

Math Literacy News



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GED 2000: NEW TECHNIQUES FOR A NEW TEST

In January 1997, the GED Testing Service convened a 29-member Specifications Committee in Washington, D.C. to develop specifications for the new GED 2000 Series Tests. Currently, the GED Testing Service is researching the Specifications Committee's recommendations to determine the structure of the new GED 2000 Series Tests. Implementation decisions regarding content validity, reliability, and feasibility are in process. The final specifications will be presented for approval to the GED Advisory Committee, The Commission on Adult Learning and Educational Credentials, and the ACE Board.

The GED 2000 won't be ready in the year 2000; most probably January 1, 2001 will be the earliest implementation date. Practice tests and information materials should be available in 2000.

Since the GED test is a reactive, not a proactive test, it will reflect the major and lasting outcomes of a four-year high school program of study in the core academic disciplines of English language arts, mathematics, science, and social studies, with an increased emphasis on workplace and higher education needs. The new test will be a

reflection of our country's having "raised the bar" in secondary education.

Ohio's scoring standard will be normed against graduating high school seniors' performance. However, because of the changes in the new test, scores from the old and new tests will NOT be able to be combined. Students will have to successfully complete the old GED test or start anew with the GED 2000.

Many procedural questions have yet to be answered concerning the new test. Although no final decisions will be made until the proposed changes have been researched and evaluated, the following major changes are proposed:

There will be one English Language Arts Test
The current test 1: Writing Skills and test 4: Interpreting Literature and the Arts may become one English Language Arts Test but have two parts, *Responding to Text* and *Generating Text*. *Responding to Text* will have three types of responses: to literary text (60%), to informational text (30%), and to viewing of text (10%). *Generating Text* will probably consist of a writing sample and an editing sample. Each section will probably be worth 50% of the English Language Arts Test.

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The Mathematics Test will have a calculator section. Calculators will be allowed/required on approximately 80% of the test. The rest (20%)



of the test will not allow calculator use so that estimation and calculation can be demonstrated. The non-calculator section will be similar to the present test. In the calculator section, problems will be longer and more involved in order to utilize the calculators' capabilities.

There will be shifts in content and skills, including more explicit emphasis on cross-disciplinary skills across tests. The GED 2000 test will include some different emphases. The English Language Arts Test will reflect the National Assessment of Educational Progress framework and require an additional section on information texts. The Mathematics Test will involve increased emphasis on data analysis, statistics, and probability. Cross-disciplinary skills such as information-processing, problem-solving, and communication may be more apparent across all the tests in the battery.

There is a possibility of a Cross-Disciplinary Test. A separate test that applies to all disciplines may be included. Such a test would allow examinees to use informational processing skills to interpret a broad range of texts across the core academic disciplines.

The test will include alternate formats. Tests will include machine-scorable answers of non-multiple choice questions such as gridding answers in mathematics.

Busa, Suzette, consultant of the GED testing service, Adult Numeracy Network meeting, Washington, D.C., April 1-2, 1998.

General Education Development (GED) Testing Service website <www.acenet.edu/Programs/CALEC/GED?home/html> "GED 2000" series tests.

HOW CAN I HELP MY STUDENTS PREPARE FOR THE NEW MATH TEST?

Familiarity with calculators is important in preparing for this test. While the type of calculator and who provides the calculator has not yet been decided, it is important that students begin to use calculators during many if not all mathematics experiences.

Problem solving using calculators must be emphasized in the classroom. Since the Cross-Disciplinary Test will require informational processing skills across a broad range of texts, students will need to learn and practice those skills. This may seem overwhelming for both student and teacher, but it is important to start working toward the ability to deal with involved, non-routine problems. Repeating calculation skill work will not help students achieve these competencies.

Problem solving in the classroom can be developed through group work. Rather than starting with highly involved interdisciplinary problems, students can begin with "story problems" from existing text. These problems are common in GED texts, workplace literacy books, and problem solving texts. Rather than listening to lectures or working independently, students get more benefits from actively engaging with others to solve problems. Groups of two, three, and four are workable in multi-level classrooms. Students can be on many different academic levels and still work together well in a cooperative learning situation, helping each other.

Data analysis and statistics are often ignored in the ABLE/GED classroom. Using such cross-disciplinary tools as newspapers and workplace texts, students and teachers can begin to explore the various nuances of charts, graphs and tables. Rather than merely finding specific information, students need to interpret data and apply it in contextual situations.

Estimation skills are important for mathematics success and for passing the existing GED test and GED 2000. Estimation will be important for the 20% of the test that will not allow calculators, and also for the calculator section. Students need to determine if their answers are reasonable, if they have the correct order of magnitude, and if others can duplicate the results. Predicting an answer before solving can help with estimation skills.

Concepts need to be communicated mathematically. Rather than doing page after page of fraction calculations, students should be able to express why one third is greater than one fifth. Explaining relationships such as decimal, fraction, and percent equivalents can help solidify knowledge.

Students should explore why a concept works rather than memorizing formulas or procedures.

