

Math Wars

If...



... why are there so many choices?

Welcome!

Just For Fun! Write down the answers to the following:

1. How many years have you been homeschooling? (Years homeschooling)
2. Multiply the above # by the # of children you have: x (Number of children)
3. Divide by the # of Math Curriculums you're used: ÷ (Math curriculum used)

This is your curriculum selection number: = (Total)

Math Wars

1960s

A peasant sells a bag of potatoes for \$10. His costs amount to $\frac{4}{5}$ of his selling price. What is his profit?

1970s

A farmer sells a bag of potatoes for \$10. His costs amount to $\frac{4}{5}$ of his selling price, i.e. \$8. What is his profit?

1970s (New Math)

A farmer exchanges a set P of potatoes with a set M of money. The cardinality of the set M is equal to \$10 and each of M is worth \$1. Draw 10 big dots representing the elements of M. The set C of production costs is comprised of 2 big dots less than the set M. Represent C as a subset of M and give the answer to the questions: What is the cardinality of the set of profits? (Draw everything in red.)

1980s

A farmer sells a bag of potatoes for \$10. His production costs are \$8 and his profit is \$2. Underline the word "potatoes" and discuss with your classmates.

1990s

A kapitalis pigg unjustlee akwires \$2 on a sak of patatos. Analiz this tekst and sertch for erors in speling, contens, grandmar, and ponctuassion, and than ekspress your vioos regarding this metid of geting ritich.

Math Education Timeline

- 1900-1940** Movement from systematic practice and teacher-directed instruction toward child-centered discovery learning advocated by educational professionals—“a guide on the side and not a sage on the stage.” The National Council of Teachers of Mathematics (NCTM) was founded in 1920.
- 1940s** Educational crisis: armed forces and workforce must implement remedial programs.
- 1950s** “New Math” introduced—coherent, logical explanations for mathematical procedures. Mathematicians are actively involved in K-12 curricula development for the first time in the century.
- 1960s** With U.S.S.R. launch of Sputnik, New Math implemented with poor results. Courses were excessively formal with little attention to basic skills or to application. Teachers were not well equipped to deal with demanding content. Parents didn’t understand courses. New Math was “dead” by the early 70s.
- 1970s** **Summerhill** (account of progressive English school) is popular and influential. As a result, many school districts implement Open Education classrooms. Various states create minimum competency tests in basic skills. A few school districts (and most Christian schools) emphasize traditional academics and promote student discipline.
- 1980s** Widespread recognition that quality of math and science education in public schools is deteriorating. **An Agenda for Action** (1980) and **A Nation at Risk** (1983) are published. Public opinion supports strong focus on basic skills and high standards.
- 1989** The NCTM develops standards which:
- De-emphasized complex paper-and-pencil computations, long division, fraction computation, and the use of rounding to estimate.
 - Put strong emphasis on the use of calculators.
 - Reinforced general themes of progressive education—student-centered, discovery learning.
 - Built around concept of “constructivism”—a psychological term used by educational specialists to sanction the practice of “self-paced learning” and “discovery learning.” The term implies that only constructed knowledge—knowledge that one finds out for one’s self—is truly integrated and understood.
- Early 1990s** National Science Foundation (NSF) provides funding for curricula development that’s aligned to NCTM standards. Mathematicians and parents become increasingly vocal in their criticism of these curricula. Criticisms include:
- Failure to develop fundamental arithmetic and algebra skills.
 - Elementary students encouraged to invent arithmetic algorithms but discouraged from learning standard algorithms for addition, subtraction, multiplication, and division.
 - Calculator use encouraged to excess.
 - Student discovery group work is preferred mode of learning.
 - Redundant and over emphasized topics from statistics and data analysis.
- Late 1990s** Parallel events supports parental criticisms and claims:
- Achievement test scores continued to decline.
 - Americans score very low in international math tests.
 - Homeschoolers make strong showing using “basics” curricula.
- 1997** After several task force reports, CA rewrites their math standards.
- 2000, 2006** NCTM rewrites their standards to parallel the CA standards.



“If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war.”

Terrell Bell
U.S. Secretary of Education
A Nation at Risk, 1983

FAMILY Factors

F — Faith or Philosophy

- Basic-traditional or Reform/Constructivist Math
- Christian or Secular

A — Approaches

Considerations:

- Charlotte Mason/Classical
- Manipulatives or No manipulatives
- Spiral vs. Sequential

M — Money

- Set a budget. Chose curriculum that will meet your needs within budget.
- Compare programs realistically.

