

# Miami Dade County Public Schools

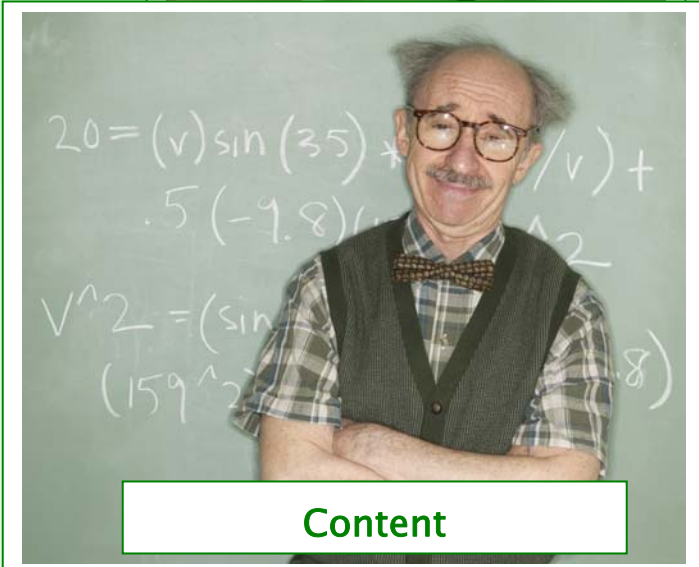
## CRUNCH TIME Grades 6, 7, and 8 including INTENSIVE MATHEMATICS



Practice



Meaning



Content



Performance

Designed to assist students in  
strengthening their mathematical ability



*Curriculum and Instruction, Mathematics*



## TABLE OF CONTENTS

Table of Contents.....	i
Overview.....	ii
FCAT Countdown.....	1
FCAT Facts to Know.....	5
Using FCAT Explorer.....	9
<i>Riverdeep</i> correlations to the Intensive Mathematics Scope and Sequence.....	13
Gizmos Benchmark Alignment.....	15
FCAT Web Resources for Teachers.....	23
Parent Tips.....	24
FCAT Problem Solving Strategies.....	26

## OVERVIEW OF INTERVENTIONS

If a student scores at Level 1 or Level 2 on FCAT Mathematics, the student must receive remediation the following year. Remediation may be integrated into the student's required mathematics course, offered as a pull-out, or in the case of secondary, offered as ***Intensive Mathematics***, an elective course, in addition to the regular mathematics courses (Student Progression Plan).

Interventions are designed to assist students in strengthening their ability in areas of identified need. The classroom teacher examines the student's data, determines the student's areas of strength and areas for improvement, and designs a plan to assist the student in improving mathematically. When appropriate, the classroom teacher and the supplemental support provided coordinate the activities with the student's primary mathematics class.

Intervention classes utilize technology, peer tutors, classroom assistants, and school volunteers to assist struggling students. Cooperative groups, one-to-one tutoring, and guided instruction are used to help strengthen students' areas of weakness. Mastery of the Sunshine State Standards benchmarks is continually monitored. Immediate feedback is provided and appropriate interventions applied for the individual student's success.

### ***Reprinted from the District's Comprehensive Mathematics Plan***

What ***Intensive Mathematics*** should be:

- Students should be receiving instruction tailored to their individual needs.
- Students should be receiving feedback regularly during class to let them know if they are mastering the concepts they are trying to acquire.
- Students should be receiving instruction that meets the different learning modalities.
- Students should be actively engaged for the entire class period.

What ***Intensive Mathematics*** should **NOT** be:

- Students should **not** be receiving instruction that is primarily lecture based.
- Students should **not** be completing worksheets for the entire class period.
- Students should **not** be working on the same problem for more than fifteen minutes.
- Students should **not** be primarily sitting in rows for extended periods but should be allowed to work in small groups, to talk about and exchange ideas and listen to their peers as they solve problems.

## FCAT COUNT DOWN

The FCAT count down is designed to revisit the tested benchmarks based on the 2007 FCAT Mathematics Content Focus for twelve class sessions. By addressing at least two or three benchmarks per day for the days leading into the state FCAT assessment, students should experience a variety of instructional strategies so that they can be prepared to respond to the challenges that face them at the time of the administration of the SSS and NRT testing. On the twelfth session, students should be given an extensive review of test taking strategies such as: completing the grid, eliminating incorrect answers, and having a good breakfast before testing.

Tables 1, 2 and 3 identify the day that the recommended benchmarks could be covered, the description, and the ***FCAT Lessons Learned*** recommendations for teaching the strand. This count down is not designed to replace the development of course concepts. It is designed to supplement the normal work of the class. It will provide your students with an opportunity to discuss and practice items that address each of the FCAT content focus areas.

### **General Recommendations for Grades 6-8:**

**Strand A:** Teachers should place more emphasis on problem solving.

**Strand B:** Teachers should emphasize multiple conversion steps.

**Strand C:** Teacher should have students manipulate, draw, label and construct geometric shapes.

**Strand D:** Teachers should emphasize translating written problems into algebraic expressions.

**Strand E:** Teachers should help students with making inferences and drawing conclusions after performing calculations based on data analysis.

## FCAT COUNT DOWN

Table 1

<b>Grade 6 Benchmarks (24)</b>				
<b>Session</b>	<b>Benchmark</b>	<b>Content Focus</b>	<b>Suggested Teaching Strategies from FCAT Lessons Learned</b>	
1	A132	Relative size of numbers	Teachers should present varied formats when representing numbers, as well as more problems that require persistence and thought.	
	A134	Fractions/percents		
	A231	Exponential notation		
2	A331	Commutative property, Effects of operations		
	A332	Order of operations		
3	A333	Whole number computation, Sales tax		
	A431	Length estimate		
4	B131	Time, Volume		Teachers should use manipulatives to make the connection between paper-and-pencil conversions and tangible unit conversions.
	B133	Change in area, Change in perimeter		
5	B134	Scale drawing		
	B232	Customary capacity, Time Conversions		
6	C131	Circles, Irregular polygons	Teachers should give students more opportunities to manipulate, draw, label, and construct geometric shapes and work with nets of 3-D figures.	
	C231	Parallelism, Similarity, Symmetry		
7	C331	Reflections, Similarity		
	C332	Coordinate identifying		
8	D131	Graphic patterns, Relations		Teachers should give students more opportunities to translate word problems to algebraic expressions and also create and interpret charts and tables.
	D132	Evaluating expressions, Generalizing rules/expressions; Linear equations		
9	D231	One-variable expression		
	D232	Solving equations, Translating equations/expression/inequalities		
10	E131	Bar graphs, Stem and leaf plots, Venn diagrams	Teachers should give students more opportunities to work with problems that involve probability and drawing conclusions after performing calculations based on data displayed.	
	E132	Mean, Median		
11	E231	Determining outcomes		
	E232	Probability		
	E331	Interpretation of data		
12	<b>REVIEW FCAT PROBLEM SOLVING STRATEGIES</b>			

