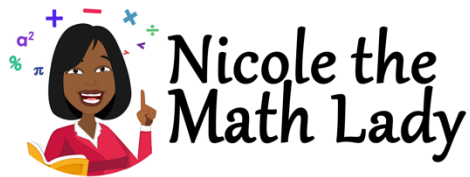


# Making Math Accessible

Techniques for Teaching Kids with Learning Differences



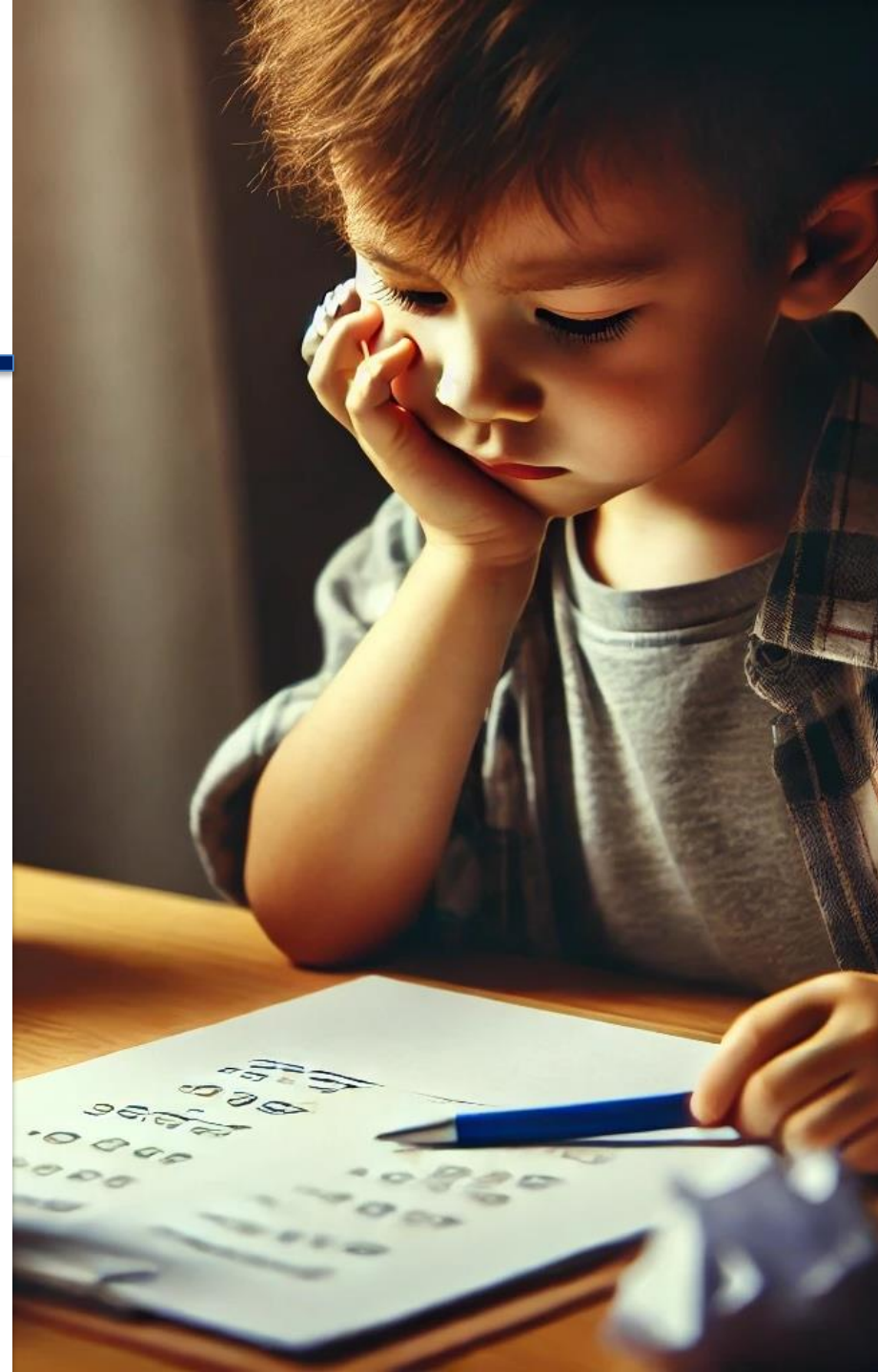


- Lesson Videos & Automated for Saxon Math and Singapore Math
- Serving over 250K students
- I'm a homeschool mom too!

