State Board of Education

Maryland School Assessment (MSA) 2009 Science Results

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Division of Accountability and Assessment
August 27, 2009

Maryland State Department of Education
Achievement Matters Most

2009 MSA Science Results

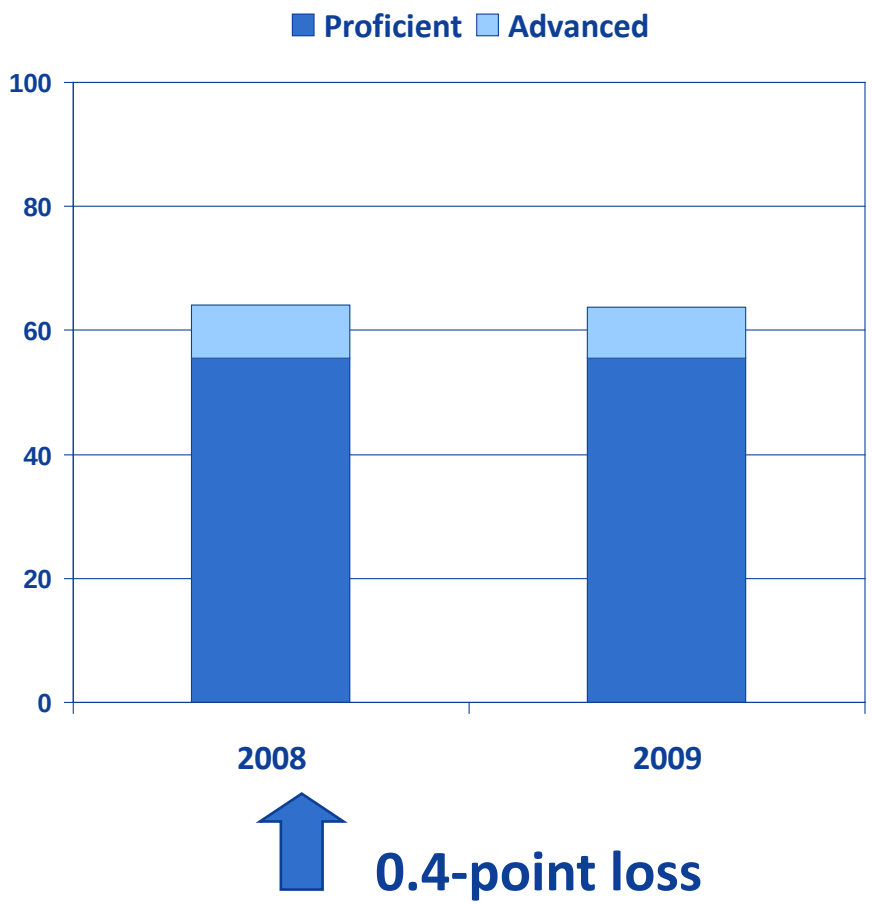
Second reported year

- Tests administered in 5th and 8th grade
- High school science test is HSA Biology
- Over 68% of 5th and 8th graders took test on-line

