

RAISING MATH-SAVVY/TEST-SAVVY CHILDREN

by Sandra Manigault

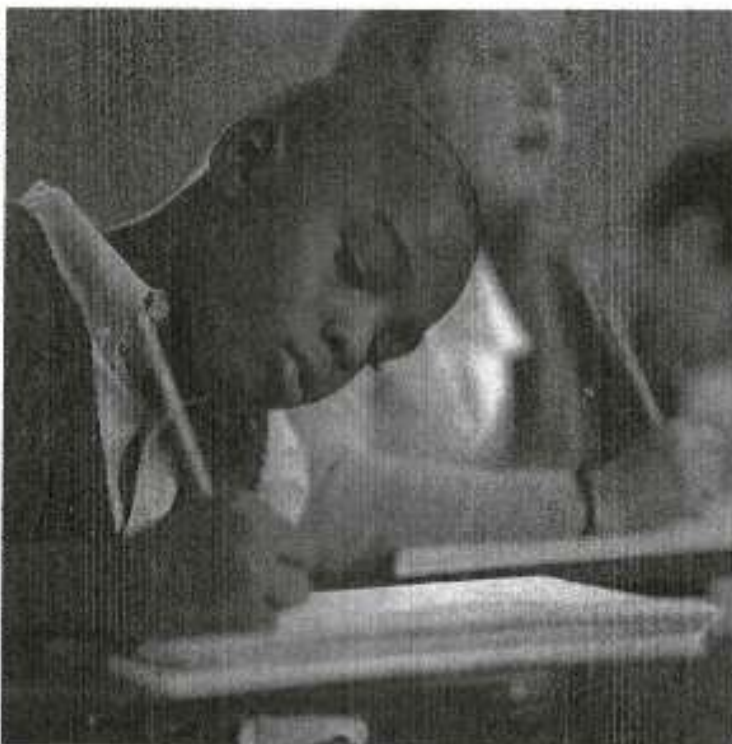
Each year as I teach and tutor students I marvel at how the population has changed. Students are not as math-resilient as they were twenty years ago. Even at the college level we teachers are seeing a decrease in flexibility, drive, and competence. At first we thought it was a fluke. As time progressed we recognized that something in the culture had changed.

The emergence of the SOLs was supposed to raise standards. It was supposed to standardize curricula, making both students and teachers more accountable. Somehow that has not happened. Instead what we are seeing are algebra II students who are uncomfortable with basic algebra I concepts. We are seeing geometry students who are not memorizing or understanding theorems, postulates, and definitions, once thought to be the foundation of a plane geometry course. We are also seeing students who can no longer "format" a math solution. In our SAT Prep Course, in which students must *show their work* to achieve the more complex solutions, we are seeing students who haven't a clue as to how to write out the steps in a complex multiple-step, or multiple-concept problem.

What is most disturbing is that I know of many of these students were to present themselves to Northern Virginia Community College (from which I retired in 2005) they would be put back into algebra I, if not arithmetic, based upon their performance on the mathematics placement test every NOVA student is required to take. This should not be happening. As parents, you should be concerned about these developments.

What should parents do? (And honestly, if parents do not get involved it will take a very long time for things to correct themselves.) This is what I believe would bring about the common sense changes necessary.

1) Be sure that your child is proficient in all the basic skills. Know what your child can do. Can he/she do long division (the old fashioned way)? Does he/she remember his/her multiplication facts? Does he/she write reasonably clearly with good spelling and an age-appropriate vocabulary? How well does your child read



and when did you last hear him/her read aloud?

2) Insist that your children be allowed to keep their quiz papers and test papers. Only by studying what they did wrong will they learn to stop repeating the same mistakes.

3) Take steps as parents to correct behaviors and habits at the first sign of a "D" in a course. Do not assume that your child "understands the work and just cannot take tests." This is a *false assumption* that many parents seem to make.

4) Ask your child's teachers for written specifications for all major assignments and projects, and insist that your child keep an assignment book that records all homework, test dates, and project deadlines. Work together to set a reasonable timeline to meet all deadlines in a way that does not stress the entire family.

5) Know that grades alone are no longer an indication of what a child knows. If a child gets a grade of "C" it may not indicate that he/she knows 70% of the syllabus. Remember that much of that "C" consists of homework grades, which are not an indication of what a child remembers or has mastered.