# Why Accessibility Matters in Math

---

- 1 in 5 students has a learning disability.
- 40% of students experience math anxiety.
- When math is made accessible, confidence and success follow!



# Strategies for Making Math Accessible

---

Use multisensory  
teaching  
methods





# Mix it Up

- Music/Songs
- Movement
- Use mnemonic devices
- Use changes in voice/tone

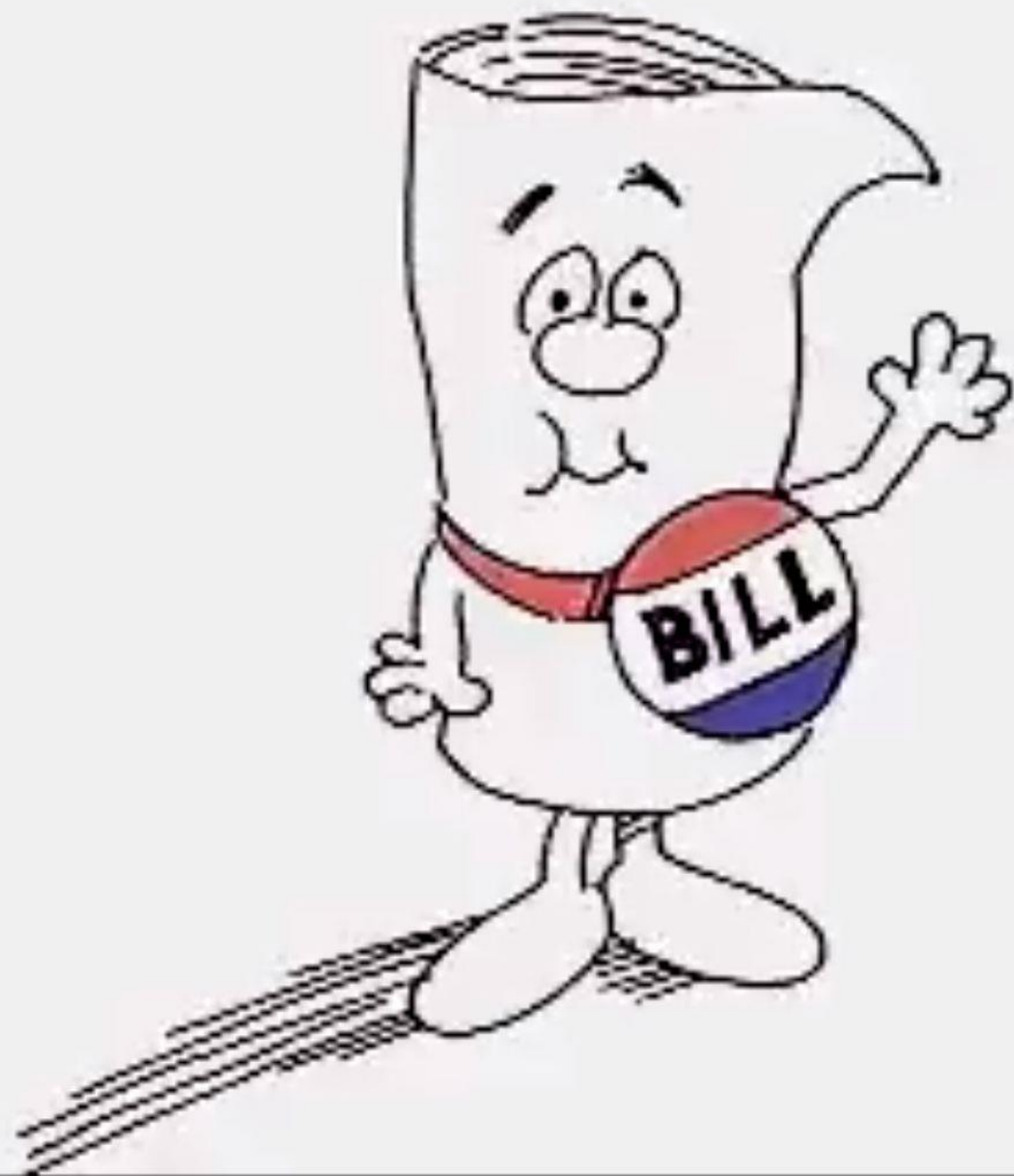
**AND**

**CLAUSES**

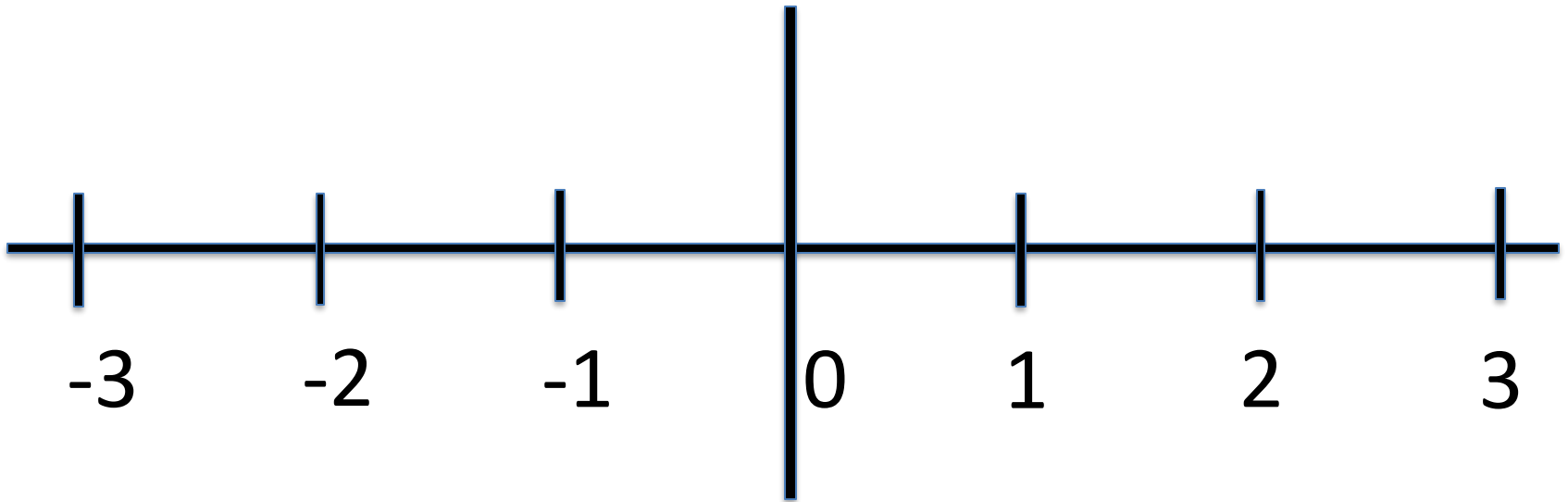
**AND**

**PHRASES**





# Teaching Integers



Subtract or negative...  
turn left

Add or positive...  
turn right



$$\begin{array}{r} 1537 \\ 4 \overline{) 6148} \\ \underline{-4} \phantom{00} \\ 21 \phantom{00} \\ \underline{-20} \phantom{00} \\ 14 \phantom{00} \\ \underline{-12} \phantom{00} \\ 28 \phantom{00} \\ \underline{-28} \\ 0 \end{array}$$

**D**ivide

**M**ultiply

**S**ubtract

**B**ring Down



**D**on't  
**M**ake  
**S**lime  
**B**lue

# Strategies for Making Math Accessible

---

Use multisensory  
teaching  
methods

Provide visual  
aids and  
manipulatives



# How Do You Find Average?

---

Find the sum of all your items

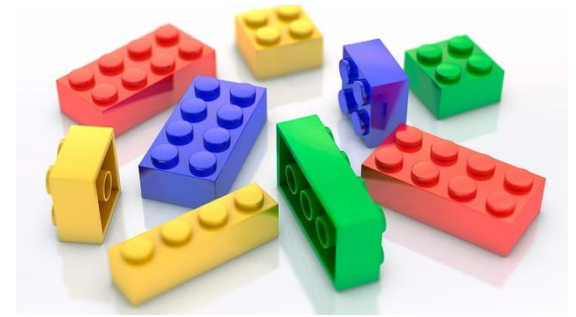
---

Your number of items



In the four containers, there are 17 crayons, 7 crayons, 11 crayons and 5 crayons. If the crayons were rearranged so that each container had the same number of crayons, how many crayons would be in each container?