Science

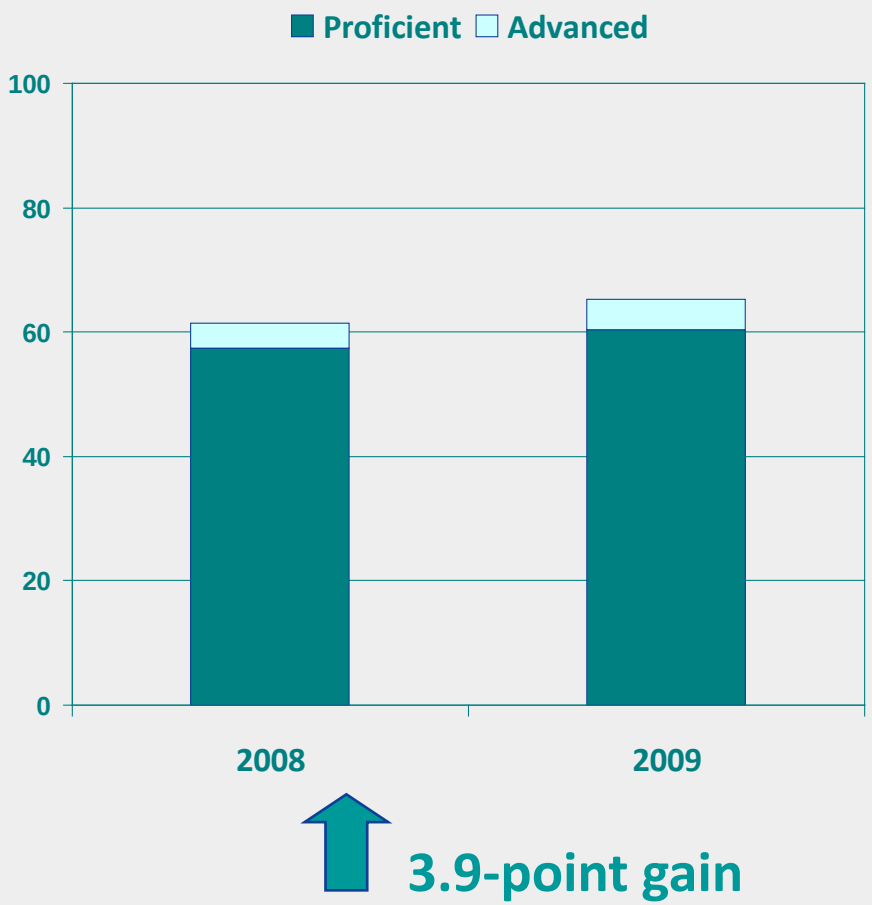
Percent Proficient and Advanced

Grade 5 2008-2009



0.4-point loss