I — Individuals

Considerations:

- Pacing
- Hands On Manipulatives
- Black and White Or Color Illustrations
- Consumable or Non Consumable

L — Life

Considerations:

- Independent Approach or Teacher Interactive

Y — You

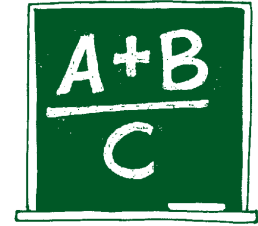
Considerations:

- FEAR Factor
- Teacher Support

Notes: _____

Classical Education—The teaching of mathematics within the classical education syllabus of the Middle Ages was typically based on Euclid's Elements, which was taught as a paradigm of deductive reasoning.

Rote Learning—The teaching of mathematical results, definitions and concepts by repetition and memorization. Typically used to teach multiplication tables. A derisory term is “drill and kill.” “Parrot Math” was a title of a paper critical of rote learning.



Exercises—The teaching of mathematical skills by completing large numbers of exercises of a similar type, such as adding fractions or solving quadratic equations.

Problem Solving—The cultivation of mathematical thinking by giving students open-ended, unusual, and sometimes insolvable problems.

New Math—A method of teaching mathematics which focuses on abstract concepts such as set theory, functions and bases other than ten rather than practical applications. Adopted as a response to the challenge of early Soviet technical superiority in space, it was largely abandoned and discredited by the late 1960s.

Historical Method—Teaching the development of mathematics within an historical, social and cultural context. Provides more human interest than a purely abstract approach.

Reform or Standards-Based Mathematics—Often called the “new, new” math; it was a vision for precollege mathematics education in the U.S. and Canada, based on constructivism (learning theory), and formalized by the National Council of Teachers of Mathematics (NCTM) which created the Principles and Standards for School Mathematics. Published in 1989, these were an extensive set of mathematics standards for grades K-12 which de-emphasized memorization of number facts, the learning of proofs, and algebraic skills, but encouraged the use of calculators and “discovery learning.” In 2000 and 2006, the same NCTM released additional standards documents which many considered an admission that the previous standards had mistakenly de-emphasized instruction of basic skills.

Discovery Learning—A minimization of both teacher instruction and repetitive drills, and a disdain for standard procedures (algorithms) such as long division. Math curricula were structured to allow children to discover math concepts.

Spiral Learning—A philosophy of math instruction where topics are covered several years in a row, advancing slightly on each pass.

Mastery Learning—Well-defined learning objectives organized into smaller, sequentially organized units.

Scope and Sequence—A listing of the learning objectives and skills covered by a curriculum product(s) by subject and grade level.

Curriculum—The subjects making up a course of study (curricula-plural).

Scripted—Curriculum where the teacher's words are supplied along with the student's response.

Lesson Plans—Daily outlines of assignments, teachings strategies, and objectives with varying degrees of detail.

Input Strategies—Lectures, read-alouds, dramatize a lesson, tell a story, sing a song, lead a chant or chorus, give a demonstration, teach a scripted lesson, teach with visual aids, teach with guided exploration, teach with unguided exploration. (Mary Pride's Complete Guide)

Thinking Strategies—Writing it down, narration, discussion, Socratic method, use it. (Mary Pride's Complete Guide)

Output Strategies—Timed drill, quick verbal quiz, educational software, repeat it back, tell about it, write report, copy it out. (Mary Pride's Complete Guide)

