

COUNTING, TEACHING, AND THE TRINITY: CHANGING PERSPECTIVES

BY JAMES D. NICKEL

“I hate math.”

“Math is the one subject that I dread the most.”

“I’ve never understood math.”

“Math is the most boring subject of all.”

IS THERE A RIGHT APPROACH?

Wouldn’t it be wonderful if there were an approach to the study of mathematics that could convert these negative appraisals into adulations of delight? I believe there is such an approach, *and it starts with a change in perspectives.*

For far too long, we have embraced a neutrality approach to the study of mathematics. In this approach, the student acquires math knowledge under the assumption that the Triune God, that the Son of the Father, who is the light of the cosmos, just does not matter.

Christian educators have tried to do something about this. First, they believe that Bible is important, so they have added Bible class to the curriculum. They think that having such a class will add a significant plus to the learning atmosphere. This Bible class method is good, but it can easily lead to a compartmentalization of life, to one degree or another; i.e., the Bible is a sacred subject because it deals with eternal realities, and math is a secular subject because it deals with the temporal, time and earth.

To fix this sacred-secular dichotomy, some Christian educators have sought to “Christianize” mathematics either by cutting and pasting Bible verses into a math class, cheerleading students into doing math for the glory of God, stressing the use of numbers in Scripture¹, or illustrating every math principle with a verse from Scripture. This approach is far too superficial and, therefore, inadequate. It has neither stood intellectual attacks nor provided the student a substantial base for understanding the nature of knowledge and the nature of reality.

STARTING POINT

First, the approach that provides this understanding must begin with the Triune God as the foundation for all knowledge (Proverbs 1:7, 9:10; Psalm 111:10). The Biblical Christian presupposes that we can know *truly* by revelation and that revelation is given to us by Jesus Christ, the light of the cosmos (John 8:12). He is the One by whom all things, visible and invisible, were made and by whom all things consist (John 1:3; Colossians 1:17).

The point of Scripture, as inspired by God’s Spirit, is to lead us to see this Jesus in His fullness and the glory of the relationship He enjoys with His Father in the same Spirit.² If we want to possess the light of this eternal life, light that

The ground of the rationality and beautiful dynamic order of the created universe is its Creator, in the rationality and the dynamic beauty of the fellowship within the Trinity.

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¹ Numerology is the study of the symbolic use of numbers in Scripture; e.g., 3, 4, 7, 12, 144, 1000, etc.

² James B. Torrance (1923-2003) used to reiterate in his lectures on systematic theology at Aberdeen University that the primary and stunning revelation of the New Testament is the relationship that Jesus, God the Son, eternally enjoys with His Father.

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brings true knowledge, we must follow the Son of the Father. Psalm 36:9 states, “In Thy light, we see light.” Therefore, we cannot see, or understand, anything truly unless we see it in the perspective of God’s revelation of truth. This knowledge will not be exhaustive in nature since Scripture does not tell us anything about quadratic equations, but it is knowledge that brings a true perspective on all aspects of the human endeavor, eternal and temporal. Colossians 2:3 states, “... in Christ are hidden all the treasures of wisdom and knowledge.” All aspects of wisdom and knowledge, not just the “spiritual” parts, and including such analytical knowledge as quadratic equations, find integrative meaning, unity, purpose, and perspective in the full and complete revelation of God the Father in Christ.

Second, God the Father created all things, visible and invisible, by the *speaking* forth His Word by His Spirit (Genesis 1:1-3; Psalm 33:6).³ The Word of the Father, the voice that created all things is again the Lord Jesus Christ, the Son of the Father (John 1:1-3; Colossians 1:15-17). The wondrous structure of our universe, therefore, cannot be anything other than Christ-centered. To see Christ in creation is to see the

It is through deciphering the mathematical patterns carried by light signals that all our knowledge of the space/time universe in its vast or tiny dimensions is derived.