## FCAT COUNT DOWN

Table 2

<b>Grade 7 Benchmarks (25)</b>				
Session	Benchmark	Content Focus	<b>Suggested Teaching Strategies from FCAT Lessons Learned</b>	
1	A132	Relative size of numbers	Teachers should use more visuals (e.g., to teach relative size of numbers) and give students more opportunities to work multiple-step conversions.	
	A134	Fractions/percents		
	A231	Scientific notation		
2	A331	Distributive property		
	A332	Order of operations		
3	A333	Fractional computation, Percent increase		
	A431	Length estimate		
4	B131	Area, Perimeter, Volume		Teachers should give students more practice working with differences or sums of denominate numbers.
	B132	Distance		
5	B133	Change in area		
	B134	Scale drawing		
	B232	Customary weight/mass		
6	C131	Irregular polygons, Perpendicular lines, Two-dimensional figures	Teachers should expose students more frequently to the terms <i>clockwise</i> and <i>counterclockwise</i> in their study of rotation.	
	C231	Symmetry, Translations		
7	C331	Congruency, Transformations		
	C332	Coordinate identifying		
8	D131	Functions, Relations	Teachers should give students more practice extending patterns beyond two or three iterations and experiences describing patterns and inequalities.	
	D132	Evaluating expressions, Generalizing rules/expressions, Linear equations		
9	D231	Equations		
	D232	Solving equations, Translating equations/expressions/inequalities		
10	E131	Line graphs, Multiple line graphs, Venn diagrams		Teachers should give students more opportunities to work with problems that involve probability. Students also need more opportunities drawing conclusions after performing calculations based on data displayed.
	E132	Mean, Median		
11	E231	Determining combinations		
	E232	Probability		
	E331	Collection and interpretation of data, Making predictions		
12	<b>REVIEW FCAT TEST PROBLEM SOLVING STRATEGIES</b>			

## FCAT COUNT DOWN

Table 3

<b>Grade 8 Benchmarks (25)</b>				
Session	Benchmark	Content Focus	<b>Suggested Teaching Strategies from FCAT Lessons Learned</b>	
1	A132	Order of numbers	Teachers should give students more opportunities to work with multiple step conversions, such as feet per minute to miles per hour.	
	A134	Fractions/percents		
	A231	Scientific notation		
2	A331	Effects of operations		
	A332	Order of operations		
3	A333	Decimal computation, Percent computation		
	A431	Whole number computation, Area estimate		
4	B131	Circumference, Surface area		Teachers should give students more practice in two-step capacity conversion problems (e.g., converting 15 pints to gallons).
	B132	Perimeter, Rate		
5	B133	Change in area, Change in dimensions		
	B134	Scale drawing		
	B232	Metric length		
6	C131	Angles, Irregular polygons	Teachers should expose students to more concrete experiences in identifying the types of triangles.	
	C231	Pythagorean theorem, Reflections*		
7	C331	Transformations		
	C332	Coordinate identifying, Midpoint		
8	D131	Functions, Graphic patterns	Teachers should give students more practice with patterns and sequences other than arithmetic and geometric. They should also use technology to demonstrate multiple representations.	
	D132	Generalizing rules/expressions, Linear equations*		
9	D231	Equations, One-variable expressions		
	D232	Evaluating equations, Solving equations, Translating equations or expressions		
10	E131	Circle graphs, Venn diagrams	Teachers should give students more opportunities to work with problems that involve probability and drawing conclusions after performing calculations based on data displayed.	
	E132	Mean, Median		
11	E231	Comparing theoretical and empirical probabilities		
	E232	Probability		
	E331	Collection and interpretation of data, Interpretation of data		
12	<b>REVIEW FCAT TEST PROBLEM SOLVING STRATEGIES</b>			



**FCAT 2007**

**KEY FACTS TO KNOW**

**Approximate Number of Questions:  
Sunshine State Standards Test:**

<b>Grade</b>	<b>Number of Items</b>	<b>Number / Item Type</b>	<b>Cognitive Complexity</b>
<b>6<sup>th</sup></b>	50 -55	35 – 40 MC 10 – 15 GR	10 – 20 % Low 60 – 80 % Moderate 10 – 20 % High
<b>7<sup>th</sup></b>	50 -55	35 – 40 MC 10 – 15 GR	10 – 20 % Low 60 – 80 % Moderate 10 – 20 % High
<b>8<sup>th</sup></b>	55 - 60	30 – 35 MC 15 – 20 GR 5 – 8 SR & ER	10 – 20 % Low 50 – 70 % Moderate 20 – 30 % High

**MC – Multiple Choice**

**GR - Gridded Response**

Cognitive Complexity

- Low: items rely heavily on recall and recognition
- Moderate – items require or flexible thinking and may require reasoning or problem solving
- High – items are written to elicit analysis and abstract reasoning

**Approximate percent of raw score points by Content – Grades 6, 7, & 8**

<b>Number Sense</b>	<b>Measurement</b>	<b>Geometry</b>	<b>Algebraic Thinking</b>	<b>Data Analysis</b>
20%	20%	20%	20%	20%

**Norm Referenced Test:** 45 – 50 MC

**Retake Test:** 25 – 35 MC  
25 – 30 GR

**Extended Response Questions:**

## FCAT 2007

### KEY FACTS TO KNOW

Students are given a blank workspace in which to show their work and/or several lines on which to write an explanation. Students must write their answers or show their work in the space provided, but it is not necessary to fill in the space completely.

#### **Short Response Questions:**

Students are given a blank workspace in which to show their work or several lines on which to write an explanation. Students must write their answers or show their work in the space provided, but it is not necessary to fill the space completely.