6) If your child's teacher does not use the textbook and does not follow a syllabus to which you have access, ask *why not?* If the textbook chosen does not provide ample exercises to drill the skills a child should be learning, ask *why not?*

7) Please question the practice of checking off homework and giving students 100% if they do it (and zero if they don't), and incorporating homework grades into their averages. The checking off of daily homework should not constitute serious input into the GPA in math courses, especially at the higher levels.

8) Do not back away from remaining engaged in how your children are learning or not learning just because they are in high school. Stay engaged as long as possible. You will not be able to get official access to this information once they enter college.

9) Be realistic in terms of how much your child can do. Far too many students are overscheduled and *perform marginally*, having neither

the time nor the energy to study properly. Be honest in your assessment of how many extra-curricula hours your child can spare on a daily average.

10) Do not permit your sons to grow weak academically by thinking that they are going to become professional basketball/football players. It is less competitive today to become a doctor than a professional athlete. Likewise for your girls: Do not allow their sports practices to detract from hours that should be spent with the books preparing for advanced courses or for SATs.

11) Allow your children to emulate the practical behavior and good habits you exhibited at their age to become the professional that you are today. Children are still children and must thoroughly mature *before they can determine* what is truly in their best interests.

Good luck!

About the author: Sandra Manigault, B.S., M.A., is retired from Northern Virginia Community College where she taught mathematics for twenty years. She teaches SAT Prep Courses and has tutored students over the past three decades. She is the author of The Book for Math Empowerment, The Children's Book for Math Empowerment, and other books. She is the mother of two successful adults - Patrick, a physicist and Dawn, a professional dancer.

RAISING MATH SAVVY-TEST SAVVY STUDENTS

Parent Summit: October 19, 2019. Prince William County Schools

Sandra L. Manigault, B.S., M.A., Presenter

Author/Educator - The Manigault Institute (540)720-0861

manigaultinstitute.com (for courses) sandrallynnlegacies.com (for books)

I. TRAITS THAT MAKE MATH WORK

1. Tenacity - The unwillingness to quit
2. Confidence - Believing that one can
3. Assertiveness - The willingness to ask questions
4. Patience - Knowing one doesn't "get" math after 1 reading: It's about concepts
5. Precision - The importance of being neat especially at the higher levels
6. Practice - The willingness to study and practice
7. Positive Attitude - toward the subject, the teacher, the process, oneself

II. SKILL SETS THAT MAKE MATH WORK

1. Neatness: In note-taking, writing out (formatting) steps in working a problem. *WHY?*
2. Vocabulary for math: Knowing the names of things and using that to read the book
3. Organization : "Having a place for things and keeping things in their place."
4. Memorization: Each math course requires some degree of memorization: lots of memory is required in algebra and geometry, and higher courses
5. Time management. I used to do my math hw first every day in high school. I also alternated math courses with reading courses, and rotated in college.

III. POSITIONING ONE'S CHILDREN TO GET A's IN MATH

1. Assertiveness - teach them how to ask questions politely but assertively
2. It is important that they can read the text. NO TEXT? **Buy them one yourself.**
Go to Barnes and Noble, look online, Research Amisco School Publications.
Recommendations: *BITTINGER FOR ALGEBRA*, *KAUFMANN FOR PRE-CALCULUS*
3. They must know when they know, and know when they don't know, and tell you.
They also need to know that you will go to bat for them: ie. Go to parent conferences
4. Be sure they know their number facts and can work without a calculator. *WHY?*
5. Be aware of the extent to which they follow sequential directions (very important)
6. Stress the importance of proofreading test papers before turning them in.
7. Do not allow them to be inattentive in class. Teachers always know who is talking.

IV. WHAT YOU NEED TO KNOW AS A PARENT

1. STOP ASSUMING THEY KNOW THE MATERIAL BUT CANNOT TAKE TESTS.
2. Go up for a conference at the first sign of a C or D. Have the talk at home first and then go up and take notes during the conference. And ask significant questions
 - A). Are the tests returned? (Questions and answers)
 - B). Was enough lead time given (at least 3 or 4 days notice for a big test)?
 - C). Was enough time allotted for the test?
 - D). If student got the answer right, but lost points anyway - why?
 - E). Was test gone over in class? If not, why not?
 - F). Are the mistakes being made conceptual or due to carelessness? How should your child fix both?
3. As parent - know that there is no substitute for practice. All high school math courses require practice, regardless of when the child takes the course.
4. **STAY INVOLVED.** Be willing to check homework, due dates for projects, big tests, *Don't allow your child to be over scheduled.* Know what they can do comfortably.