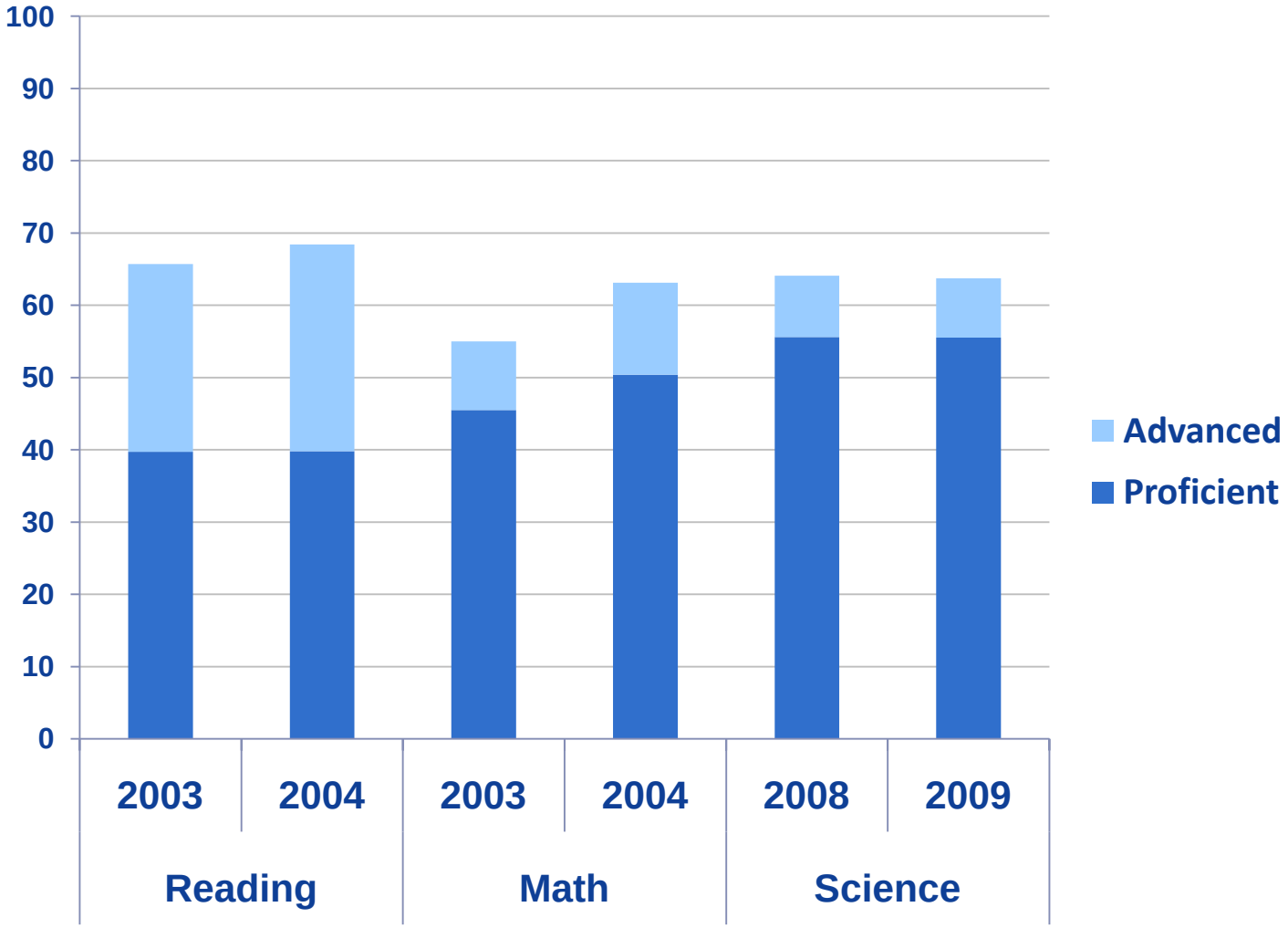
Grade 8 2008-2009



3.9-point gain

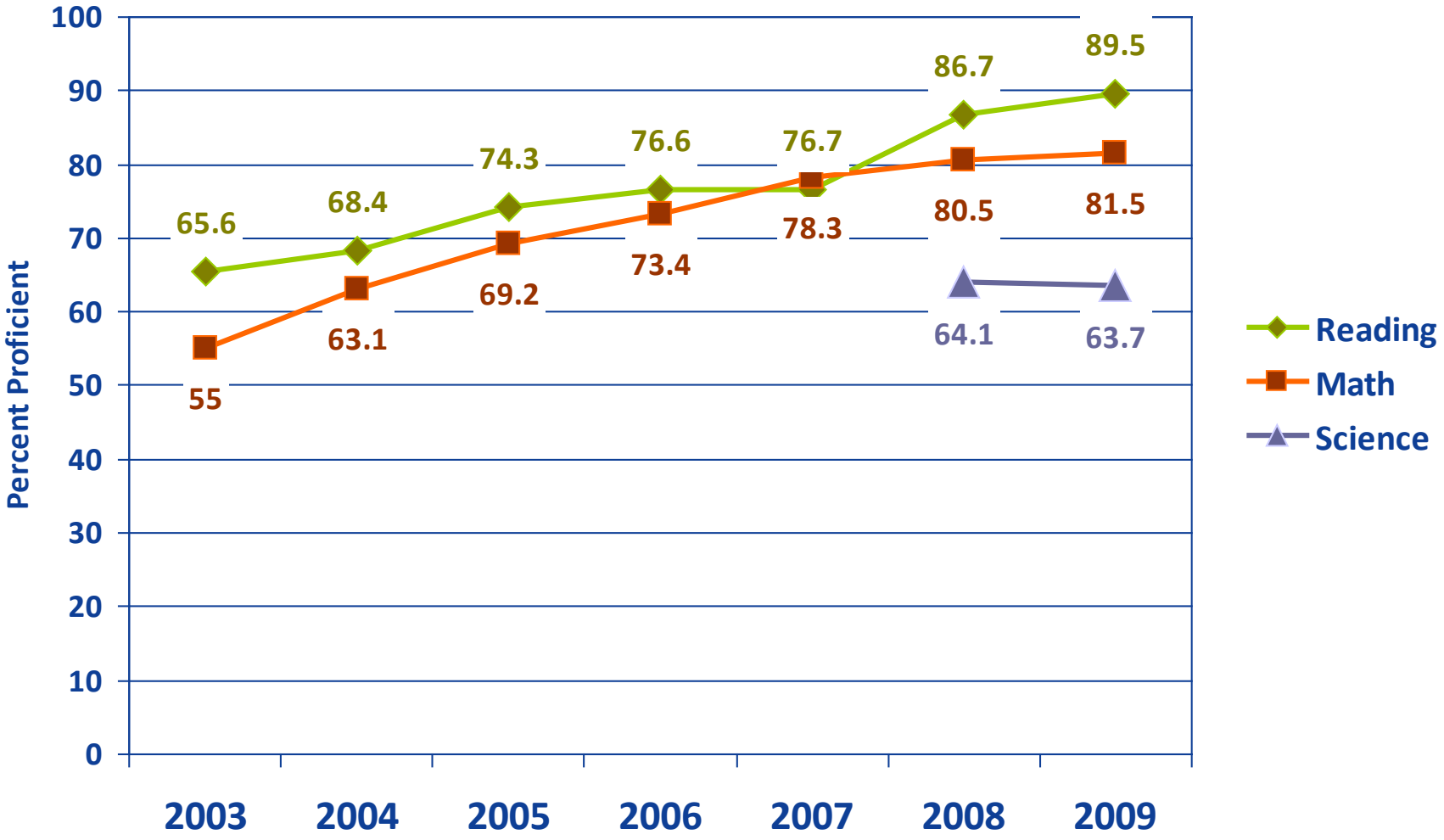