# Examples of Manipulatives



# Strategies for Making Math Accessible

---

Use multisensory  
teaching  
methods

Provide visual  
aids and  
manipulatives

Incorporate  
technology and  
interactive tools





## Role of Technology in Accessibility

---

- Digital tools like a calculator or Desmos
- Closed-captioning, Screen readers text-to-speech tools
- YouTube
- Interactive video lessons
- Adaptive learning platforms



# Strategies for Making Math Accessible

---

Use multisensory  
teaching  
methods

Provide visual  
aids and  
manipulatives

Incorporate  
technology and  
interactive tools

Offer step-by-  
step instructions  
with scaffolding



# Key Features of Scaffolding

---

**Breaking  
Learning into  
Smaller Steps**

**Providing  
Support  
(Hints, Cues,  
Guided Practice)**

**Gradual Release  
of responsibility**

**Encouraging  
Independence**

Are you an  
“Explainerator?”





## Explaining & Questioning Strategies

---

- Demonstrate first, then explain
- Use fewer words
- Use simpler words
- Use "how" or "what" questions
- Ask questions they can win
- Use parallel problems with easier numbers first
- Repeat, repeat, repeat

# Strategies for Making Math Accessible

---

Use multisensory teaching methods

Provide visual aids and manipulatives

Incorporate technology and interactive tools

Offer step-by-step instructions with scaffolding

Teach at their speed



Constantly missing important pieces of information



Taking a long time to complete tests or homework



Poor reading comprehension

# 5 Signs of Slow Processing Speed



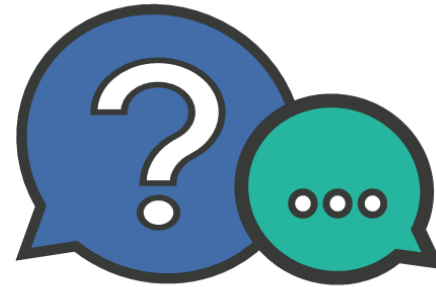
Having trouble reasoning through a question to come up with a solution



Struggling to keep up with verbal and non-verbal communication

# Processing Speed

---



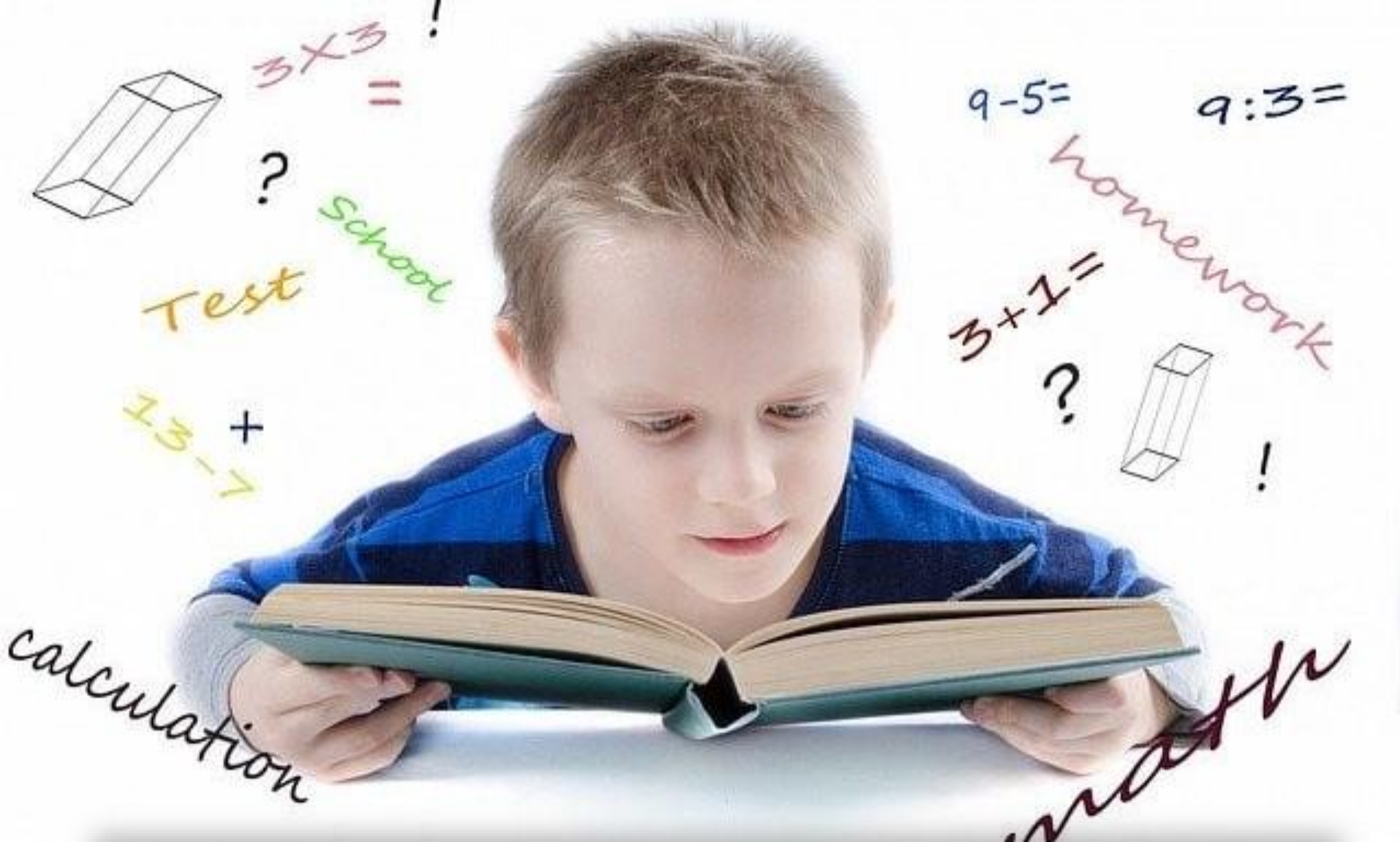
Don't talk through their silence.  
They are thinking!