Thomas F. Torrance, *Theological and Natural Science* (2002), p. 30.

real creation; it is to see what is really there. Mathematics, both in its internal structure and in its description of the patterned order of the physical creation, *bears this linguistic mark*. Therefore, the Word, the same Word that made humanity, *created and currently sustains the subject matter of mathematics*.

CHRISTO-CENTRIC GROUNDS

We now possess a firm ground, a Christo-centric ground, for understanding and doing mathematics. We learn math to hear God’s creational speech in Christ. From this starting point, we are in a wonderful and worshipful position to see the reflection of God’s perfections in the subject matter of mathematics. As we learn mathematics, we are one step away from discerning the beautiful order of creation. As we learn this structure, we are one step away from encountering the Living God.

After the astronomer Johannes Kepler (1572-1630) developed the elliptical law of the motion of the planets around the Sun, he fell to his knees and exclaimed, “My God! I am thinking Thy thoughts after Thee!”⁴

The Scottish physicist James Clerk Maxwell (1831-1879) was fascinated by the embodiment of geometric patterns and the dynamic forms exhibited in creation. In 1874, when he designed the famous



Figure 1: Johannes Kepler.
Source: Public Domain

³ In Genesis 1:3, the first spoken action of the Father was to bring light to the universe by the beloved Light who is His Son.

⁴ Cited in Roy E. Peacock, *A Brief History of Eternity: A Considered Response to Stephen Hawking’s ‘A Brief History of Time’* (London: Monarch Publications, 1989), p. 22, 38. Also cited in Colin Humphreys, “Can Science and Christianity Both Be True?” in R. J. Berry, ed., *Real Science, Real Faith* (London: Monarch Publications, 1991), p. 116.

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Cavendish Laboratory at Cambridge University, he ordered this Latin inscription to be placed over the entryway.

Magna opera Domini exquisita in omnes voluntates ejus.

[The works of the Lord are great, studied by all who delight in them (Psalm 111:2).]

Maxwell crystallized this, the first of the modern unified field theories and gave it the mathematical form which remains immortal under the name of "Maxwell's Equations" – a system of relationships between changing electric and magnetic fields – a whole universe of electromagnetic phenomena, miraculously contained in a few lines of elegant mathematics.

Ivan Tolstoy, in William Berkson, *Fields of Force: The Development of a World View from Faraday to Einstein* (1974), p. 126.

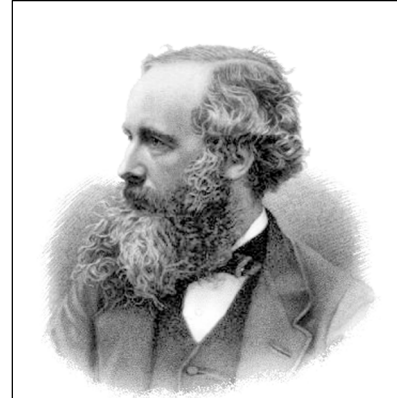


Figure 2: James Clerk Maxwell.
Source: Public Domain

Exposing the student to this history in the context of the realities of a Christ-controlled creation is what Biblical Christian education is all about. Since Christ is the source and sustenance of creation and since Christ is the foundation and the treasure of all wisdom and understanding, we dare not teach any subject, even quadratic equations, without a humble submission to Him. If we remove the Scriptural revelation of Christ from the acquisition of any knowledge, then all we will know is surface or pseudo-knowledge. It is the revelation of Christ that brings true meaning, perspective, and purpose to the study of every subject, mathematics included.

For decades, I have been endeavoring to research, write, and develop some mathematics textbooks that incorporate this Christ-centered approach to knowledge.

WHY MORE MATH TEXTBOOKS?

“Of the making of mathematics textbooks there are legion ...” (Ecclesiastes 12:12, NAMV).⁵

Why a new one?

Why *this* one?

⁵ NAMV: Nickel Annotated Math Version.

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The popularity of much of the math curricula on the market lies in their ease of use for both students and teachers/parents. These curricula, especially those designed specifically for home-schoolers, are primarily formula- or skill-based.⁶

The formulation of a problem is often more essential than its solution, which may be merely a matter of mathematical or experimental skill.
Albert Einstein, *The Evolution of Physics* (1938), p. 95.