#### **Gridded Response:**

Students are given an answer grid to complete. Students must fill in the grid with the correct answer using one of several correct formats. Any question that results in a numerical answer (e.g., dates, population figures, counts, or percents) can be answered using a response grid.

Using these question formats on all regular classroom activities and assessments will help students become accustomed to responding in the same way as they will be asked to respond on FCAT.

### FIVE EASY CLASSROOM STRATEGY SUGGESTIONS

- Use questions that require students to explain their answers.
- Have students apply their Mathematics skills using challenging content from your subject area.
- Use open-ended question formats on each assessment that are similar to FCAT.
- Rate and grade students' work using the FCAT rubric. In this way, students will become familiar with what is expected of them on FCAT.
- Use and develop questions for class discussions and assessments that are of the same cognitive rigor as those on FCAT.

## FCAT 2007

### KEY FACTS TO KNOW

#### FCAT Mathematics – Extended-Response Holistic Rubric

##### Points Description

- 4 The student demonstrates a **thorough understanding** of the mathematics concepts and/or procedures embodied in the task. The student has responded correctly to the task, used mathematically sound procedures, and provided clear and complete explanations and interpretations. The response may contain minor flaws that do not detract from the demonstration of a thorough understanding.
- 3 The student demonstrates an **understanding** of the mathematics concepts and/or procedures embodied in the task. The student's response to the task is essentially correct with the mathematical procedures used and the explanations and interpretations provided demonstrating an essential but less than thorough understanding. The response may contain minor errors that reflect inattentive execution of the mathematical procedures or indications of some misunderstanding of the underlying mathematics concepts and/or procedures.
- 2 The student has demonstrated only a **partial understanding** of the mathematics concepts and/or procedures embodied in the task. Although the student may have used the correct approach to obtaining a solution or may have provided a correct solution, the student's work lacks an essential understanding of the underlying mathematical concepts. The response contains errors related to misunderstanding important aspects of the task, misuse of mathematical procedures, or faulty interpretations of results.
- 1 The student has demonstrated a **very limited understanding** of the mathematics concepts and/or procedures embodied in the task. The student's response to the task is incomplete and exhibits many flaws. Although the student has addressed some of the conditions of the task, the student reached an inadequate conclusion and/or provided reasoning that was faulty or incomplete. The response exhibits many errors or may be incomplete.
- 0 The student has provided a **completely incorrect** solution or uninterpretable response, or no response at all.

Source: Florida Department of Education- Assessment and Evaluation Service

KEY FACTS TO KNOW

FCAT Mathematics – Short-Response Holistic Rubric

Points Description

- 2 The student demonstrates a **thorough understanding** of the mathematics concepts and/ or procedures embodied in the task. The student has completed the task correctly, in a mathematically sound manner. When required, student explanations and/or interpretations are clear and complete. The response may contain minor flaws that do not detract from the demonstration of a thorough understanding.
- 1 The student has provided a response that is only **partially correct**. For example, the student may provide a correct solution, but may demonstrate some misunderstanding of the underlying mathematical concepts or procedures. Conversely, a student may provide a computationally incorrect solution but could have applied appropriate and mathematically sound procedures or the student's explanation could indicate an understanding of the task, even in light of the error.
- 0 The student has provided a **completely incorrect** solution or non-interpretable response, or no response.

Florida Department of Education- Assessment and Evaluation Service

# USING FCAT EXPLORER

## ***FCAT EXPLORER: Math Navigator***



The Math Navigator provides comprehensive practice with the math benchmarks tested on the 8th grade FCAT. With hints for incorrect answer choices and detailed correct answer explanations, Math Navigator offers 139 context-rich math problems in a visually interesting format.

## ***FCAT EXPLORER: Math Timeline***



With over 140 practice problems, the ***Math Timeline*** provides comprehensive practice with the math benchmarks tested on the 10th grade FCAT. Using a timeline-based navigation, the Math Timeline includes problems that focus on history, science, culture, and career. In addition, the Math Timeline allows students to freely navigate through the program or work on problems related to a specific benchmark. In addition, the Math Timeline offers instructional lessons on Strand C: Geometry and Spatial Sense benchmarks.

## USING FCAT EXPLORER

Created by Genie Dunn, M.Ed., NBCT  
District Supervisor Secondary Mathematics

### Math Timeline

#### OVERVIEW

This program will assist you in preparing for the Florida Comprehensive Examination.

#### DIRECTIONS

1. Log onto [www.FCATEXPLORER.com](http://www.FCATEXPLORER.com)
2. Input your designated sign-in and password. Your teacher will provide you with your sign-in name and your password.
3. Click on **Math Timeline**.
4. Read the introductions carefully. You will navigate this assignment by STRANDS.

STRAND A	Number Sense
STRAND B	Measurement
STRAND C	Geometry
STRAND D	Algebraic Thinking
STRAND E	Data Analysis and Probability

There are 5 STRANDS you must complete. There are a total of 137 problems covering all 5 strands.

5. Click on Start at top right.
6. Click on STRAND A at the top >>>>>
  - a. Read the definition of the STRAND you selected.
  - b. Press <GO>
  - c. Read the directions at the top.
7. Choose the problems you want to attempt. You may choose the problems in any order.
8. Solve the problems. Do not guess. Use the FCAT reference when necessary. Have a calculator handy, there is a built in one, but a manual one will be quicker and easier to use.
9. Continue working on the problems in the chosen Strand. Once you complete a strand, choose another strand and repeat step 6. Complete **at least** 20 problems from each STRAND, for a minimum of 100.