Math Programs— Grades K-8

	Programs	Gr	Approach	Manipulatives	Grade-level specific	Teacher Involvement	Teacher Edition	Notes
ALPHA OMEGA	A+ Math Tutor Software	1-8	Sequential		X	Minimal	Computer-based	Interactive self-paced; multi-sensory
	Alpha Omega Lifepacs	K-12	Sequential		X	Interactive at younger levels	Teacher edition included in boxed sets	Lifepacs are a consumable workbook format
	Alpha Omega Switched on Schoolhouse	3-12	Sequential		X	Minimal	All instruction is computer-based	Computer-based; no workbooks
	Horizons	K-8	Spiral	X	X	Interactive	Lesson plans, teacher notes, and answer key	Tends to be faster paced and works ahead of grade level; 7 th grade is pre-algebra and 8 th is algebra
SCHOOLAID	Bob Jones	1-12	Spiral	Used in early grades	X	Teacher-centric	Lesson plans, teacher notes, and answer key	
	Conventional Arithmetic with Spunky the Donkey	1-2			X	Interactive	Lesson plans, teacher notes, and answer key	A one-room schoolhouse approach, so there is work to be done independently
	Study Time Arithmetic	3-8			X	Interactive		Same publisher as Spunky the Donkey
	Developmental Math	K-8	Sequential			Minimal	Teacher notes and answer key	Each level covers a specific skill set; placement is according to the child's ability
	Kumon	1-6	Sequential		X	Minimal	None	Complete curriculum= all books at grade level
	Liberty Mathematics	K-2	Sequential		X	Minimal	Lesson plans, teacher notes, activities, and answer key	Consumable workbooks
	Life of Fred	1-12				Minimal	No teacher guide for elementary level	This series offers math within a written context; an option for children who like to read. Hardcover books.
	McRuffy	K-3	Spiral	X	X	Interactive	Lesson plans, teacher notes, and answer key	Consumable workbooks
	Math Lessons for a Living Education	PK-4		X		Interactive	None	All instruction and consumable student pages are in one book; manipulatives are homemade/everyday items; Charlotte Mason approach
	Math Mammoth (Light Blue series)	1-6	Sequential		X	Interactive	Answer keys available	Consumable workbooks or pdf files
	Mathematical Reasoning	PK-5	Spiral	Virtual	X	Minimal	Teaching suggestions and answers	
	Making Math Meaningful	K-6	Spiral	X	X	Interactive	Lesson plans, teacher notes, and answer key	
	MCP Math	K-6	Modified sequential		X	Interactive	Teacher notes & answer key	
	Mastering Mathematics	1-6	Sequential	X		Interactive	Lesson plans, teacher notes, and answer key	Complete set includes cardstock manipulatives and consumable workbooks
	Practical Arithmetics (Strayer-Upton)	3-8					None	
	Ray's Arithmetic	K-12	Sequential			Interactive	·Scope and sequence ·General information on math instructional stages ·Grade by grade teaching sequences ·Planning Guide Weekly lesson plans suggestions	Classic Curriculum workbooks are written to complement this series for grades 1-4
RightStart	K-4		X	X	Interactive	Lesson plans & answer key		
Saxon K-3	1-3	Spiral	X	X	Scripted for teacher	Lesson plans, teacher notes, and answer key		
Saxon Math Intermediate	3-5	Spiral		X	Minimal	Solutions Manual	·Hardcover ·Manipulatives optional ·Same methodology as Home School Edition	
Saxon 5/4 through 8/7	4-8	Spiral			Minimal	Solution manual	Strong support with: ·D.I.V.E. & Saxon Teacher CDs ·Website	
Shiller Math	PK-7	Sequential	X		Interactive	Parent Guide & Answer Guides	Montessori	
SINGAPORE	Earlybird Math SE	PK-K	Sequential		X	Interactive	Teacher guide available, but not required.	Readers available but optional – activity books are aligned to the readers
	Essential Math	PK-K	Sequential	X		Interactive	None	Same content as Earlybird but in b&w; use to supplement Earlybird or as a stand alone.
	Math In Focus	K-8	Sequential	X	X	Interactive	Teacher guide or parent guide which offers lesson and manipulative suggestions	Employs Singapore methodology
	Primary Math US	1-6	Sequential		X	Interactive	Teacher guide & Home Instructor guides available	Placement tests available
	Primary Math SE	1-6	Sequential		X	Interactive	Teacher guide & Home Instructor guides available	This series is aligned to California State Education Standards; has review after every chapter

