



Partnership to Rejuvenate and Optimize Mathematics and Science Education in Florida

# Mathematics & Science Matters

A newsletter for Florida's educators

### Special points of interest:

- Florida adopts new mathematics and science standards
- Florida Department of Education funds Florida PROMiSE (Partnership to Rejuvenate and Optimize Mathematics and Science Education.)

### Upcoming Events:

April 11-13, 2008

PROMiSE Professional Development Design Team meeting

May 8-9, 2008

PROMiSE School Leader Professional Development (Cohort #1)

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## Florida Department of Education funds Florida PROMiSE

Florida PROMiSE, a partnership of universities, school districts, and educational consortia, addresses the need to improve the mathematics and science achievement of Florida's students through professional development.

Florida recently adopted new mathematics and science standards that represent a substantive change from the standards that were previously in place. Florida PROMiSE will assist teachers and school leaders to implement these new standards. In addition, parents and the community in general will need information to understand the implication of the new standards.

### Florida PROMiSE goals are to:

- Increase familiarity with the new Sunshine State Standards for mathematics and science
- Enhance the knowledge and skills of all Florida mathematics and science teachers
- Build the capacity of schools and districts to support implementation of the new standards
- Enhance the ability of administrators to support implementation of standards-based instruction
- Develop online resources for teachers and other stakeholders

- Align university teacher education courses with the new mathematics and science standards
- Provide high-quality professional development programs to support the implementation of the mathematics and science standards



*Standards — “A framework to guide instruction, instructional materials, and assessment.”*

## Florida adopts new mathematics and science standards

Florida recently adopted new mathematics and science standards that represent a substantive change from the standards that were previously in place.

These new mathematics and science standards:

- Are research-based
- Were modeled after the world's leading standards and curricula

- Are written for individual grade levels (in grades K–8)
- Include fewer topics taught each year in grades K-8 to allow in-depth instruction to increase understanding of concepts
- Include Access Points for students with significant cognitive disabilities that will allow them to access

the general education curriculum

- Will help teachers adopt inquiry-based, concept focused strategies

Additional information about the standards are available at: <http://floridastandards.org>.

## Important Features of the K– 8 Mathematics Standards

**The content of the Florida Mathematics Standards is organized differently than the previous standards.**

The K– 8 standards are organized by grade level. Each grade level consists of three Big Ideas and varying numbers of Supporting Ideas.

**The “Big Ideas” do not address the same topic for each grade,** requiring teachers to depend on each other to ensure that students have the knowledge needed in subsequent grades.

Supporting Ideas are not subordinate to Big Ideas. Supporting

Ideas may serve to prepare students for concepts or topics that will arise in later grades.

### Supporting Ideas:

- May contain critical grade-level appropriate math concepts that are not included in the Big Ideas
- Establish connections between and among mathematical strands
- Focus on conceptual understanding
- Address gaps in instruction

**Fewer topics will be taught per grade level.**

The average number of grade level expectation (benchmarks) has been changed.

- Previous standards included approximately 83 benchmarks per grade.
- New K-8 standards will include about 18 benchmarks per grade.
- New material is taught in-depth rather than just introduced.
- More abstract topics, such as probability, are moved out of the primary grades.
- The goal is to deepen students’ understanding of core content.

*“Instruction focuses on helping students learn the ‘Big Ideas’ ”*

## Important Features of the 9-12 Mathematics Standards

**The secondary level mathematics are organized according to Bodies of Knowledge (BOK):**

- Algebra
- Geometry
- Probability
- Statistics
- Trigonometry
- Discrete Math
- Calculus
- Financial Literacy

Despite the names of the BOK, they are not course descriptions. Courses are developed that draw from multiple BOK.

**The number of benchmarks has increased in high school standards in order to provide more guidance and improve equity.**

“Upper level” mathematics courses will use standards set by:

- Advanced Placement Program (AP)
- International Baccalaureate Program (IB)
- College Board
- Dual Enrollment course guidelines/standards

*Florida’s new world-class math and science standards are vital to the growth of biotechnical, aerospace and alternative energy industries in our state,”*

— Eric Smith

## Implications of New Math and Science Standards for Florida Teachers

**The new standards will impact mathematics and science teachers in many ways:**

- A greater depth of content knowledge will be required to teach the standards effectively.
- The way instruction is delivered may need to be reconsidered. Teachers are encouraged to engage students in active learning that involves more inquiry and problem solving.

