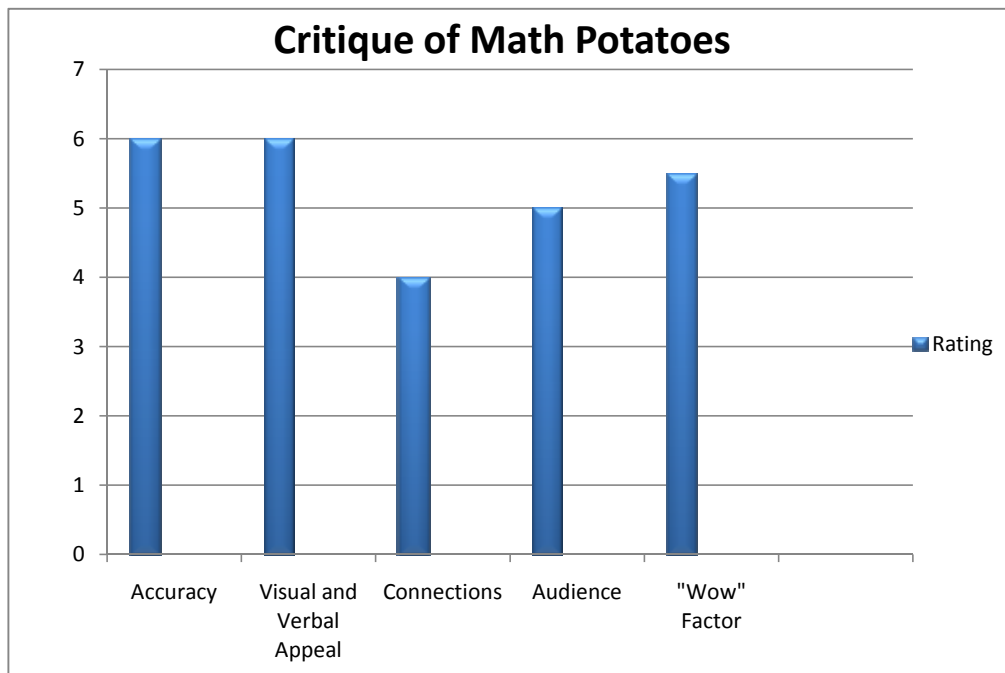
## Math Potatoes: Mind Stretching Brain Food

- ❖ **Reading level:** Ages 7-12
- ❖ **Hardcover:** 40 pages
- ❖ **Publisher:** Scholastic Press (July 1, 2005)
- ❖ **Language:** English
- ❖ **ISBN-10:** 0439443903
- ❖ **ISBN-13:** 978-0439443906

### Summary

This book of riddles communicated both verbally and visually, shows that math can be really fun! Greg Tang wrote this book in hopes to get kids ready for the challenges of higher math by teaching techniques to build valuable problem solving skills, making mathematics faster and easier for children ages 7 -12. In this creative approach to the author's favourite subject, numbers are depicted in deceptive ways, using visual tricks. Students are required to think up efficient ways of grouping the less obvious by making smart sums, finding patterns and symmetries, and looking for groups of equal size.

### Critique





We believe that *Math Potatoes* is a great book for teaching mathematical concepts, specifically those in the strand of Number Sense and Numeration. The book is very appealing, both visually and verbally. Each of the mathematical problems is depicted in an interesting and creative visual picture, while the riddle-style text motivates readers to find solutions to problems presented. Another strong feature of this book is its' appeal to audiences of all ages. The author specifies the age range as ages 7-12, however, we believe that the book could be used by an even wider range of learners to help develop or refresh problem-solving strategies.

The connection of the problems to real life scenarios is present throughout the book, but we believed this to be its' weakest quality. While the mathematical concepts are useful in the real world, we found that the lack of a storyline made it slightly more difficult to relate the story to everyday life. Lastly, we examined the accuracy of the book and found that when concepts were presented, they were done so in an accurate and thorough fashion. Overall, we believe that this book has a very strong "Wow" factor because of all of the features previously mentioned as well as its' unique style compared to most mathematical literature.