# Reconsider Your Timing

- Figure out their math stamina
- Figure out the right school year for your homeschool
- Learn the graduation requirements in your state
- Adjust your expectations – 5 versus 50







What if I have math gaps?

# Gap #1: Math Facts





## **The Production Effect**

The dual action of speaking and hearing oneself has the most beneficial impact on long-term memory.

- *The University of Waterloo*

# Gap #2: Pre-algebra

## Pre-Algebra Review

$$24 \div 4 \times 3$$

$$8 - 5 \times 4$$

$$\frac{21xy^2}{63xy}$$

$$17\% \text{ of } 900 ?$$

$$63 \times 4$$

$$\frac{2}{3}x = 9$$







## Recommended Skills by Grade



# Rainbow Resource Math Comparison Chart

## 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   | Non-Secular | \$ | \$\$ |
| 1. Saxon K-3 *  | *      | * | * | * |   |   |   |   |   |   |   |    |                   |    | *           |             |    | *    |
| 2. Saxon 3-12 *                                       | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 3. Bob Jones  | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 4. AOP Horizons Math *                                | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 5. AOP LIFEPAK 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. Good & Beautiful Simply Math                      | *      | * | * | * | * |   |   |   |   |   |   |    |                   |    | *           |             | *  |      |
| 17. Shaping Maths (Singapore)                         | *      | * | * | * | * |   |   |   |   |   |   |    |                   |    | *           |             | *  |      |
| 18. Christian Light Math                              | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 19. Life of Fred                                      | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 20. A+ Tutorsoft Math                                 | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 21. Starline Press Math                               | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 22. ShillerMath                                       | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 23. enVision Math (2017/2018)                         | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 24. Purposeful Design Math (2nd Ed.)                  | *      | * | * | * | * | * |   |   |   |   |   |    |                   |    | *           |             | *  |      |
| 25. Making Math Meaningful                            | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 26. RightStart Mathematics *                          | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 27. MCP Mathematics                                   | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 28. Conventional (Spunky Donkeys) / Study Time Math   | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 29. Liberty Mathematics                               | *      | * | * | * | * |   |   |   |   |   |   |    |                   |    | *           |             | *  |      |
| 30. Miquon Math                                       | *      | * | * | * | * |   |   |   |   |   |   |    |                   |    | *           |             | *  |      |
| 31. Math Mammoth (Light Blue series) *                | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 32. Ray's Arithmetic                                  | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 33. Ray's for Today                                   | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 34. Rod & Staff Mathematics                           | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 35. Jump Math   | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 36. ThemeVibe Math *                                  | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 37. Beast Academy (from Art of Problem Solving) *     | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 38. Strayer-Upton Practical Arithmetic                | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 39. Art of Problem Solving *                          | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 40. Paradigm Accelerated                              | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 41. Principles of Mathematics/Algebra 2               | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 42. A Fresh Approach                                  | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 43. Jacobs Math                                       | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 44. Foerster Math (Math Without Borders)              | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 45. VideoText   | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 46. Math Lessons for a Living Education               | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 47. Mathematical Reasoning                            | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 48. Developmental Math                                | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |
| 49. Math Power Basics                                 | *      | * | * | * | * | * | * | * | * | * | * | *  | *                 | *  | *           |             |    | *    |

