What are Math Disabilities? This one page introduction was based on works by Adler, Eide & Eide, and LDonline.org (See Good Sources, last page.)

Specific learning difficulties in math can appear as trouble with: remembering math facts, understanding math concepts, understanding the language of mathematics, or planning.

Some things that look like disabilities in learning math:

- Emotional block from years of failure (pseudo-dyscalculia)
- No instruction or inadequate instruction

Other learning disabilities can affect math performance: difficulty in reading, difficulty processing language, difficulty with visual - spatial relationships, trouble with keeping a sequence of steps in order.

Symptoms of Difficulties in Math— Preschool Age

- Difficulty with number sense: the meaning of number.
- Trouble learning to count: Eide & Eide say by age 4 a child can usually count 4 objects.
  By age 5, fifteen.
- Matching number with amounts, "Which group has three things in it?"
- Sorting objects by shape, size or color,
- Comparing and contrasting (larger/smaller, taller/shorter)

Symptoms of Difficulties in Math —Age 6-12

- Reversing digits and symbols, 6 for 9, 81 for 18,
- Number sense not developing.
- Not recognizing groups and patterns,
- Poor short term memory for numbers,
- Difficulty learning math facts
- Difficulty learning math concepts [e.g., borrowing, regrouping, long division]

Symptoms of Difficulty in Math for Teens and Adults

- Continued trouble with math facts
- Language processing disabilities can hinder grasp of math vocabulary
- Success requires ability to follow step by step set of instructions
- May be hard to visualize patterns or parts of problems, or identify relevant bits

Tackling the Basics
Parents, work on your own attitude first. Then work on your child's attitude: praise perseverance, choose best time of day, limit math facts drill to 5-10 minutes, practice daily, consider modest rewards, use un-timed drills, large print, give the context of the lessons. Finger math may help, including Chisenbop, the Korean abacus-like method.

Drilling: Give the child several options each day: flash cards, 100 chart board game with 10-sided dice, Wrap-Ups or Learning Palette (both from learningwrapups.com), computer game, bouncing on mini-trampoline, large print worksheets, or silly storybooks like *Addition the Fun Way* and *Multiplication the Fun Way* from citycreek.com. Better yet, you and your children can make up your own stories to remember the facts.
Skip-counting is good preparation and review for multiplication. Skip-counting tapes: *Rap with the Facts, Audio Memory, Math-U-See, Multiplication Rock.*

Several companies and websites offer games for practicing math. On some parents can set the game level of difficulty. *Math Blaster* computer game series have been updated since I bought *Math Blaster: In Search of Spot. Math Blaster* now comes in 5 varieties: see Mathblaster.com, click on "Start Shopping." To preview, go to Mathblaster.com & click on "learn more." These new versions may be too distracting for your child.

General Resources for Basic Math
Try to involve several senses: touch, sound, sight:
- Learning circumference? Draw & measure chalk circles on your driveway.
- Figuring area? Cover a rectangle w/ 1 inch square tiles and count them.
- Run a tape measure around rectangles and squares to learn perimeter.

Moving With Math is a K-8 curriculum, with lots of review that uses manipulatives. They also sell Unifix Cubes and Base Ten Blocks, among others. www.movingwithmath.com

Fraction Bars http://www.fractionbars.com/OrderInfo.html

Use memory aids, also called mnemonics. http://www.atlanticwinds.com/mathmem/ has a good list, and http://www.ldonline.org/article/13717 explains principles behind them.

Cindy Neuschwander's children's stories help children learn math concepts: *Sir Cumference and the First Round Table, Sir Cumference and the Dragon of Pi,* etc.

Math on Call: A Mathematics Handbook, a reference book, helpful for grades 3-12. by Andrew Kaplan et. al.

Critical Thinking Books & Software has good & fun products. www.criticalthinking.com

Key Curriculum makes good, cheap, simple workbook supplements: *Keys to Measurement*, *Keys to Fractions*, etc. Note: *Keys to Geometry* and *Keys to Algebra* are **not** high school courses. http://www.keypress.com/x6469.xml

Survival Math Skills
Boy Scouts *Personal Management* merit badge pamphlet.
Larry Burkett books: *Money Matters for Kids* and *Money Matters for Teens.*
Christine Field, *Life Skills For Kids*, chapter 8.
http://www.mymoney.gov/ , http://www.federalreserve.gov/ , choosetosave.org
irs.gov, http://www.irs.gov/app/understandingTaxes/jsp/teacher_home.jsp

Options for Those with Severe Difficulty in Math
http://www.touchmath.com/ "Each digit from 1 through 9 has Touchpoints corresponding to the digit's quantity." Free teacher training video, free samples online.

Another good math program is **Semplemath.com**

Not Just for Down Syndrome: GiftsNC member Beth Lennox recommends a book by DeAnna Horstmeier, *Teaching Math to People with Down Syndrome and Other Hands-On Learners, Book I, Basic Survival Skills,* Woodbine House.

High School Math
Harold Jacobs, *Mathematics: A Human Endeavor*, *Elementary Algebra,* and *Geometry*, 3rd edition. A good review of Jacobs books is posted by Susan Richmond here: www.pahomeschoolers.com/jacobs.html

Geometer's Sketchpad. A software tool that lets students "construct objects, figures, and diagrams and explore their mathematical properties by dragging objects with the mouse." Curriculums available for algebra I and 2, geometry, pre-calculus, http://www.dynamicgeometry.com/

Video classes: Watch demos at www.videotext.com/ and mathusee.com/ Ask the publisher about their experience with students with needs like your child's.

Good Sources For More Information on Math Disabilities
http://www.ldonline.org/indepth/math
Bjorn Adler, *What is Dyscalculia?* A free e-book from http://www.dyscalculiainfo.org/
Brock and Fernette Eide, *The Mislabeled Child,* New York: Hyperion, 2006.