## USING FCAT EXPLORER

Created by Genie Dunn, M.Ed., NBCT  
District Supervisor Secondary Mathematics

### VIEWING YOUR PERFORMANCE

- ◆ Return to the title page for each STRAND,
- ◆ Select **YOUR PERFORMANCE**
  1. Green indicates the number of problems solved correct
  2. Red indicates the number of problems that were incorrect
  3. Gray indicates the number of problems that were not attempted

## USING FCAT EXPLORER

Created by Genie Dunn, M.Ed., NBCT  
District Supervisor Secondary Mathematics

### MATH MACHINE

#### OVERVIEW OF ACTIVITY:

This assignment is meant to review topics for the FCAT Strands:  
**Measurement and Geometry**

#### DIRECTIONS:

Follow and complete each of the following steps:

10. Log onto [www.FCATEXPLORER.com](http://www.FCATEXPLORER.com)
11. Input the designated Sign-in and Password assigned by your teacher.
12. Find and select **MATH TIMELINE**
13. At the *bottom* of the Main Menu page click on **MATH MACHINE**.
14. Five (5) main categories are listed:

POLYGONS	[Toolbox]	GO >>>
TRANSFORMATIONS	[Toolbox]	GO >>>
SYMMETRY	[Toolbox]	GO >>>
ANGLE PAIRS	[Toolbox]	GO >>>
ANGLE	[Toolbox]	GO >>>
RELATIONSHIPS		
15. Select the TOOLBOX icon for each category. Read the Lesson by scrolling down and review the concepts for each category.
16. After reviewing one concept at a time (i.e. POLYGONS) close the TOOLBOX. Then select GO>>> for that category. A few review concepts will be shown. Proceed to ANSWER the questions pertaining to that subject. Choose wisely, this is the part that will be graded.
17. When you have completed all 5 categories, close and select REPORT. This will give you the percent of questions you answered correctly.
18. Get a **PRINTOUT** for your results and submit to your teacher.



# RIVERDEEP CORRELATIONS

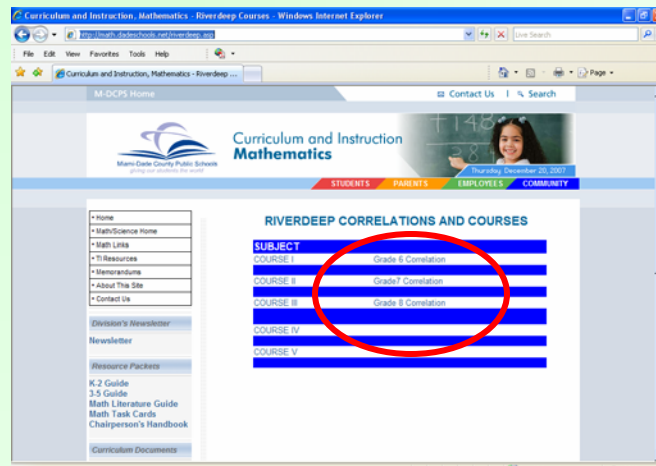
## ***Riverdeep* correlations to the Intensive Mathematics Scope and Sequence**

The *Riverdeep* correlations to the Intensive Mathematics Suggested Scope and Sequence for grades 6 through 8 were designed to help teachers on a weekly basis to pace the mathematical content to be covered in the course of the school year. It provides both online and offline resources so that teachers can take advantage of technology but have the option to use the *Riverdeep Destination Math* backline masters in the regular classroom setting.



Both the Intensive Mathematics Suggested Scope and Sequence and the correlated *Riverdeep Destination Math* activities can be downloaded from the District's mathematics website:

<http://math.dadeschools.net/riverdeep.asp>



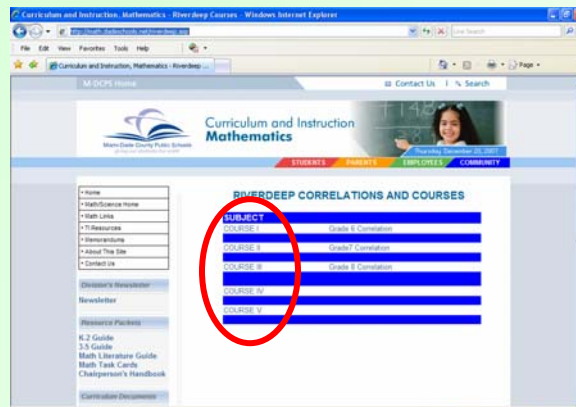
## RIVERDEEP CORRELATIONS

The fourth column of the Suggested Scope and Sequence delineates the unit/lesson from *Riverdeep Destination Math* that is correlated to the benchmark/grade level expectations in column three.

**Grade 8 Riverdeep's Destination Math Correlation to M-DCPS Suggested Scope and Sequence**

Week/Duration	Teacher Notes	Benchmarks/Grade Level Expectations (Competency-Based Curriculum Objectives)	Destination Math Course/Unit/Lesson
Week 1 5 Days		<p><b>8.EE.1.1</b></p> <ul style="list-style-type: none"> <li>Reads and interprets data displayed in a variety of forms including histograms.</li> </ul> <p>Constructs and interprets displays of data, (including circle, line, bar, and box-and-whisker graphs) and explains how different displays of data can lead to different interpretations.</p>	<p>Lessons</p> <p>Course V Module 5 Fundamentals of Statistics Unit Title: Interpreting and Constructing Graphs *Supplemental Lesson: Exploring Line Graphs Lesson: Exploring Bar Graphs Lesson: Interpreting Pie Charts</p> <p>Course V Module 5 Fundamentals of Statistics Unit Title: Frequency Distribution Lesson: Creating and Interpreting a Frequency Table Lesson: Defining a Histogram *Supplemental Lesson: Exploring Cumulative Frequency Graphs</p>
		<p><b>8.EE.1.2</b></p> <ul style="list-style-type: none"> <li>Finds the mean, median, and mode of a set of data using raw data, tables, charts, or graphs.</li> <li>Interprets measures of dispersion (range) and of central tendency.</li> </ul>	<p>Lesson</p> <p>Course V Module 5 Fundamentals of Statistics Unit Title: Frequency</p>

Each unit/lesson from *Riverdeep Destination Math* can be downloaded from the District's mathematics website by course.



<http://math.dadeschools.net/riverdeep.asp>

## GIZMOS BENCHMARK ALIGNMENT

[www.explorellearning.com](http://www.explorellearning.com)

This document contains all the benchmarks that should be taught during the second nine weeks of school according to the district curriculum pacing guides which are aligned with the Gizmos. The correlated Gizmos should be used to teach the benchmarks.

The middle school version contains benchmark/Gizmo correlations for grades 6, 7, 8.