This chart was assembled by Rainbow Resource Consultants and is intended to be informational and based on our own understanding of these programs and is not necessarily reflective of published materials. Some designations are "basic," not accurate.

Placement tests are available on our website for programs marked with an (\*).  
Find them at: <https://www.rainbowresource.com/hSearch.htm?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. | *        |            |                    | *             |     | *       |                     |     | *    |              | K-3; parent taught & includes manipulatives; AK online. |
| 17. | *        |            |                    | *             |     | *       |                     |     | *    |              | 2013. Singaporean money Metric Online component.        |
| 18. | *        |            |                    | *             |     | *       |                     |     | *    |              | Suggested manipulatives for lower grades.               |
| 19. | *        |            |                    | *             |     | *       |                     |     | *    |              | Brief Christian references in elementary levels.        |
| 20. | *        |            |                    | *             |     | *       |                     |     | *    |              | Computer-based.   |
| 21. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 22. | *        |            |                    | *             |     | *       |                     |     | *    |              | Discovery, Montessori approach.                         |
| 23. | *        |            |                    | *             |     | *       |                     |     | *    |              | Digital component.                                      |
| 24. | *        |            |                    | *             |     | *       |                     |     | *    |              | E-book option for teacher edition.                      |
| 25. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 26. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 27. | *        |            |                    | *             |     | *       |                     |     | *    |              | Modified Sequential.                                    |
| 28. | *        |            |                    | *             |     | *       |                     |     | *    |              | Optional manipulatives for Spunky.                      |
| 29. | *        |            |                    | *             |     | *       |                     |     | *    |              | Consumable workbooks.                                   |
| 30. | *        |            |                    | *             |     | *       |                     |     | *    |              | Uses Cuisenaire rods.                                   |
| 31. | *        |            |                    | *             |     | *       |                     |     | *    |              | B & W or color versions available.                      |
| 32. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 33. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 34. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 35. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 36. | *        |            |                    | *             |     | *       |                     |     | *    |              | Manipulatives used at all levels.                       |
| 37. | *        |            |                    | *             |     | *       |                     |     | *    |              | Recommended for gifted students.                        |
| 38. | *        |            |                    | *             |     | *       |                     |     | *    |              | No Teacher Guide.                                       |
| 39. | *        |            |                    | *             |     | *       |                     |     | *    |              | Recommended for gifted students.                        |
| 40. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 41. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 42. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 43. | *        |            |                    | *             |     | *       |                     |     | *    |              | Teaching tutorials available separately.                |
| 44. | *        |            |                    | *             |     | *       |                     |     | *    |              | MWB Teaching tutorials available separately.            |
| 45. | *        |            |                    | *             |     | *       |                     |     | *    |              | DVD or online format.                                   |
| 46. | *        |            |                    | *             |     | *       |                     |     | *    |              | Extra practice (L1-3). Teaching Companion avail.        |
| 47. | *        |            |                    | *             |     | *       |                     |     | *    |              |   |
| 48. | *        |            |                    | *             |     | *       |                     |     | *    |              | Skill-based levels.                                     |
| 49. | *        |            |                    | *             |     | *       |                     |     | *    |              | Written at 4th grade level / for struggling students.   |

This chart was assembled by Rainbow Resource Consultants and is intended to be informational and based on our own understanding of these programs and is not necessarily reflective of published materials. Some designations are "basic," not accurate.



Rainbow  
Resources Math  
Comparison Chart





**SELF  
CARE**



Be Your Student's Cheerleader



To download  
this workshop