Understanding and doing math requires the interplay of two thought components. First, inductive reasoning, the search for patterns or the derivation of a way to solve a problem. Second, deductive reasoning, the establishment of the absolute truth of certain propositions or the derivation of the correct steps to get the right answer to a problem.

The only way most math textbooks can achieve popularity is by stooping to the lowest level, i.e., they just give the student math formulas or techniques that help them get answers to particular types of problems. This approach limits the development of conceptual thinking by trumping the why question with the how question, i.e., methods eclipse justification. Instead of dictating methods, the student should learn how to discover them via induction and justify them via deduction. Many math curricula sacrifice what is essential in mathematics, problem-solving and rigorous thinking skills, under the facade of making math easier to learn.

THE RATIONALE AND METHOD

To teach mathematics properly is to develop mathematical utility, the how, in the context of mathematical exploration, how the how is obtained, and mathematical justification, the why. My goal is to write two textbooks, each in two volumes.⁷ The first, *The Dance of Number* (estimated publication date of 2016) explores arithmetic operations and the precepts of Algebra. The second, *Dancing to Infinity*, will explore the Algebra, Trigonometry, and Geometry needed for Calculus and I will unify these branches with the theme of mathematical infinity.

If the universe is mathematical in some deep sense, then the mysterious undecidabilities demonstrated by Gödel and Turing are part of the fabric of the universe rather than merely products of our minds. They show that even a mathematical universe is more than axioms, more than computation, more than logic – and more than mathematicians can know.

John D. Barrow, "The Mathematical Universe" (in *Natural Science*, May 1989, p. 311).

Arithmetic is a principal subject. A thorough mastery of its precepts is a prerequisite for success in and enjoyment of the subjects to follow (Algebra, Geometry, Trigonometry, Calculus, etc.). I have designed *The Dance of Number* as a capstone study in arithmetic. It will deliver a singular thrust. What is it?

⁶ Saxon Math is a representative example.

⁷ I wrote the gist of both textbooks in six months in 2001; there have been many variations since.

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First, my work presupposes that the person of Christ sustains the laws that undergird arithmetical operations, and that these laws are connected to what is happening in creation. Arithmetical processes work because the faithfulness of God sustains every iota of creation. Recognizing this fact generates a *par excellence* ambiance for learning.

Second, I present an abundance of thorough explanations and examples, plus interesting side notes (philosophical, historical, and humorous) to whet student interest. Arithmetical operations consist of a finely nuanced set of skills that require “line by line, precept by precept” instruction (Isaiah 28:10-13), and thorough mastery. Arithmetic is not just memorizing rules; it is the development of the understanding of number sense, a sense that a surprising number of students in this technological age lack.

Finally, I do not primarily desire to honor the subject matter (although secondarily, it does). I do not primarily wish to honor the people who have developed mathematics (although secondarily, it does). I do not primarily hope to enable the student to get good grades (although secondarily, it does – at least, I am optimistic it will do this!). The primary and overarching purpose of my writing is to exalt the weighty significance of the communion of the Triune God who is the indubitable ground of existence and knowledge.

The pattern of learning mathematics follows this order: First, the beautiful (how wonderful!), then the good (I want to learn this!), and finally, the true (now I want to understand!). We expose the student, no matter what the age, to some of the wonders of mathematics (e.g., Pascal's Triangle, The Fibonacci sequence, casting out nines, multiplying with fingers, the hexagonal structure of the honeycomb and snowflakes, etc.). This exposure awakens a profound desire to investigate, experiment, play. Then the actual participation in wonder teaches the student, from the inside, the rules and rhythms, the dance of mathematics. A completely inadequate way of drawing a student into the world of mathematics would be to start with a clarification of the rules or with a set of drills. Rather, show the student the beauty of mathematics, and he will want to learn it, and having participated in it, he will know.

James D. Nickel, application of some thoughts of Thomas Aquinas (1225-1274).