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Our friendly consultant team is here to answer your questions, M-F, 8:30-5 CT.



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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: <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• 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.
2010	Common Core State Standards (CCSS) adopted for math.
2013	CA modifies the California Common Core State Standards (CaCCSS) for mathematics.



"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

the F-A-M-I-L-Y way

F — Faith or Philosophy

- Values
- Structure

A — Approaches

- Manipulatives or No manipulatives
- Procedural vs. Conceptual
- Spiral vs. Sequential

M — Money

- Editions
- Consumables

I — Individuals

- Learning Styles
- Sequence of Learning

L — Life

Y — You

- Support/Resources

Notes: _____

Learning Styles



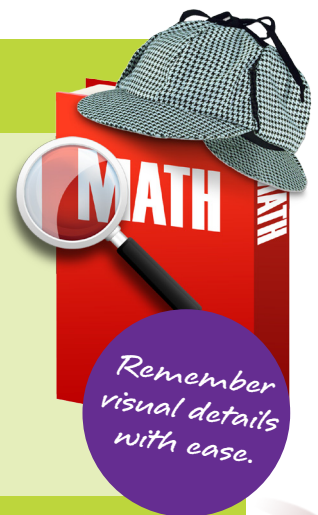
AUDITORY LEARNERS...

- Learn through listening.
- Like to read aloud and often like to talk to themselves or create musical jingles to help them learn new materials.
- Like to talk through a problem.
- Remember by talking out loud and they like to have things explained orally rather than through written instructions.



VISUAL LEARNERS...

- Learn through seeing.
- Like written instructions and prefer to take detailed notes as they listen to lectures.
- Learn best with visual materials such as pictures, charts, videos, illustrated textbooks, and handouts.
- Like to have a quiet place to study and use colorful highlighters to mark notes and texts.

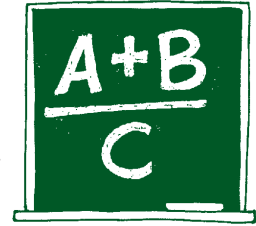


KINESTHETIC LEARNERS...

- Learn through moving, doing, and touching.
- Need to take frequent study breaks and like to chew gum or to snack while they study.
- Like to stand, rather than sit, when learning something new.
- Explorers at heart and like to learn through active participation in what they are learning.



- 1) **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.
- 2) **Charlotte Mason:** This method employs 'living books' rather than textbooks. Children learn naturally from the world around them and may include nature studies, art, music appreciation, crafts, and the usual core subjects. This approach works with the way children learn and where they are academically; it strives to teach good life habits, not just information.
- 3) **Traditional Education:** The approach uses textbooks and workbooks that are specific to grade level. Very familiar to most, and is what is used in many classroom settings.
- 4) **Rote Learning:** The teaching of mathematical results, definitions and concepts by repetition and memorization. Typically used to teach multiplication tables. A derogatory term is "drill and kill." "Parrot Math" was a title of a paper critical of rote learning.
- 5) **Problem Solving:** The cultivation of mathematical thinking by giving students open-ended, unusual, and sometimes insolvable problems.
- 6) **Procedural:** A method that teaches by giving a series of steps.
- 7) **Conceptual:** Clearly explains the rationale behind math procedures.
- 8) **Spiral Learning:** A philosophy of math instruction where topics are covered several years in a row, advancing slightly on each pass.
- 9) **Mastery Learning:** Well-defined learning objectives organized into smaller, sequentially organized units.
- 10) **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.
- 11) **Scope and Sequence:** A listing of the learning objectives and skills covered by a curriculum product(s) by subject and grade level.
- 12) **Scripted:** Curriculum where the teacher's words are supplied along with the student's response.