- Teachers must engage in professional development that prepares them to implement the standards in ways that will result in improved understanding of the subject matter and performance.
- Teachers will have grade level or content specific benchmarks to lead their instruction.
- End-of-course exams and pretests can be built from the benchmarks listed in course

descriptions.

- The Curriculum Planning Tool will provide teachers with many resources for writing and implementing standards-based instruction. ([www.floridastandards.org](http://www.floridastandards.org))
- In a classroom where standards-based mathematics and science instruction is taking place, the students should be doing the work!



## New Features of the Science Standards

### Grades K-8

The content of the new Florida Science Standards has been reorganized to focus on the “Big Ideas” of science rather than on collections of facts.

The Standards for science are organized by grade level for grades K-8 and by Bodies of Knowledge for grades 9-12.

The number of K-8 grade level expectations was reduced from an average of more than 65 per grade to an average of about 30 benchmarks per grade.

High school benchmarks are now organized within four Bodies of Knowledge, rather than the seven strands used in the 1996 high school standards.

### Grades 9-12

- Nature of Science
- Life Science
- Earth Science
- Physical Science

The Bodies of Knowledge do not comprise courses. Standards and benchmarks will be used from the various Bodies of Knowledge to write specific science courses at the secondary level.

Eighteen Big Ideas thread throughout all grade levels and build in rigor and depth as students advance. Each grade level includes benchmarks from the four Bodies of Knowledge.

### All Grades

These new World-class science standards reflect conceptions of coherence, focus, and rigor, which are all recognized by experts and research as crucial to high academic student achievement.

*“An important goal in science is to understand the natural world and how it works.”*



## Implications of New Math and Science Standards for Florida Students

Based on leading national and international mathematics and science standards, the revised Florida standards incorporate the latest knowledge, concepts, and techniques that form the educational foundation for students to compete in the global economy of the future.

According to Florida Education Commissioner Eric J. Smith, “Florida’s new world-class math and science standards are vital to the growth of biotechnical, aerospace and alternative energy industries in our state.”

Members of the business community reviewed the standards to ensure that they covered the skills students will need to succeed in the workplace.

Florida students will also be better prepared for college. The new mathematics and science

standards were developed based on input received from international and national experts in related fields. These included university and community college faculty who wanted to ensure that the new standards would prepare students for higher education and the workforce.

Not only will the new standards maximize Florida students’ opportunities to be successful in college and to compete professionally, they will also enable students to participate in a democracy in the context of a global society. In addition, students will be better informed to make decisions on personal issues such as health care and financial planning.

The new standards are designed so that students will be able to learn, develop, and pro-

gress from year to year by building on the skills they have previously learned. Standards will require critical thinking and problem-solving skills, foster creativity and innovation, and cultivate the acquisition of communication and information through the use of contextual and applied-learning strategies that promote global competitiveness. Florida’s students will be prepared for all of the challenges that the future will bring.





*Inquire*

*Investigate*

*Innovate* —

*Mathematics & Science Matters*

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*Mathematics & Science  
Matter*

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We're on the Web!

<http://flpromise.org>

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## Florida Promise

### Partner Organizations

#### Universities

University of South Florida  
Florida State University  
University of Florida

#### School Districts

Duval County  
Hillsborough County  
Miami-Dade County  
Seminole County

#### Educational Consortia

Heartland (HEC)  
North East Florida (NEFEC)  
Panhandle Area (PAEC)

#### Others

Florida Virtual School  
FLDOE: Office of  
Math & Science  
Horizon Research, Inc

### Program Components and Coordination

- University of South Florida
- Overall Program Implementation
  - Public Awareness Campaign
  - Professional Development for new teachers, including change-of-career teachers.

- Florida State University
- School Leader Professional Development
  - Development of the Curriculum Planning Tool

- University of Florida
- Mathematics and Science Teacher Professional Development

### Program Evaluation

Internal Evaluation — Coalition for Science Literacy at USF

External Evaluation — Westat