6TH GRADE	2ND NINE WEEKS
BENCHMARKS	GIZMOS
MA.A.1.3.2	<a href="#">Comparing and Ordering Decimals</a> <a href="#">Comparing and Ordering Fractions</a> <a href="#">Comparing and Ordering Rational Numbers</a> <a href="#">Ordering Percents, Fractions and Decimals</a> <a href="#">Ordering Percents, Fractions and Decimals Greater Than 1</a> <a href="#">Percents and Proportions</a>
MA.A.1.3.4	<a href="#">Ordering Percents, Fractions and Decimals</a> <a href="#">Ordering Percents, Fractions and Decimals Greater Than 1</a> <a href="#">Percents, Fractions and Decimals</a> <a href="#">Improper Fractions and Mixed Numbers</a>
MA.A.3.3.2	<a href="#">Simple and Compound Interest</a> <a href="#">Order of Operations</a>
MA.A.4.3.1	<a href="#">Estimating Population Size</a> <a href="#">Estimating Sums and Differences</a>
MA.C.1.3.1	<a href="#">Classifying Quadrilaterals - Activity A</a> <a href="#">Classifying Triangles</a> <a href="#">Polygon Angle Sum - Activity A</a> <a href="#">Prisms and Cylinders - Activity A</a> <a href="#">Pyramids and Cones - Activity A</a> <a href="#">Triangle Angle Sum - Activity A</a>
MA.C.2.3.1	<a href="#">3D and Orthographic Views - Activity A</a> <a href="#">Holiday Snowflake Designer</a> <a href="#">Constructing Congruent Segments and Angles</a> <a href="#">Rotations, Reflections and Translations</a>

## GIZMOS BENCHMARK ALIGNMENT

[www.explorelearning.com](http://www.explorelearning.com)

6TH GRADE	2ND NINE WEEKS
BENCHMARKS	GIZMOS
MA.C.3.3.1	<a href="#">Classifying Triangles</a> <a href="#">Holiday Snowflake Designer</a>
MA.B.1.3.3	<a href="#">Area of Parallelograms - Activity A</a> <a href="#">Circle: Circumference and Area</a> <a href="#">Minimize Perimeter</a> <a href="#">Perimeter, Circumference, and Area - Activity B</a> <a href="#">Prisms and Cylinders - Activity A</a> <a href="#">Pyramids and Cones - Activity A</a> <a href="#">Rectangle: Perimeter and Area</a>
MA.B.1.3.4	<a href="#">Similar Figures - Activity A</a> <a href="#">Similar Polygons</a>
MA.A.3.3.1	<a href="#">Dividing Fractions</a> <a href="#">Dividing Mixed Numbers</a> <a href="#">Fractions with Unlike Denominators</a> <a href="#">Multiplying Fractions</a> <a href="#">Multiplying Mixed Numbers</a> <a href="#">Multiplying with Decimals</a> <a href="#">Sums and Differences with Decimals</a> <a href="#">Adding Real Numbers</a> <a href="#">Adding and Subtracting Integers</a>
MA.A.3.3.2	<a href="#">Estimating Population Size</a>
MA.A.3.3.3	<a href="#">Multiplying with Decimals</a> <a href="#">Sums and Differences with Decimals</a>
MA.B.2.3.1	<a href="#">Estimating Population Size</a> <a href="#">Proportions and Common Multipliers</a> <a href="#">Similar Figures - Activity A</a>
MA.B.2.3.2	<a href="#">Triple Beam Balance</a>
MA.B.3.3.1	<a href="#">Perimeter, Circumference, and Area - Activity B</a>

## GIZMOS BENCHMARK ALIGNMENT

[www.explorelearning.com](http://www.explorelearning.com)

7TH GRADE	2ND NINE WEEKS
BENCHMARKS	GIZMOS
MA.C.2.3.1	<a href="#">3D and Orthographic Views - Activity A</a> <a href="#">Holiday Snowflake Designer</a> <a href="#">Constructing Congruent Segments and Angles</a> <a href="#">Similar Figures - Activity A</a> <a href="#">Dilations</a> <a href="#">Reflections</a> <a href="#">Rotations, Reflections and Translations</a>
MA.C.3.3.1	<a href="#">Classifying Triangles</a> <a href="#">Special Quadrilaterals</a>
MA.C.2.3.2	<a href="#">Reflections</a> <a href="#">Rotations, Reflections and Translations</a>
MA.C.3.3.2	<a href="#">Points in the Coordinate Plane - Activity A</a>
MA.B.1.3.3	<a href="#">Dilations</a> <a href="#">Area of Parallelograms - Activity A</a> <a href="#">Circle: Circumference and Area</a> <a href="#">Minimize Perimeter</a> <a href="#">Perimeter, Circumference, and Area - Activity B</a> <a href="#">Prisms and Cylinders - Activity A</a> <a href="#">Pyramids and Cones - Activity A</a> <a href="#">Rectangle: Perimeter and Area</a> <a href="#">Surface and Lateral Area of Prisms and Cylinders</a> <a href="#">Surface and Lateral Area of Pyramids and Cones</a>
MA.B.1.3.4	<a href="#">Similar Figures - Activity A</a>
MA.A.3.3.2	<a href="#">Estimating Population Size</a> <a href="#">Polling: Neighborhood</a> <a href="#">Similar Figures - Activity A</a>
MA.B.2.3.1	<a href="#">Estimating Population Size</a> <a href="#">Proportions and Common Multipliers</a> <a href="#">Similar Figures - Activity A</a>
MA.B.2.3.2	<a href="#">Elapsed Time</a>
MA.B.3.3.1	<a href="#">Perimeter, Circumference, and Area - Activity B</a>

## GIZMOS BENCHMARK ALIGNMENT

[www.explorelearning.com](http://www.explorelearning.com)

