

The discipline of mathematics is the search for perichoretic patterns, the language fabric of creation; it is one of the peerless tools that we use to discover and investigate creational wonders, the beautiful rhythms of its multi-layered, interpenetrating structures.

James D. Nickel









he Dance of Number, in four volumes, explores the elements of Arithmetic, the language of Algebra, the dynamic interrelationship between Algebra, Geometry, and Trigonometry, and the nature of mathematical reasoning. It is ideal for teachers, parents, or anyone interested in learning how to instill number sense in students, a faculty that is often a missing ingredient in the math education of the Western world, Christian home and day schools included.

The paradigm

The revolution the author introduces in the first two volumes, albeit not new, is "left to right" methods consistently applied to the four operations of arithmetic. The ease of this method increases speed in computation, guarantees better accuracy, and engenders immediate estimates. This is the way arithmetic is taught in the Far East and in India. For years, the author asked himself why, for example, Japanese students excel in numeracy and Americans lope behind. It is because of the Japanese abacus called the Soroban and how it uses number complements, and left to right computation, *to instill an astounding mastery of number sense.*

It is impossible to understand algebra if you have not mastered arithmetic: it is impossible to understand calculus if you have not mastered algebra. If you attempt the impossible, without realizing what you are doing, your morale will suffer.

Walter Warwick Sawyer

The Dance of Number systematically explicates and applies the "left to right" paradigm starting from counting as foundation, using the Soroban as an introduction into the fascinating and beautiful world of arithmetical interconnections. Because of this ground up approach, any teacher of arithmetic, from K-5, can reap dividends by studying the text explanations in the first seven steps (Part 1, Volume 1 and 2).

The purpose

The curriculum serves two purposes: to instill in students a mastery of (1) arithmetic and (2) algebraic syntax. Along the way, students master methods of measurement, the solution of basic algebraic and transcendental (trig and logarithmic) equations, Probability and Statistics, Geometry, Trigonometry, Calculus-related infinite processes, and mathematical methods of proof. It is aimed at Grades 7-10 requiring only the ability to read and reason. The curriculum then fosters reasoning skills in the context of mastery of concept, while also exacting drill work for reinforcement.

Distributed throughout are a plenitude of quotes that serve as a source of information, meditation, entertainment, and discussion.

The ground of knowledge

This curriculum also builds mathematics, as a branch of knowledge, in a way that upholds the Triune God as the ultimate ground of rationality. In a world that assumes the "neutrality" of knowledge, *this emphasis is vital because it unfolds mathematics in its relationship to objective reality and the Creator and Sustainer thereof.*

If you want a challenging and rigorous demonstration of the beauty and power of mathematics, *The Dance of* Number is for you.

God has endowed his creation with a rationality and beauty of its own in created correspondence to his transcendent rationality and beauty ... the more the created universe unfolds its marvelous symmetries and harmonies to our scientific inquiries, the more it is bound to fulfill its role as a theater which reflects the glory of the Creator and resounds to his praise. **Thomas F. Torrance**



Fractal Geometry: Logarithmic spiral

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