2nd Administration Comparison

% Proficient and Advanced - Grade 5



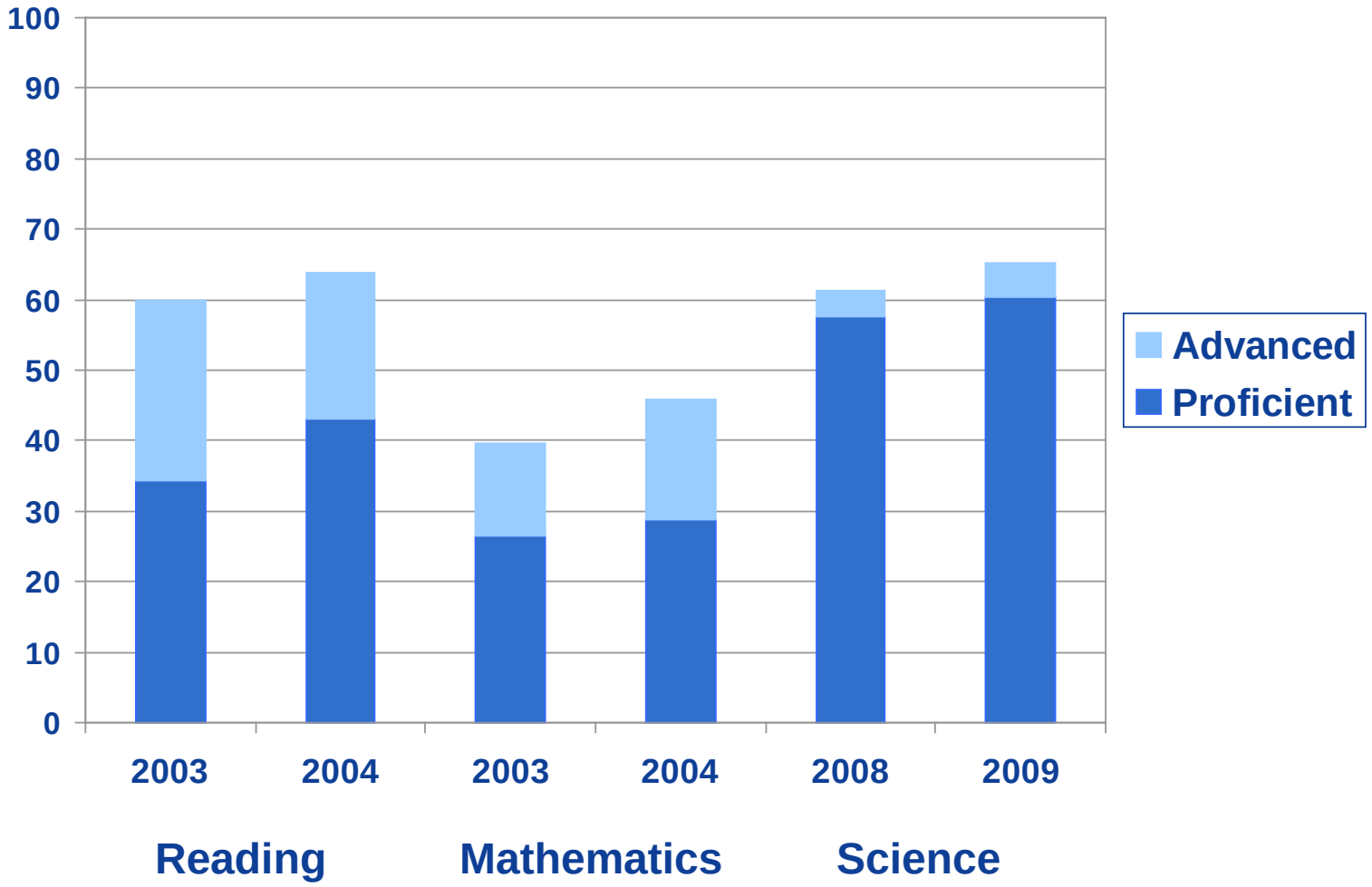
Content Area Trend Comparison