(STORIES: Patrick, The Grimshaws, Valedictorian's Dad with college essays, SAT parent, etc.)

Should My Child Prep Early for the SAT or ACT and if so, Why?

by Sandra L. Manigault

My experiences as an SAT/ACT instructor and former mathematics teacher (college and high school) have convinced me that many students need to begin prepping earlier than the senior year for these tests. Unlike classroom tests (and quizzes) the SAT and ACT require much higher levels of cognitive ability than remembering facts and skills taught in school courses. Whereas good students frequently can "cram" for ordinary tests, this cannot be done for the SAT or ACT. Here's why. And here's what certain "markers" tell us about students.

1) GPA.

Today many competitive students have a GPA in excess of 4.0. Made possible by the taking of several advanced placement courses, these students often apply to colleges with GPAs unheard of a generation ago. This is due to advanced placement courses weighing an A as 5.0 as opposed to 4.0. If a GPA is below 4.0 this does not mean one's child is necessarily a weaker student, only that he or she has not taken a comparable battery of AP classes. However, these students need to augment their college applications with higher SAT or ACT scores than would be presented without preparation.

2) SAT scores below 1200.

For the SAT a score of 500 (or slightly higher) is the median, with half of the SAT testing pool scoring above and half below this number. To be considerably above "average" and competitive, given the worldwide demand for American colleges, one needs scores preferably close to or in the 600s.

3) Non-readers

Conscientious students do all of their homework assignments. They read whatever is assigned. However, how do they read? Do they read an assignment from start to finish, or do they first read the questions at the end of a chapter, and then scan the chapter to find the answers? This may seem like an expedient way to get one's homework done. But this process does not train a student to read inferentially or build vocabulary in context. Nor, does it prepare a student to answer the sophisticated questions on the SAT (or ACT). Additionally, observation tells me that superior test takers read for pleasure, devour books for the thrill of it, and if not now, they did at one time. Such students are served on several fronts: comprehension, vocabulary, speed, and tolerance.

4) Math limitations

Is your son or daughter an independent problem solver? Or, must he (or she) be shown first how to do a problem and apply a concept? Independent problem solvers, those willing and able to figure things out on their own, often do well without preparation for the SAT provided they remember the theory and concepts underlying geometry, algebra one, algebra two, and trigonometry. Because SAT questions are based on specific knowledge,

both skills are needed to do well. (ACT questions likewise are based directly on conceptual knowledge from algebra, geometry, and trig courses.)

Does she like word problems? I don't think the typical student does. But on the new SAT many of the word problems require significantly more reading than on the previous version of the test. Again speed, accuracy, independence of thought, and creativity make the difference.

5) Knowledge of Grammar

This English subtest, which appears on both the SAT and ACT is comprised of several short flawed passages, which must be read, deciphered, edited, and corrected. The problem is that many English courses do not emphasize grammar and syntax. Hence students haven't a clue as to how to speed through this test. (Students who attend private schools often are at an advantage here, where the curriculum is not SOL driven.)

6) Ease with Writing

The new SAT essay question starts with an essay. This given essay must be read and digested before the student begins to write his own. (Not a nice test question in my opinion.) Students in AP English are better prepared for this question than those who are not. Fortunately, we address this and all of the other required skills in our 39-hour course, which is the beauty of comprehensive preparation.

7) Summary

This obviously is not a test for which one can cram. Nor, is one served by taking a quick "strategies only" course. We do not remediate students. How could we? But we help them refine their skill set, and do our best to ascertain that our students understand and know how to use the critical information they need to do SAT questions.

Why not help your son or daughter by giving them early exposure and seeing to it that they have enough time to master what they need to learn. Early exposure to good SAT (or ACT) preparation also will give them a firmer foundation upon which to build and reinforce the high GPA desired.

One last thing - a college president once told me, "Before his admissions people read a student's resume, they examined the student's transcript to verify the numbers."

Sandra L. Manigault, M.A., is the co-owner of The Manigault Institute, which prepares students for the SAT and ACT. She was a math test editor for the American Council on Education, taught math in NYC, Fairfax County, and is retired from No. VA Comm. College. Sandra is also the author of several books. For more info please call (540) 720-0861 or visit manigaultinstitute.com for SAT updates, or sandrajynlegacies.com to see Sandra's books. ■