



Wil Clarke

# THE ADVENTURE OF MATHEMATICS

**M**y wife's father was an Adventist preacher. While she and I were courting, one of his female parishioners took me aside and admonished me very seriously that no mathematicians would ever get to heaven!

By contrast, much of what initially attracted me to mathematics appeared in Uriah Smith's *Daniel and the Revelation*, which showed how the events of history fit like jigsaw puzzle pieces into carefully calculated time prophecies. The first great Adventist disappointment happened because early calendar makers miscalculated the end date for the 2300-year time period. It took mathematically savvy believers to discover the error.

As teachers of mathematics, it is our God-given responsibility to cajole, encourage, drive, insist, and force (if possible) our students to think. Peter encourages us to be able to give "to everyone who asks you a *reason* for the *hope* that is in you."<sup>1</sup> Reasons that were valid in the last millennium do not necessarily persuade young people today. More than ever before, we need to "train young people to be *thinkers*, and not mere reflectors of other people's thought."<sup>2</sup> Two great ways to train the mind are through the study of the Bible and of mathematics.

As far back as 600 B.C., Thales insisted that results in mathematics not be accepted unless they could be proved.<sup>3</sup> Today, much of what is passed off as math is watered down, diluted, and polluted by cultural, societal, and political pressures. It is our God-given responsibility to see that students master the basics of mathematics that transcend language, culture, race, and national heritage.

"Higher than the highest human thought can reach is God's ideal for His children"<sup>4</sup> is the great ideal that we

must strive for. Attaining the ideal is not easy. Articles in the special section of this issue stress various facets that, we hope, will provide ideas that will improve your techniques and abilities in communicating mathematics to your students. Since nowadays, mathematics is almost universally regarded as difficult, we need to use history, culture, religion, patriotism, sports, literature, romance, and everything else we can muster as motivation and imperatives for excelling in mathematics.

I had a teacher in one of my classes tell me this past spring, "When I started your Concepts of Mathematics class, I feared and dreaded mathematics. You helped me see that I could teach mathematics. Now my 4th graders beg me to let them do math!"

Authors Nugent and Moore give us some practical strategies that teachers can use in the classroom. Sharilyn Horner offers a list of what she wishes students entering college knew on arrival.

Cathleen Duffy reviews the literature on the great strides that can be achieved by peer tutoring in math. Marion Prince offers insights into the Common Core State Standards for mathematics that have been incorporated into the latest North American Division K-12 math curriculum. Murray Cox addresses gender issues and mathematics.

Math has long been regarded as one of the 3 R's! As Adventist teachers, let's replace the 3 R's with the 4 R's: Reading, 'Riting, 'Rithmetic, and Religion. Many prominent mathematicians of former years were deeply spiritual. This side of them is consistently downplayed by many of their biographers. I discuss a few of their experiences in my article on Mathematical Vignettes.

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35. Williams, "Tiering and Scaffolding," op. cit.  
 36. The teacher will need to watch the progress of the lessons because by this point, grade 5 students may need a short group lesson to review and support their understanding of the idea of how repeated addition is related to multiplication.  
 37. Renee O. Hawkins, et al., "Applying a Randomized Interdependent Group Contingency Component to Classwide Peer Tutoring for Multiplication Fact Fluency," *Journal of Behavioral Education* 18:4 (December 2009):300-318.  
 38. Gordon, et al., *The Tutoring Revolution*, op. cit., pp. 173, 163; Edward E. Gordon, "5 Ways to Improve Tutoring Programs," *Phi Delta Kappan* (February 2009):440-445.  
 39. Goodlad and Hirst, *Peer Tutoring*, op. cit., pp. 86, 87; Gordon, et al., *The Tutoring Revolution*, op. cit., p. 173; Topping, et al., "Cross-Age Tutoring in Mathematics With Seven- and 11-Year-Olds," op. cit.

40. Mesler, "Making Retention Count: The Power of Becoming a Peer Tutor," op. cit.  
 41. Goodlad and Hirst, *Peer Tutoring*, op. cit., pp. 139, 140; Topping, et al., "Cross-Age Peer Tutoring in Mathematics With Seven- and 11-Year-Olds: Influence on Mathematical Vocabulary, Strategic Dialogue and Self-Concept," op. cit.  
 42. Gordon, et al., *The Tutoring Revolution*, op. cit., pp. 176-178.  
 43. Goodlad and Hirst, *Peer Tutoring*, op. cit., p. 141.  
 44. Mesler, "Making Retention Count: The Power of Becoming a Peer Tutor," op. cit.  
 45. Goodlad and Hirst, *Peer Tutoring*, op. cit., p. 140; Mesler, "Making Retention Count: The Power of Becoming a Peer Tutor," op. cit.  
 46. Sparks, "Researchers Find That Students Learn by Tutoring Virtual Peers," op. cit.  
 47. Heller and Fantuzzo, "Reciprocal Peer Tutoring and Parent Partnership," op. cit.  
 48. Henningsen and Stein, "Mathematical Tasks and Student Cognition: Classroom-Based

Factors That Support and Inhibit High-Level Mathematical Thinking and Reasoning," op. cit.; King, "Structuring Peer Interaction to Promote High-level Cognitive Processing," op. cit.; McCosker and Diezmann, "Scaffolding Students' Thinking in Mathematical Investigations," op. cit.  
 49. Goodlad and Hirst, *Peer Tutoring*, op. cit., pp. 24, 56, 58, 61, 66, 140; Gordon, et al., *The Tutoring Revolution*, op. cit., pp. 153, 157; Mesler, "Making Retention Count: The Power of Becoming a Peer Tutor," op. cit.; Menesses and Gresham, "Relative Efficacy of Reciprocal and Nonreciprocal Peer Tutoring for Students at Risk for Academic Failure," op. cit.; Robinson, et al., "Peer and Cross-Age Tutoring in Math," op. cit.; Schloss and Kobza, "The Use of Peer Tutoring for the Acquisition of Functional Math Skills Among Students With Mild Retardation," op. cit.

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Each of these articles in this issue is meant to inspire and encourage you as you lead students into the adventure of mathematics.

*The Coordinator for the special section on mathematics in this issue, Wil Clarke, Ph.D., is Professor of Mathematics at La Sierra University in Riverside, California. The editorial staff of the JOURNAL express heartfelt appreciation for his assistance throughout every phase of the production of the issue from the selection of topics and authors through the peer review process, revisions, and preparing the final manuscripts.*

NOTES AND REFERENCES

1. 1 Peter 3:15 (NKJV), italics supplied. Texts credited to NKJV are from the *New King James Version*. Copyright © 1979, 1980, 1982, by Thomas Nelson, Inc. Used by permission. All rights reserved.
2. Ellen G. White, *True Education* (Nampa, Idaho: Pacific Press Publ. Assn., 2000), p. 12. Italics supplied.
3. See <http://www-history.mcs.st-and.ac.uk/Biographies/Thales.html>. Accessed March 21, 2013.
4. Ibid.