Math Programs— Grades 7-12

ALPHA OMEGA

SAXON

SINGAPORE

Programs	Gr	Approach	Manipulatives	Grade-level specific	Teacher Involvement	Teacher Edition	Notes
AGS	9-12	Sequential		X		Teacher edition	·Traditional HS bundle. ·Reading comprehension at lower grade level.
Alpha Omega Lifepacs	K-12	Sequential		X	Interactive at younger levels	Teacher edition included in boxed sets	Lifepacs are a consumable workbook format
Alpha Omega Switched on Schoolhouse	3-12	Sequential		X	Minimal	All instruction is computer-based	Computer-based; no workbooks
Art of Problem Solving	6-12	Sequential			Minimal	Solutions Manual	For gifted and independent learners
A Fresh Approach	9-12	Sequential			Minimal	Solutions Manual	Available for algebra 1 & 2, geometry
Bob Jones	K-12	Spiral	Used in early grades	X	Teacher-centric	Lesson plans, teacher notes & answer key	
Jacob's Math	9-12	Sequential			Minimal	Dr. Callahan tutorials available and solutions manual for algebra—Teacher notes & answer key	Algebra 1 and geometry only; Author recommends Foerster All 2 & Trig as a follow-up
Life of Fred	1-12				Minimal	Companion Guide or AK for select topics	This series offers math within a written context; an option for children who like to read. Hardcover books.
PowerBasics	6-12	Sequential		X	Minimal	Teachers Ed answer key	·Reading comprehension. ·More procedural/less conceptual. ·Incorporates practical math skills.
Prentice Hall	6-10	Sequential		X	Minimal	Teachers Ed Parent Guide	Traditional HS bundle
Ray's Arithmetic	K-12	Sequential			Interactive	·Scope & sequence ·General info on math instructional stages ·Grade by grade teaching sequences ·Planning Guide ·Weekly lesson plans suggestions	
Saxon High School	9-12	Spiral			Minimal	Solution manual	Strong support with: ·D.I.V.E. CD ·website ·Saxon Teacher CD-ROMs
Saxon 4 th edition	9-12	Spiral			Minimal	Solutions manual	Algebra 1 – 4 th ed. Algebra 2 – 4 th ed. Geometry has been removed
Discovering Mathematics CCSS	7-10	Sequential		X	Minimal	·Teaching notes/solutions for text. ·WKBK: answer key in back. · Solutions Manual available	Currently: ·Being revised ·No tests ·Only grade 7 available
New Elementary	7-10	Sequential		X	Minimal	Lesson plans, teacher notes & answer key	More challenging and problem-solving questions; arithmetic topics introduced sooner
VideoText	9-12	Sequential			Minimal		Lessons are taught on DVDs