7TH GRADE	2ND NINE WEEKS
BENCHMARKS	GIZMOS
MA.B.2.3.1	<a href="#">Triple Beam Balance</a>
MA.A.3.3.2	<a href="#">Percent of Change</a> <a href="#">Percents and Proportions</a> <a href="#">Simple and Compound Interest</a>
MA.A.3.3.3	<a href="#">Multiplying with Decimals</a> <a href="#">Sums and Differences with Decimals</a>
MA.A.4.3.1	<a href="#">Estimating Population Size</a> <a href="#">Estimating Sums and Differences</a>
MA.C.3.3.1	<a href="#">Distance Formula - Activity A</a> <a href="#">Geoboard: The Pythagorean Theorem</a> <a href="#">Pythagorean Theorem - Activity A</a> <a href="#">Pythagorean Theorem - Activity B</a>
MA.A.1.3.1	<a href="#">Real Number Line - Activity A</a>
MA.A.1.3.3	<a href="#">Square Roots</a> <a href="#">Comparing and Ordering Decimals</a> <a href="#">Comparing and Ordering Fractions</a> <a href="#">Comparing and Ordering Rational Numbers</a> <a href="#">Improper Fractions and Mixed Numbers</a>
MA.A.3.3.1	<a href="#">Dividing Fractions</a> <a href="#">Dividing Mixed Numbers</a> <a href="#">Fractions with Unlike Denominators</a> <a href="#">Multiplying Fractions</a> <a href="#">Multiplying Mixed Numbers</a> <a href="#">Multiplying with Decimals</a> <a href="#">Sums and Differences with Decimals</a>

## GIZMOS BENCHMARK ALIGNMENT

[www.explorelearning.com](http://www.explorelearning.com)

8TH GRADE	2ND NINE WEEKS
BENCHMARKS	GIZMOS
MA.C.1.3.1	<a href="#">Investigating Angle Theorems - Activity A</a> <a href="#">Isosceles and Equilateral Triangles</a> <a href="#">Triangle Angle Sum - Activity A</a> <a href="#">Classifying Triangles</a> <a href="#">Congruence in Right Triangles</a> <a href="#">Parallelogram Conditions</a> <a href="#">Prisms and Cylinders - Activity A</a> <a href="#">Proving Triangles Congruent</a> <a href="#">Pyramids and Cones - Activity A</a> <a href="#">Special Quadrilaterals</a> <a href="#">Surface and Lateral Area of Prisms and Cylinders</a> <a href="#">Surface and Lateral Area of Pyramids and Cones</a> <a href="#">Classifying Quadrilaterals - Activity A</a>
MA.C.2.3.1	<a href="#">Holiday Snowflake Designer</a> <a href="#">Congruence in Right Triangles</a> <a href="#">Constructing Congruent Segments and Angles</a> <a href="#">Perimeters and Areas of Similar Figures</a> <a href="#">Proving Triangles Congruent</a> <a href="#">Similar Figures - Activity A</a> <a href="#">Similar Polygons</a> <a href="#">Dilations</a> <a href="#">Reflections</a> <a href="#">Rotations, Reflections and Translations</a> <a href="#">Translations</a>
MA.C.2.3.2	<a href="#">Reflections</a> <a href="#">Rotations, Reflections and Translations</a>
MA.C.3.3.1	<a href="#">Classifying Quadrilaterals - Activity A</a> <a href="#">Classifying Triangles</a> <a href="#">Parallelogram Conditions</a> <a href="#">Special Quadrilaterals</a>
MA.B.1.3.3	<a href="#">Area of Parallelograms - Activity A</a> <a href="#">Circle: Circumference and Area</a> <a href="#">Minimize Perimeter</a> <a href="#">Perimeter, Circumference, and Area - Activity B</a> <a href="#">Prisms and Cylinders - Activity A</a> <a href="#">Pyramids and Cones - Activity A</a> <a href="#">Rectangle: Perimeter and Area</a>

## GIZMOS BENCHMARK ALIGNMENT

[www.explorelearning.com](http://www.explorelearning.com)

8TH GRADE	2ND NINE WEEKS
BENCHMARKS	GIZMOS <a href="#">Surface and Lateral Area of Prisms and Cylinders</a> <a href="#">Surface and Lateral Area of Pyramids and Cones</a>
MA.B.2.3.1	<a href="#">Estimating Population Size</a> <a href="#">Perimeters and Areas of Similar Figures</a> <a href="#">Prisms and Cylinders - Activity A</a> <a href="#">Proportions and Common Multipliers</a> <a href="#">Pyramids and Cones - Activity A</a> <a href="#">Similar Figures - Activity A</a> <a href="#">Similar Polygons</a>
MA.B.2.3.2	<a href="#">Elapsed Time</a>
MA.A.3.3.1	<a href="#">Dividing Fractions</a> <a href="#">Dividing Mixed Numbers</a> <a href="#">Fractions with Unlike Denominators</a> <a href="#">Multiplying Fractions</a> <a href="#">Multiplying Mixed Numbers</a> <a href="#">Multiplying with Decimals</a> <a href="#">Sums and Differences with Decimals</a> <a href="#">Modeling One-Step Equations - Activity A</a>
MA.A.4.3.1	<a href="#">Estimating Sums and Differences</a> <a href="#">Estimating Population Size</a>
MA.C.3.3.1	<a href="#">Distance Formula - Activity A</a> <a href="#">Geoboard: The Pythagorean Theorem</a> <a href="#">Pythagorean Theorem - Activity A</a> <a href="#">Pythagorean Theorem - Activity B</a>
MA.A.1.3.3	<a href="#">Comparing and Ordering Decimals</a> <a href="#">Comparing and Ordering Fractions</a> <a href="#">Comparing and Ordering Rational Numbers</a> <a href="#">Improper Fractions and Mixed Numbers</a> <a href="#">Square Roots</a>
MA.A.3.3.1	<a href="#">Dividing Fractions</a> <a href="#">Dividing Mixed Numbers</a> <a href="#">Fractions with Unlike Denominators</a> <a href="#">Multiplying Fractions</a> <a href="#">Multiplying Mixed Numbers</a> <a href="#">Multiplying with Decimals</a> <a href="#">Sums and Differences with Decimals</a>



## GIZMOS BENCHMARK ALIGNMENT

[www.explorelearning.com](http://www.explorelearning.com)