Grade 5



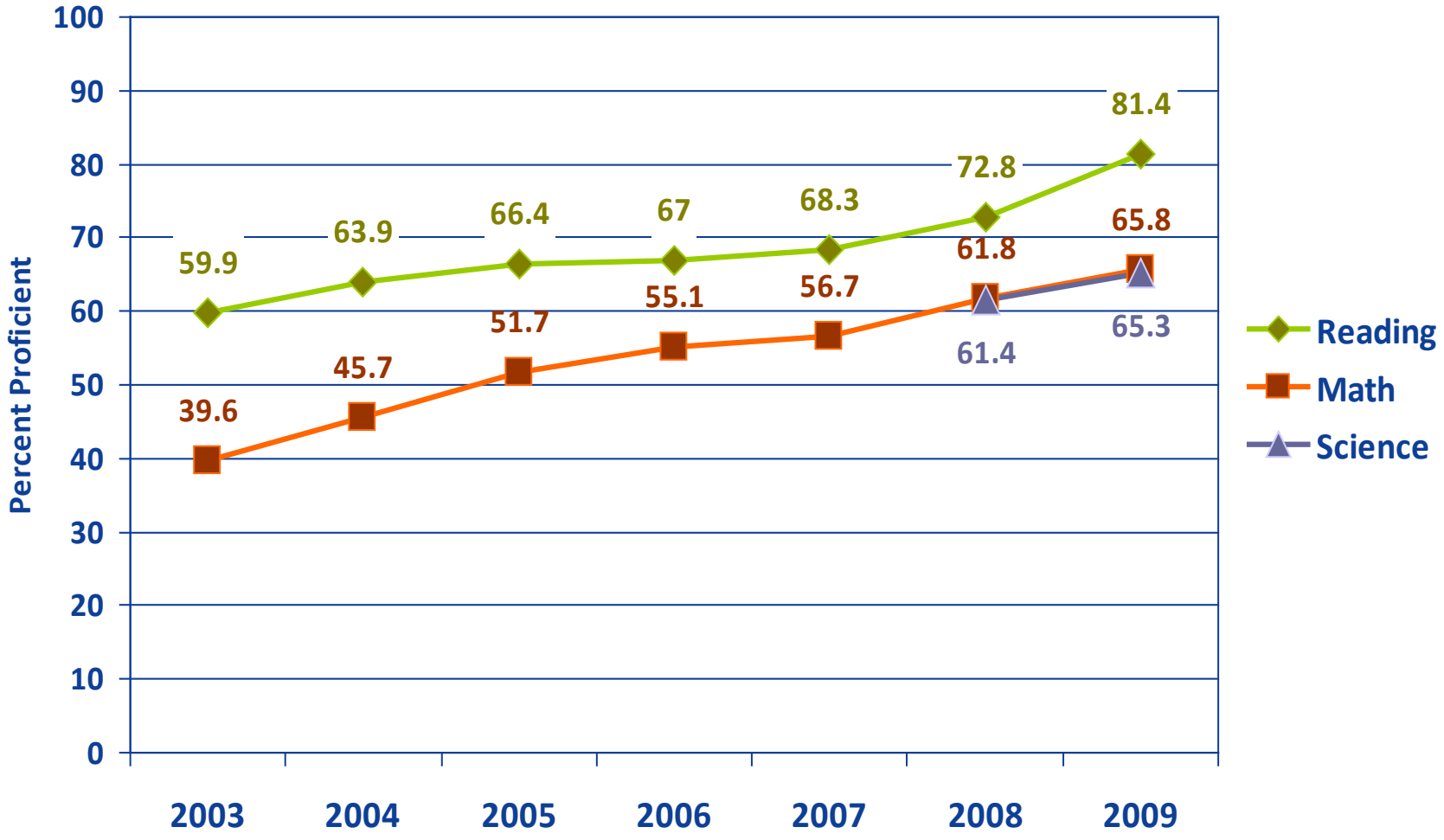
2nd Administration Comparison

% Proficient and Advanced - Grade 8