Math Programs— ALL Grades

ALPHA OMEGA

SAXON

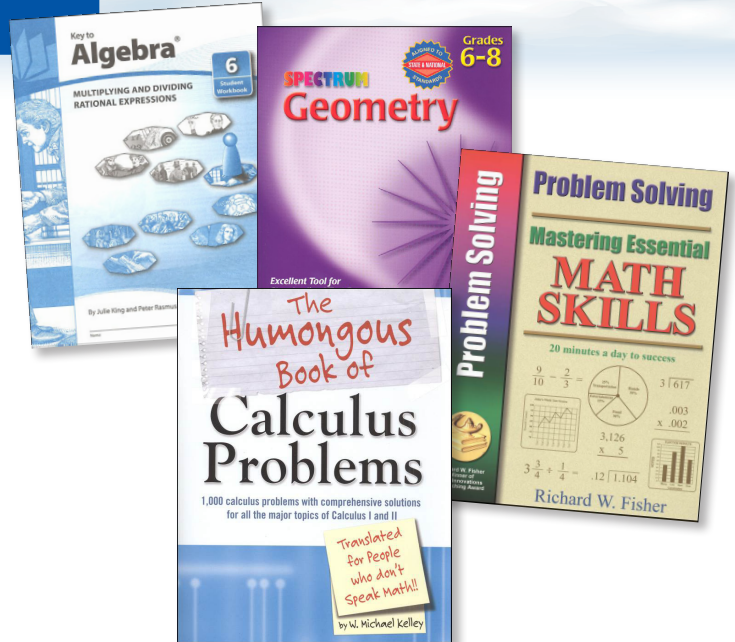
SINGAPORE

Programs	Gr	Approach	Manipulatives	Grade-level specific	Teacher Involvement	Teacher Edition	Notes
Alpha Omega Lifepacs	K-12	Sequential		X	Interactive at younger levels	Teacher edition included in boxed sets	Lifepacs are a consumable workbook format
Alpha Omega Switched on Schoolhouse	3-12	Sequential		X	Minimal	All instruction is computer-based	Computer-based; no workbooks
Horizons	K-8	Spiral	X	X	Interactive	Lesson plans, teacher notes & answer key	Tends to be faster paced and works ahead of grade level; 7 th grade is pre-algebra and 8 th is algebra
Beast Academy	3	Sequential		X	Minimal	Guide (comic book format)	Art of Problem Solving Aligned to Common Core
Bob Jones	K-12	Spiral	Used in early grades	X	Teacher-centric	Lesson plans, teacher notes & answer key	
Life of Fred	1-12				Minimal	No teacher guide for elementary level; Companion Guide or AK for select topics	This series offers math within a written context; an option for children who like to read. Hardcover books.
Ray's Arithmetic	K-12	Sequential			Interactive	·Scope and sequence ·General information on math instructional stages ·Grade by grade teaching sequences ·Planning Guide ·Weekly lesson plans suggestions	Classic Curriculum workbooks are written to complement this series for grades 1-4
Saxon K-3	1-3	Spiral	X	X	Scripted for teacher	Lesson plans, teacher notes & answer key	
Saxon Math Intermediate	3-5	Spiral		X	Minimal	Solutions Manual	·Hardcover ·Manipulatives optional ·Same methodology as Home School Edition
Saxon 5/4 through 8/7	4-8	Spiral		X	Minimal	Solution manual	Strong support with: ·D.I.V.E. & Saxon Teacher CDs ·website
Saxon High School	HS	Spiral			Minimal	Solution manual	Strong support with: ·D.I.V.E. CD ·website ·Saxon Teacher CD-ROMs
Saxon 4 th edition	HS	Spiral			Minimal	Solutions manual	Algebra 1 – 4 th ed. Algebra 2 – 4 th ed. Geometry has been removed
Discovering Mathematics CCSS	7-10	Sequential		X	Minimal	·Teaching notes/ solutions for text. ·WKBK: answer key in back. · Solutions Manual available	Currently: ·Being revised ·No tests ·Only grade 7 available
Earlybird Math SE	PK-K	Sequential		X	Interactive	Teacher Guide available, but not required	Readers available but optional – activity books are aligned to the readers
New Elementary	7-10	Sequential		X	Minimal	Lesson plans, teacher notes & answer key	More challenging and problem-solving questions; arithmetic topics introduced sooner
Primary Math US	1-6	Sequential		X	Interactive	Teacher guide & Home Instructor guides available	Placement tests available
Primary Math SE	1-6	Sequential		X	Interactive	Teacher guide & Home Instructor guides available	This series is aligned to California State Education Standards; has review after every chapter; placement test available
Starline Press	3-12	Sequential		X	Minimal	Teacher Edition included in sets	Consumable booklets (similar to Lifepacs)

Math Resources

Supplements:

- “Key To...” Series
- Spectrum Math
- On Core Mathematics (K-12)
- Mastering Essential Math
- McGraw Hill
- Complete Book of Math
- MathTacular (DVD & manipulatives)
- Humongous Books of Math Problems



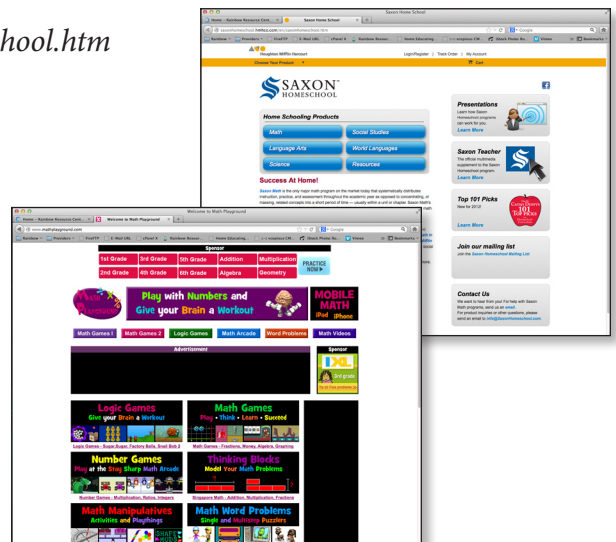
Websites*:

Saxon Math (“Resources” button):
<http://saxonhomeschool.hmhco.com/en/saxonhomeschool.htm>

Coolmath.com:
<http://www.coolmath.com/>

Math Playground:
<http://www.mathplayground.com/>

The World of Math Online:
<http://www.math.com/>



Apps*:

Math Blasters:
<http://www.mathblaster.com/Mobile/default.aspx>

Splash Math:
<http://studypadinc.com/>

Mathematics Monster Squeeze:
 – iPad, iPhone, & iPod Touch available on iTunes
 – Android available on <https://play.google.com/store/apps>

Everyday Mathematics® Baseball Multiplication™ 1-6 Facts & 1-12 Facts:
 – iPad, iPhone, & iPod Touch available on iTunes
 – Android available on <https://play.google.com/store/apps>



*While these websites appear to be suitable for all ages, it is recommended the parent(s) review these sites prior to use by their children. Rainbow Resource Center does not endorse nor is liable for content therein any sites listed above, these links are simply provided as a resource for homeschool families.