8TH GRADE	2ND NINE WEEKS
BENCHMARKS	GIZMOS
MA.A.3.3.2	<a href="#">Percent of Change</a>
	<a href="#">Simple and Compound Interest</a>
MA.A.4.3.1	<a href="#">Estimating Population Size</a>
	<a href="#">Estimating Sums and Differences</a>
MA.B.1.3.4	<a href="#">Similar Figures - Activity A</a>
	<a href="#">Similar Polygons</a>
MA.B.2.3.2	<a href="#">Elapsed Time</a>
MA.B.1.3.2	<a href="#">Modeling Linear Systems - Activity A</a>
	<a href="#">Distance-Time Graphs</a>
	<a href="#">Distance-Time and Velocity-Time Graphs</a>
MA.C.3.3.2	<a href="#">Modeling and Solving Two-Step Equations</a>
	<a href="#">Solving Equations By Graphing Each Side</a>
	<a href="#">Solving Two-Step Equations</a>
	<a href="#">Distance-Time Graphs</a>
	<a href="#">Distance-Time and Velocity-Time Graphs</a>
	<a href="#">Point-Slope Form of a Line - Activity A</a>
	<a href="#">Slope - Activity B</a>
MA.A.3.3.1	<a href="#">Real Number Line - Activity A</a>
MA.A.3.3.2	<a href="#">Beam to Moon (Ratios and Proportions)</a>
	<a href="#">Dividing Fractions</a>
	<a href="#">Dividing Mixed Numbers</a>
	<a href="#">Estimating Population Size</a>
	<a href="#">Fractions with Unlike Denominators</a>
	<a href="#">Multiplying Fractions</a>
	<a href="#">Multiplying Mixed Numbers</a>
	<a href="#">Multiplying with Decimals</a>
	<a href="#">Polling: Neighborhood</a>
	<a href="#">Simple and Compound Interest</a>
	<a href="#">Sums and Differences with Decimals</a>
	<a href="#">Percent of Change</a>
MA.D.1.3.2	<a href="#">Cubic Function Activity</a>
	<a href="#">Exponential Functions - Activity A</a>
	<a href="#">Fourth-Degree Polynomials - Activity A</a>
	<a href="#">Introduction to Functions</a>
	<a href="#">Linear Functions</a>
	<a href="#">Quadratic and Absolute Value Functions</a>

## GIZMOS BENCHMARK ALIGNMENT

[www.explorelearning.com](http://www.explorelearning.com)

8TH GRADE	2ND NINE WEEKS
BENCHMARKS	GIZMOS
	<a href="#">Quadratics in Factored Form</a>
	<a href="#">Quadratics in Polynomial Form - Activity A</a>
	<a href="#">Radical Functions</a>
	<a href="#">Rational Functions</a>
	<a href="#">Slope-Intercept Form of a Line - Activity A</a>
	<a href="#">Using Tables, Rules and Graphs</a>
	<a href="#">Using Algebraic Equations</a>
	<a href="#">Defining a Line with Two Points</a>
	<a href="#">Inequalities Involving Absolute Values</a>
	<a href="#">Linear Inequalities in Two Variables - Activity A</a>
	<a href="#">Linear Programming - Activity A</a>
	<a href="#">Point-Slope Form of a Line - Activity A</a>
	<a href="#">Standard Form of a Line</a>
	<a href="#">Systems of Linear Inequalities (Slope-intercept form) - Activity A</a>
	<a href="#">Slope - Activity B</a>

## FCAT WEB RESOURCES FOR TEACHERS

### 2007 UPDATE INFORMATION

General FCAT information site:

<http://www.firn.edu/doe/sas/fcat/fcatpub2.htm>

FCAT Explorer site:

<http://www.fcatexplorer.com/>

FCAT Test Item Specifications sites (a long document with sample problems and explanations:

[http://www.firn.edu/doe/sas/fcat/pdf/G9-10\\_Math\\_Specs\\_1-39.pdf](http://www.firn.edu/doe/sas/fcat/pdf/G9-10_Math_Specs_1-39.pdf)

[http://www.firn.edu/doe/sas/fcat/pdf/G9-10\\_Math\\_Specs\\_Benchmark\\_40-105.pdf](http://www.firn.edu/doe/sas/fcat/pdf/G9-10_Math_Specs_Benchmark_40-105.pdf)

[http://www.firn.edu/doe/sas/fcat/pdf/G9-10\\_Math\\_Specs\\_Benchmark\\_106-168.pdf](http://www.firn.edu/doe/sas/fcat/pdf/G9-10_Math_Specs_Benchmark_106-168.pdf)

[http://www.firn.edu/doe/sas/fcat/pdf/G9-10\\_Math\\_Specs\\_Appendices.pdf](http://www.firn.edu/doe/sas/fcat/pdf/G9-10_Math_Specs_Appendices.pdf)

FCAT Secondary Mathematics Resource Booklet

<http://fcit.usf.edu/math/resource/fcat.html>



# Parent Tips

**PROBLEM SOLVING, REASONING, COMMUNICATION, AND CONNECTIONS** – make math fun. Below are suggested activities to enjoy with your child.

- **Prepare a meal**
  - Work with recipes: revise a recipe which feeds 8 people to feed 2 people
  - Estimate measurements utilizing unlabeled measuring cups
- **Plan a trip**
  - Estimate travel time, miles traveled
  - Calculate gas usage and cost of the gas
  - Compare hotel rates, car rentals, air fares
  - Calculate food bill/ restaurant bill including tax
  - Calculate the total cost of a trip
  - Pack for a trip
    - Calculate weight of luggage
    - Determine the dimensions of luggage (airport luggage)
- **Develop a budget**
  - Create a student budget for expenses
  - Balance a checkbook/ Reconcile a bank account
  - Determine interest on a saving account

## FCAT WEB RESOURCES FOR TEACHERS

- **Calculate needed expenses**
  - Use coupons to determine savings on items purchased
  - Determine tips for meals in a restaurant
  - Determine tax on purchases
  - Calculate discounts while shopping/Calculate savings while shopping
  - Calculate your portion of a restaurant bill based upon your food consumption
  
- **Calculate the cost of home repair**
  - Determine the amount of paint needed to paint a house or a room
  - Determine the amount of carpet or tile needed to carpet or tile a room
  - Determine the cost of each of the these projects
  - Design a plan for a sprinkler system
  - Determine the amount of fencing needed to fence your yard and the cost to install the fencing
  - Determine the square footage of your property
  
- **Play board games such as Jenga, Connect Four, Mastermind, Battle Ship, and Yatzee**
  
- **Do puzzles – jigsaw puzzles, word search puzzles, and Sudoku puzzles (check the Miami Herald for puzzles)**



# Problem Solving Strategies

Copyright Statement for this Assessment and Evaluation Services Publication

Authorization for reproduction of this document is hereby granted to persons acting in an official capacity within the State System of Public Education as defined in Section 228.041(1), Florida Statutes. The copyright notice at the bottom of this page must be included in all copies.