Students need to be able to apply a concept in a wide variety of situations, rather than repeatedly practice computation skills. The new test will expect students to understand a wide variety of concepts and to apply those concepts in a variety of situations.

BUT ONLY HAVE TWO HOURS PER WEEK....HOW DO I FIT ALL THIS IN?

Most teachers have abandoned the myth of coverage. ("I covered the whole book. If the students didn't get it, they need to spend more time or effort.") but still aren't sure how to prepare their students for the GED test. GED tests seem so overwhelming with page after page of problems and skills. Teachers need to step back and decide which areas are important for their students and concentrate on those areas. Adults come with many life skills and can accomplish much when given the opportunity. Suggestions for a typical class session include the following:

Idea #1.

Start the class with a problem to discuss and solve, perhaps a mathematical application or a problem that will be the focus of the week or a mental math skill. Some useful mental math skills are: Multiplying by 10 and 100 by hooking on zeros, multiplying by four by doubling and doubling again, dividing by four by taking half and taking half again, multiplying by 25 by relating it to quarters, dividing by 10 and 100, multiplying by using factors, etc. Ten or 15 minutes spent on this activity helps bring a group together and allows for latecomers, a common problem in many classes.

Idea #2.

When beginning a topic, discuss it with the students before working with any numbers. Ask the students what they already know about a new topic. It is surprising what the students already know about mathematical concepts. Applications from life are often introduced by the students at this time. Also, some very basic concepts that are incorrect are often discovered. For example: in a GED class, we discovered that students really weren't sure about the difference between a rectangle and a square!

Idea #3.

Use non pencil and paper math to explore concepts. When introducing percent, the class may spend one whole period exploring what

percent means as well as learning mental percents such as 10%, 50%, 15%, 25%, etc. Common fraction, decimal, and percent relationships can be explored using money as examples. These activities help students solidify the concept of what a mathematical concept means. Students develop number sense when working with those concepts.

Idea #4.

Break the class into groups of two, three, or four and give them practice with some involved word problems. Group work is a wonderful way for students to gain confidence and understanding of mathematical concepts. However, group work, or cooperative learning, can be difficult to implement if students are used to working alone. When introducing this way of working, students and teacher must expect some difficulties. Before starting, rules should be discussed so that students don't just work independently in a group! Two easy beginning rules for group work might include:

1.) No student may continue until everyone understands. When circulating through the room, the teacher should ask various students to explain procedures. If someone can't then the whole group needs to explore the problem again. A light-hearted "but you can't understand since Sabina doesn't understand and you are ALL working together" helps students take the time to work together when solving a problem.

2.) Anyone in the group may ask a question, and everyone in the group has the responsibility to answer questions.

Since students are often uncomfortable voicing opinions in a classroom, it may be helpful for the teacher to leave the room at the start.

Remember, it is not the group that finishes the most problems that "wins." Often a group will rush through problems and gain little, while another group will work on one or two problems and have a beneficial mathematical experience. One way to discourage groups from rushing is to not assign the remaining problems for homework. If a group doesn't finish a problem set, it is not the end of the world! Remember, there are more problems available than anyone could finish in a lifetime!

Idea #5.

Think carefully about homework. Students can be given calculations for homework if they are needed or wanted. Calculation is an independent skill that can be done at home. Every student should be given some word problems to take home. Remember, students do better with a few problems that can be well thought out rather than page after page of problems that are overwhelming and given cursory attention.

Idea #6.

Take the time in social studies and science to work through the mathematics. These applications and connections will help students become proficient in the skills needed to pass the GED and to be successful in other endeavors. Life is not compartmentalized into narrow, academic disciplines.

Idea #7.

Use the Internet to develop professionalism and increase knowledge in helping students.

Join the Adult Numeracy Network Listserv to connect with adult numeracy educators throughout the country. This listserv is comprised of teachers interested in improving mathematics instruction for adult students. Topics range from philosophical (What is the worth of a GED?) to practical (What is the best way to introduce algebra?). Between 10 and 20 messages per week are exchanged. In order to try this group, send a message to:
majordomo@world.std.com

Your message should read "subscribe numeracy" followed by your first and last name.

Connect to the midwest hub's website on numeracy. Log onto:
<http://literacy.kent.edu/Midwest/Math/index.html>

Find out what other adult educators use and recommend.

Idea #8.

Join professional organizations to connect with innovative, effective teaching practices and techniques.

The Adult Numeracy Network (ANN) is a professional group dedicated to improving mathematical instruction for adults. Newsletters, the above listserv and an annual meeting make this group a valuable resource for adult education teachers. Membership is \$10.00 per year and information and an application may be obtained from Nancy Markus, past president and Ohio contact, at:
nmarkus@juno.com

NCTM, the National Council of Teachers of Mathematics, is a professional organization with many resources available for all math educators. Information about NCTM can be obtained at their website:

www.nctm.org.com

or call 1-800-235-7566 for membership information.

The state affiliate of NCTM is the Ohio Council of Teachers of Mathematics. The primary contact for this group is Margie Raub Hunt, 16734 Hamilton Court, Strongsville, OH 44136-5701. They also provide a journal and conferences applicable to adult students.