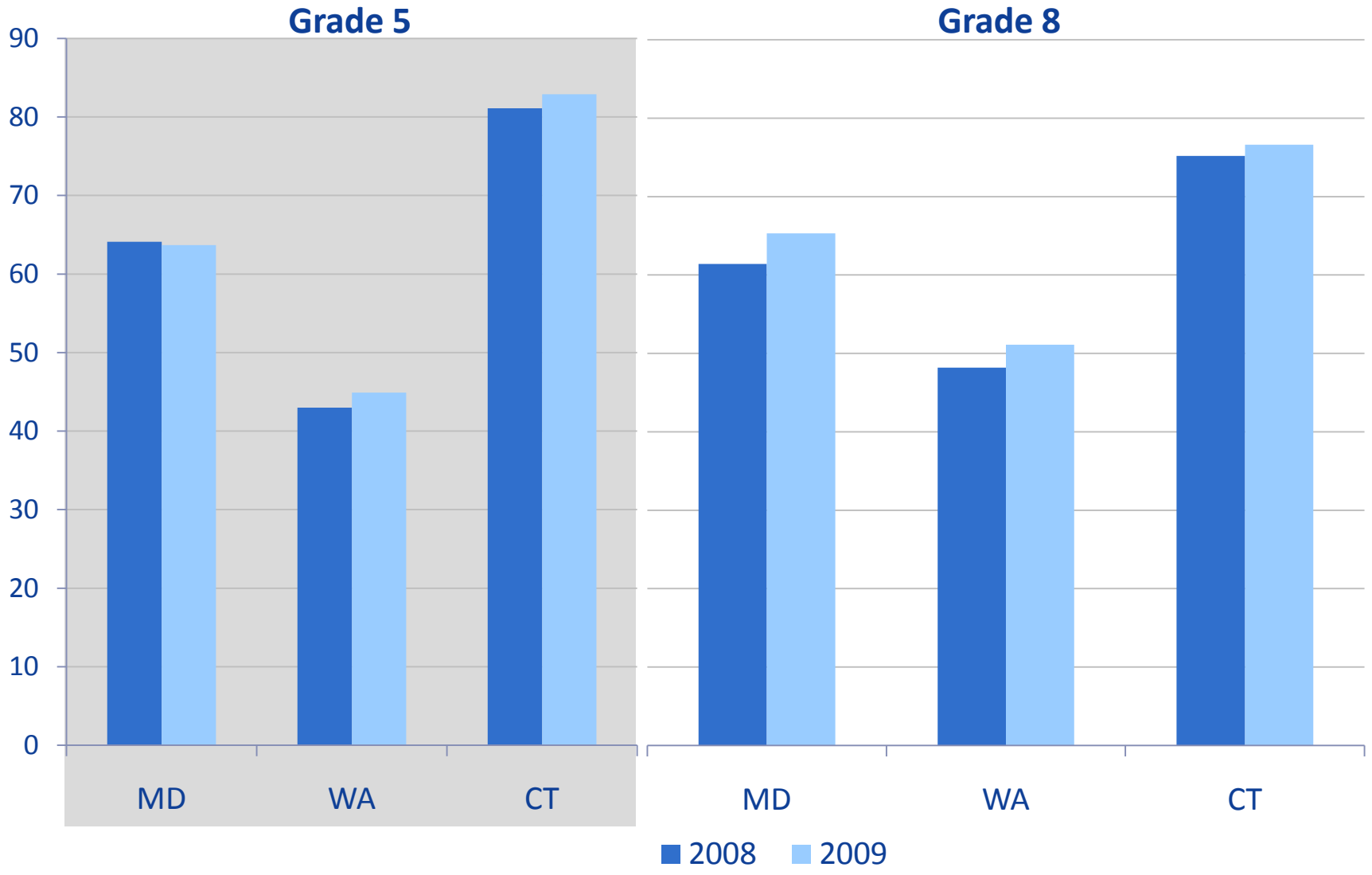


Content Area Trend Comparison

Grade 8

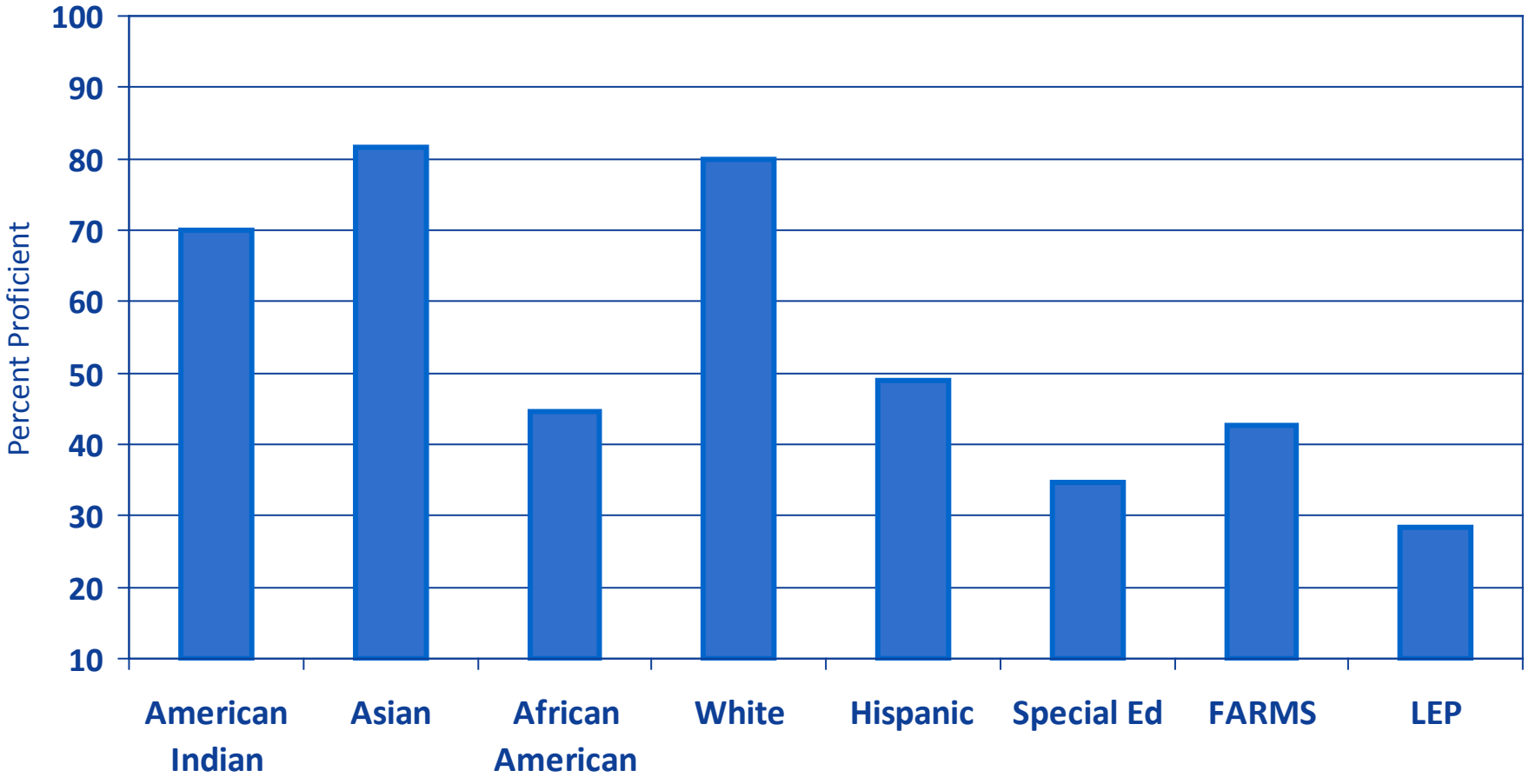