The Administrator  
Assessment and Evaluation Services  
Florida Department of Education  
Turlington Building, Room 414  
325 West Gaines Street  
Tallahassee, Florida 32399-0400

Copyright © 2000  
State of Florida  
Department of State

# Problem Solving Strategies

- **Look for a pattern**

Example: *Find the sum of the first 100 even positive numbers.*

Solution:

The sum of the first 1 even positive numbers is 2 or  $1(1+1) = 1(2)$ .

The sum of the first 2 even positive numbers is  $2 + 4 = 6$  or  $2(2+1) = 2(3)$ .

The sum of the first 3 even positive numbers is  $2 + 4 + 6 = 12$  or  $3(3+1) = 3(4)$ .

The sum of the first 4 even positive numbers is  $2 + 4 + 6 + 8 = 20$  or  $4(4+1) = 4(5)$ .

Look for a pattern:

The sum of the first 100 even positive numbers is  $2 + 4 + 6 + \dots = ?$  or  $100(100+1) = 100(101)$  or 10,100.

- **Make an organized list**

Example: Find the median of the following test scores:

73, 65, 82, 78, and 93.

Solution: Make a list from smallest to largest:

65

73

78 Since 78 is the middle number, the median is 78.

82

93

- **Guess and check**

Example: Which of the numbers 4, 5, or 6 is a solution to  $(n + 3)(n - 2) = 36$ ?

Solution: Substitute each number for "n" in the equation. Six is the solution since  $(6 + 3)(6 - 2) = 36$ .

- **Make a table**

Example: How many diagonals does a 13-gon have?

Solution: Make a table:

<u>Number of sides</u>	<u>Number of diagonals</u>
3	0
4	2
5	5
6	9
7	14
8	20

Look for a pattern. Hint: If n is the number of sides, then  $n(n-3)/2$  is the number of diagonals. Explain in words why this works. A 13-gon would have  $13(13-3)/2 = 65$  diagonals.

- Work backwards**

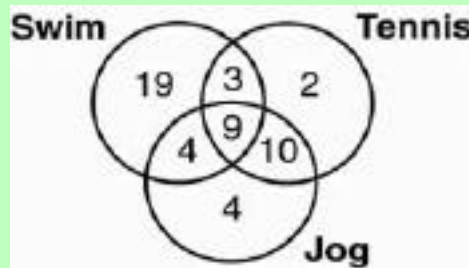
Example: Fortune Problem: a man died and left the following instructions for his fortune, half to his wife; 1/7 of what was left went to his son; 2/3 of what was left went to his butler; the man's pet pig got the remaining \$2000. How much money did the man leave behind altogether?

Solution: The pig received \$2000.  
 $1/3$  of ? = \$2000  
 ? = \$6000  
 $6/7$  of ? = \$6000  
 ? = \$7000  
 $1/2$  of ? = \$7000  
 ? = \$14,000

- Use logical reasoning**

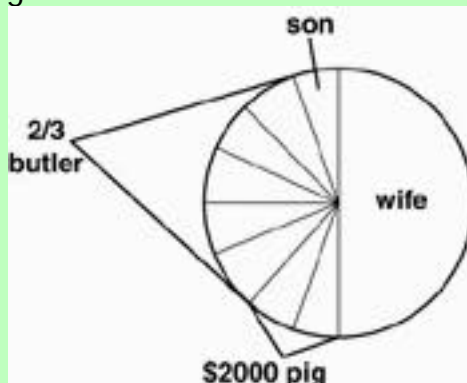
Example: At the Keep in Shape Club, 35 people swim, 24 play tennis, and 27 jog. Of these people, 12 swim and play tennis, 19 play tennis and jog, and 13 jog and swim. Nine people do all three activities. How many members are there altogether?

Solution: Hint: Draw a Venn Diagram with 3 intersecting circles.



- Draw a diagram**

Example: Fortune Problem: a man died and left the following instructions for his fortune, half to his wife; 1/7 of what was left went to his son; 2/3 of what was left went to his butler; the man's pet pig got the remaining \$2000. How much money did the man leave behind altogether?





- **Solve a simpler problem**

Example: In a delicatessen, it costs \$2.49 for a half pound of sliced roast beef. The person behind the counter slices 0.53 pound. What should it cost?

Solution: Try a simpler problem. How much would you pay if a half pound of sliced roast beef costs \$2 and the person slices 3 pounds? If a half pound costs \$2, then one pound would cost  $2 \times \$2$  or \$4. Multiply by the number of pounds needed to get the total:  
 $3 \times \$4 = 12$ .

Now try the original problem: If a half pound costs \$2.49, then one pound would cost  $2 \times \$2.49$  or \$4.98. Multiply by the number of pounds needed to get the total:  $.53 \times \$4.98 = \$2.6394$  or \$2.64.

- **Read the problem carefully**

Know the meaning of all words and symbols in the problem.

Example: List the ten smallest positive composite numbers.

Solution: Since positive means greater than 0 and a composite number is a number with more than two whole number factors, the solution is 4, 6, 8, 9, 10, 12, 14, 15, 16, 18. For example, 4 has three factors, 1, 2, and 4.

Sort out information that is not needed.

Example: Last year the Williams family joined a reading club. Mrs. Williams read 20 books. Their son Jed read 12 books. Their daughter Josie read 14 books and their daughter Julie read 7 books. How many books did the children of Mr. and Mrs. Williams read altogether?

Solution: You do not need to know how many books Mrs. Williams has read since the question is focusing on the children.

Determine if there is enough information to solve the problem.

Example: How many children do the Williams have?

Solution: There is not enough information to solve the problem. You do not know if Josie, Julie, and Jed are the only children.

- **Create problem solving journals**

Students record written responses to open-ended items such as those tested on FCAT in mathematics. Student identifies problem solving strategies.

## Problem Solving Strategies

- Look for a pattern
- Make an organized list
- Guess and Check
- Make a table
- Work backwards
- Use logical reasoning
- Draw a diagram
- Solve a simpler problem
- Read the problem carefully
- Create problem solving journals