Notes: _____

MATH CURRICULUM COMPARISON CHART

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	MATH Programs	Grades												Religious Content		Price Range				
		PK	K	1	2	3	4	5	6	7	8	9	10	11	12	Christian	N/Secular	\$	\$\$	\$\$\$
1.	Saxon K-3 *		•	•	•	•											•			•
2.	Saxon 3-12 *					•	•	•	•	•	•	•	•	•			•		•	
3.	Bob Jones		•	•	•	•	•	•	•	•	•	•	•	•		•			•	
4.	AOP Horizons Math *		•	•	•	•	•	•	•	•						•			•	
5.	AOP LIFE PAC Math *		•	•	•	•	•	•	•	•	•	•	•	•		•			•	
6.	AOP Monarch / Switched-On Schoolhouse					•	•	•	•	•	•	•	•	•		•			•	
7.	Math-U-See *	•	•	•	•	•	•	•	•	•	•	•	•	•		•			•	
8.	Abeka Math	•	•	•	•	•	•	•	•	•	•	•	•	•		•			•	
9.	Primary Math 2022 (Singapore)		•	•	•	•	•	•								•			•	
10.	Primary Math (US) (Singapore) *		•	•	•	•	•	•								•			•	
11.	Primary Math Standards Edition (SE) (Singapore) *		•	•	•	•	•	•								•			•	
12.	Primary Math Common Core (CC) (Singapore)		•	•	•	•	•	•								•			•	
13.	Math in Focus (Singapore) *		•	•	•	•	•	•	•	•						•			•	
14.	Calvert Math		•	•	•											•			•	
15.	Exploring Creation with Mathematics (Apologia)			•	•	•										•			•	
16.	Shaping Maths (Singapore)			•	•	•	•	•	•							•			•	
17.	Christian Light Math			•	•	•	•	•	•	•	•	•	•	•		•			•	
18.	Life of Fred			•	•	•	•	•	•	•	•	•	•	•		•		•	•	
19.	A+ Tutorsoft Math			•	•	•	•	•	•	•	•	•				•			•	
20.	Starline Press Math					•	•	•	•	•	•	•	•	•		•			•	
21.	ShillerMath	•	•	•	•	•	•	•	•							•			•	
22.	enVision Math (2017/2018)		•	•	•	•	•	•	•	•	•	•	•	•		•			•	
23.	Purposeful Design Math (2nd Ed.)		•	•	•	•	•	•	•							•			•	
24.	Making Math Meaningful		•	•	•	•	•	•	•	•	•					•			•	
25.	RightStart Mathematics *		•	•	•	•	•	•	•							•			•	
26.	MCP Mathematics		•	•	•	•	•	•	•							•			•	
27.	Conventional (Spunky Donkey) / Study Time Math			•	•	•	•	•	•	•						•			•	
28.	Liberty Mathematics		•	•	•											•			•	
29.	Miquon Math			•	•	•										•			•	
30.	Math Mammoth (Light Blue series) *			•	•	•	•	•	•	•						•			•	
31.	Ray's Arithmetic			•	•	•	•	•	•	•	•					•			•	
32.	Ray's for Today			•	•	•	•	•	•	•	•					•			•	
33.	Rod & Staff Mathematics			•	•	•	•	•	•	•	•					•			•	
34.	Jump Math			•	•	•	•	•	•	•	•					•			•	
35.	ThemeVille Math *			•	•	•	•	•								•			•	
36.	Beast Academy (from Art of Problem Solving) *				•	•	•	•								•			•	
37.	Strayer-Upton Practical Arithmetic					•	•	•	•	•	•					•			•	
38.	Art of Problem Solving *								•	•	•	•	•	•		•			•	
39.	Paradigm Accelerated								•	•						•			•	
40.	Principles of Mathematics/Algebra 2									•	•			•	•	•			•	
41.	A Fresh Approach									•	•	•	•	•		•			•	
42.	Jacobs Math										•	•				•			•	
43.	Foerster Math (Math Without Borders)										•	•	•	•		•			•	
44.	VideoText										•	•	•	•		•			•	
45.	Math Lessons for a Living Education		•	•	•	•	•	•	•							•			•	
46.	Mathematical Reasoning	•	•	•	•	•	•	•	•	•	•	•	•	•		•			•	
47.	Developmental Math		•	•	•	•	•	•	•	•						•			•	
48.	Math Power Basics								•	•	•	•	•	•		•			•	

This chart was assembled by Rainbow Resource Curriculum Consultants and is intended to be a comparative tool based on our own understanding of these programs and is not necessarily reflective of publishers' opinions. Some designations are "best fit," not absolute.

