

# Learning Center Helps

## Tips for the Tough Tasks—Math and Science

*“Study to shew thyself approved unto God, a workman that needeth not to be ashamed.”* II Timothy 2:15

Satisfaction comes from learning how to do something ourselves and then successfully doing it. A workman who does not need to be ashamed is a person who faithfully does what is required, so that when he looks over what he has done, he has no reason to be embarrassed. Here are some tools to help students learn to complete tough tasks in math and science themselves.

- I. Applying oneself and persistence equals success in math.**
  - A. In elementary and high school levels, the task of math is the task of a good workman.
  - B. Math success is driven by persistence. Encourage students to keep at it.
  - C. Math requires a step-by-step approach. Mundane? Perhaps. Necessary? Absolutely!
- II. Basics are critical.**
  - A. Build “precept upon precept.” It is vital that students understand each building block completely. Drill the basic functions until solid mastery is achieved.
  - B. Follow methods and procedures. Procedures must be taught from the beginning. Simple routines and terminology must be learned before advanced routines and terminology can be learned.
  - C. Reap fewer future problems. Failing to master basics may allow students to “get by” in the lower levels, but more complex multi-step problems can lead into major, test-failing problems.
- III. Categories of math problems.**
  - A. Conceptual. Students don’t understand the “idea.” This is the easiest to fix. Use manipulatives to help them understand.
  - B. Algorithmic. Algorithmic problems are problems with the method of solving the problem. An algorithm is a step-by-step procedure, similar to using a recipe to bake a cake.

C. Technical. Technical difficulties are really personal habits stemming from a lack of self-discipline that need to be corrected. They cause most of the difficulties math students have and lead to long-term math problems; yet, we spend the least time fixing these problems. Neatness does count.

- IV. Provide a “Learning Center” calculator for 7th level up.**
- V. Method not dependent on numbers used.** Students have difficulty understanding that the method doesn’t depend upon the numbers involved. Students must understand that following the method will handle the difference in numbers. Once a student learns how to solve a category of problems, he can use that method to solve all problems in that category. He can then concentrate on the higher level question of “which category is this problem in?” This is critical thinking.
- VI. Shortcuts are not shorter.** Students who can solve simple problems easily will often have trouble with complex problems because the students are used to taking shortcuts rather than using a robust methodology. Others fail to see the example as an example of a category of problems and do not transfer the method to different but related problems.
- VII. Answers should be checked.** It’s particularly important as multi-step problems appear that substitution and reversing the process be used to check almost every problem.
- VIII. Units are important.** This is true for math and science. Units tend to be added at the end of the problem as an afterthought rather than pulled through the method with the numbers. The result is that many mistakes, which could be caught by paying attention to units, are not caught. Require units be pulled through the entire problem and count the problem wrong if they are not.

**IX. Distractions are a “No-No”.** Encourage parents not to allow their children to watch television or listen to certain kinds of music while completing homework. Mathematicians, almost without exception, have noted that the best environment for doing difficult math problems is either a quiet place or using baroque music, such as that of Bach, Vivaldi, or Handel. This is because baroque music is orderly and is without attention-grabbing climaxes. You might consider playing such music in your Learning Center.

**X. “Reality check” is required.** This is especially important in science. As problems grow more complex, they begin to have more and more relevance to the world.

**XI. Math is a “toolbox.”**

- A. Right “tools” reduce math anxiety. Multiplication is simply a tool that speeds up addition. Various tools actually make solving problems easier. This is what the higher math tools do—they make problem solving easier. Help the students understand that they are filling a toolbox with tools.
- B. Know which “tools” solve which problems. The math student needs to keep his toolbox organized. Know what tools are available and what types of problems they solve.
- C. Make lists. Provide formulas for area, volume, perimeter; definitions; theorems; postulates, etc. These become the students’ ready references.

## All Children Need Hope for the Future

Using literacy tools to teach impoverished children about Jesus Christ, BLESS is impacting young generations with the love of God!

This testimony is from a recent visit to a BLESS Center in the Philippines.

“The BLESS Center we saw in Manila was in a part of the city where poverty, hardship, and spiritual darkness abound. In the midst of these conditions, our hearts were overwhelmed to see a group of children in these difficult circumstances smiling and quoting Scripture verses which they had recently committed to memory.

Praise the Lord for BLESS which penetrates the spiritual darkness of this world with the glorious light of Jesus Christ.”

G. M.

If you would like to help reach these children with the light of Christ, please contact us at [BLESS@aceministries.com](mailto:BLESS@aceministries.com) or 615-612-5200.



### Annual Inventory Notice

To help plan for your upcoming orders, please note that A.C.E. order processing and shipping will be suspended for inventory April 24-May 1, 2009. During this time period, our staff will queue the orders they received and process them as soon as the inventory procedure is completed.

We sincerely regret any inconvenience this interruption may cause you, our valued customer and friend.