### **Mathematical Activity**

This book has amazing potential in the classroom. We feel this book illustrates mathematical concepts as a powerful strategy for encouraging thinking, reasoning, and communication during mathematics. Because this book has the potential for so many mathematical activities, we decided to incorporate this book as the basis for Math Stations themed Mash the Math-Potatoes! For the sake of this report, we will provide the presentation (see attached disk) for six stations, but only go in depth about one (as required). Thinking about the setup of this learning task, we would read the book aloud and work through a selection of the problems as a class before setting the students up in groups to work through the problems in their centres. Our lesson plan is created for one centre day which will follow the day of the read aloud and the days of practice.

### **Discussion Questions**

#### Before the Read Aloud:

- "Based on the cover of the book, what do you think the story might be about?"
- "What do you think is meant by the phrase, 'Mind-Stretching Brain Food'?"
- "Has anyone read any other books by this author and illustrator? What were they about?" (refer to back cover)

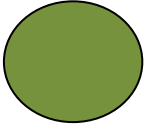
#### During the Read Aloud

- "What strategies would you use to count these items?"
- "What do you notice about the structure of the riddle?" (it gives a hint as to how to count the items)

#### After the Read Aloud and Throughout the Guided Practice of a Problem

- "Think back to your counting strategy. Can your strategy be applied any other problems in the book?"
- "Compare the strategies used in the book with your own personal strategy. Which do you believe is more efficient? Why?"

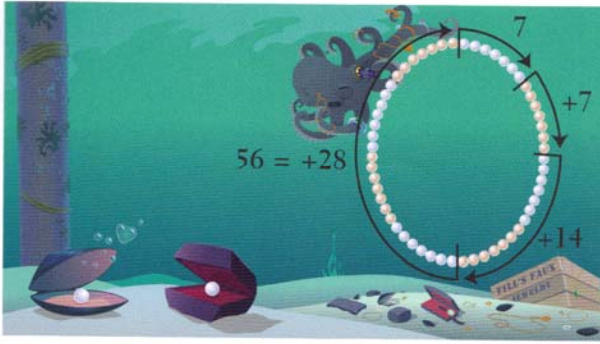




### **Self-Assessment 18/20**

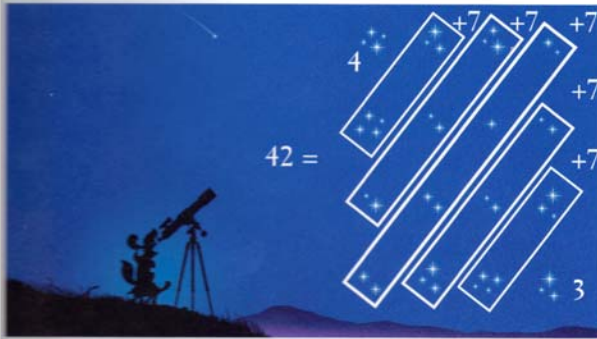
We were quite happy with our book choice for this assignment, and as a result, we were very excited to create interesting and engaging activities for students based on this book. Prior to designing the activities, we dedicated much time to examining the full potential that this book possesses and determining which avenue would be the most appropriate. We had slight trouble formulating discussion questions for before, during, and after the read aloud, however, the questions that we composed were open-ended in nature. We are both very happy with the final product of this assignment, and therefore we decided to give ourselves 18/20.





### PEARLY WHITES

Use symmetry to see 8 groups of 7 pearls.  
 To multiply by 8, double three times:  
 7 doubled once is 14, doubled twice is 28,  
 doubled 3 times is 56.  
 $8 \times 7 = 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7$



### FOR SEVEN'S SAKE

Instead of grouping by rows or columns, group  
 by diagonals and make 6 groups of 7 stars, or 42  
 stars.  
 $6 \times 7 = 7 + 7 + 7 + 7 + 7 + 7 = 42$