Placement tests are available on our website for programs marked with an (*).
 Find them at: <https://www.rainbowresource.com/hSearch.jhtm?keyword=math+placement+tests>

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	Approach			Manipulatives			Teacher Involvement			CCSS Aligned	Notes
	Spiral	Sequential	Conceptual/Topical	Req	Opt	RRC kit	Low	Med	High		
1.	•			•		•			•		Scripted teacher manuals.
2.	•				•		•				Teaching tutorials available separately.
3.	•								•		Paper manipulatives included.
4.	•				•	•		•			Grades 4-8 contain some religious content.
5.		•						•			
6.		•					•				Monarch is online only. SOS is computer-based.
7.		•		•				•			Mastery-based. Optional songs some Christian content.
8.	•			•				•			
9.		•		•				•			Digital manipulatives. Online components.
10.		•			•			•			
11.		•			•			•			Aligned to 1997 CA Standards. 2008 Ed.
12.		•			•			•		•	
13.		•		•		•		•		•	
14.		•			•			•			
15.		•			•				•		Projects included with each lesson.
16.		•			•			•		•	2013. Singaporean money. Metric. Online component.
17.	•							•			Suggested manipulatives for lower grades.
18.		•					•				Brief Christian references in elementary levels.
19.		•					•				Computer-based.
20.		•					•				
21.		•		•					•		Discovery, Montessori approach.
22.		•					•			•	Digital component.
23.		•			•	•			•		E-book option for teacher edition.
24.			•	•					•		
25.	•	•		•					•	•	
26.		•						•			Modified Sequential.
27.	•							•			Optional manipulatives for Spunky.
28.		•					•				Consumable workbooks.
29.			•	•					•		Uses Cuisenaire rods.
30.		•			•		•				B & W or color versions available.
31.		•						•			
32.		•			•			•			
33.		•						•			
34.		•							•	•	
35.	•			•				•			Manipulatives used at all levels.
36.			•				•				Recommended for gifted students.
37.		•						•			No Teacher Guide.
38.		•					•				Recommended for gifted students.
39.		•					•				
40.		•					•				
41.		•					•				
42.		•					•				Teaching tutorials available separately.
43.		•					•				MWB Teaching tutorials available separately.
44.		•					•				DVD or online format..
45.			•	•					•		Extra practice (L1-3). Teaching Companion avail.
46.	•						•				
47.		•			•		•				Skill-based levels.
48.		•					•				Written at 4th grade level / for struggling students.

SINGAPORE APPROACH MATH COMPARISON CHART

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SINGAPORE Series	Grades										CCSS Aligned	Edition	Price Range		
	PK	K	1	2	3	4	5	6	7	8			\$	\$\$	\$\$\$
Primary Math U.S. Edition (US)			•	•	•	•	•	•				2003	•		
Primary Math Standards Edition (SE)			•	•	•	•	•	•				2008		•	
Earlybird (Standards Edition)		•										2014		•	
Primary Math Common Core Edition (CC)			•	•	•	•	•				•	2014		•	
Earlybird (Common Core Edition)		•									•	2014		•	
Primary Math 2022		•	•	•	•	•	•				•	2022		•	
Shaping Maths			•	•	•	•	•	•				2013 (Newest syllabus)			•
Math in Focus		•	•	•	•	•	•	•	•	•	•	2010, 2014			•
New Elementary Math									•	•		2006	•		

SINGAPORE Series	Components						Supple- men- tals	Manipulatives			Notes
	TG	HIG'	Text		Workbook			Req	Opt	Kit Av	
			Color	B&W	Color	B&W					
Primary Math U.S. Edition (US)	•	•	1-3	4-6		•	•		•	•	No tests, Extra Practice Books.
Primary Math Standards Edition (SE)	•		•			•	•		•		Tests, Extra Practice Books.
Earlybird (Standards Edition)	•					•	•		•		TG integrates readers and activity books. Teacher notes at bottom of textbook page.
Primary Math Common Core Edition (CC)	•		•			•	•		•		Extra Practice Books, Challenging Word Problems..
Earlybird (Common Core Edition)	•					•	•		•		TG integrates readers and activity books. Teacher notes at bottom of textbook page.
Primary Math 2022		•	•			•	•		•		Online components: manipulative, games (coming '22-'23), printable worksheets, student book (PDF).
Shaping Maths	•		•			•					Coursebooks in e-books for 1-6. Cardboard manipulatives provided for 1A, 1B and 2B.
Math in Focus	•		•			•			•	•	Tests, extra practice, reteach, enrichment.
New Elementary Math				•		•					Solutions Manual rather than Teacher Guide.