Comparison with Other States



2009 Grade 5 Science Results

All Subgroups



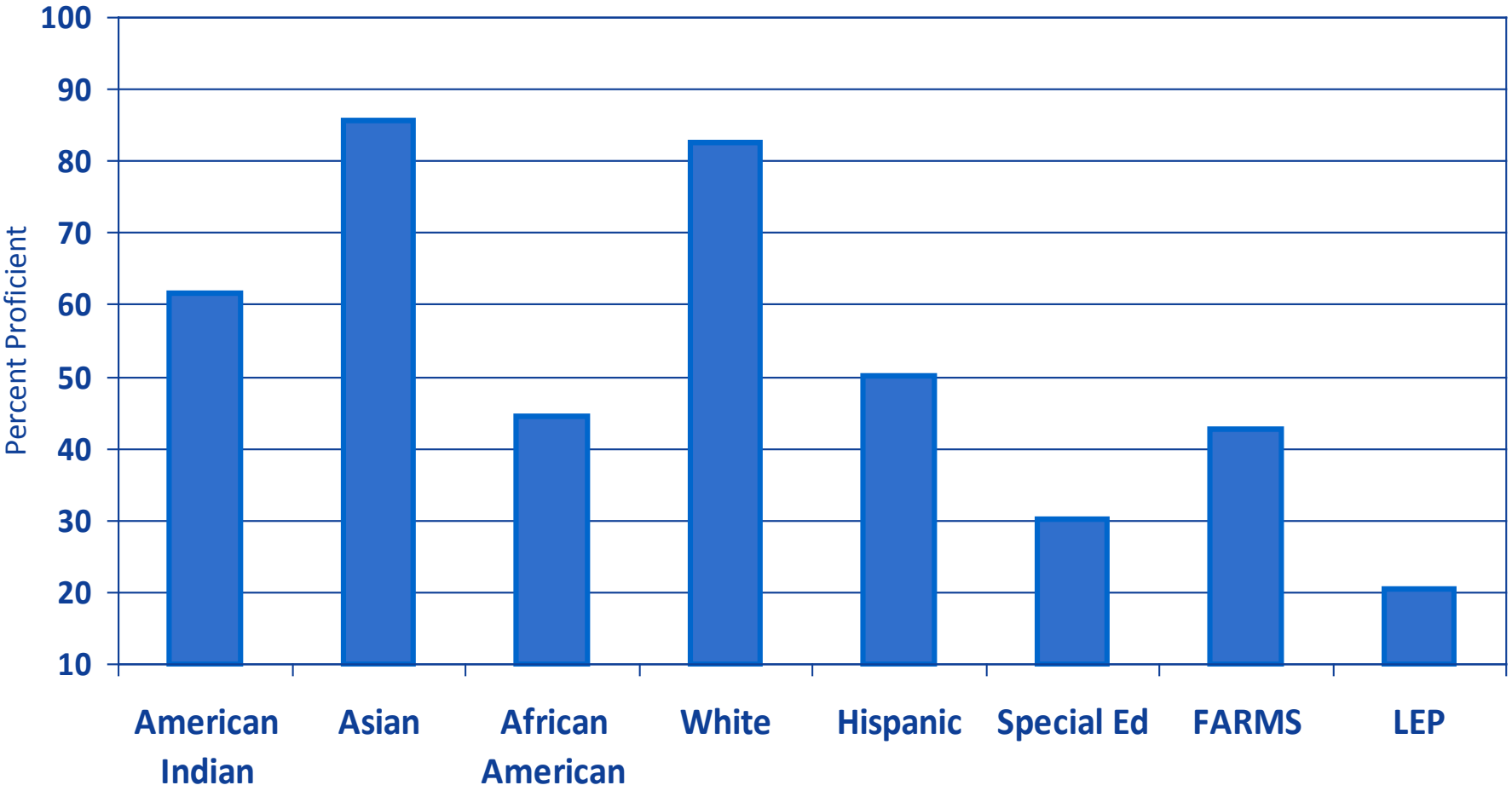
Achievement Gap Reduction

Grade 5

	Reduction	% Prof./Adv.
African American	+1.1	44.7
Hispanic	-0.7	49.0
FARMs	+1.7	42.7
Special Ed	+0.4	34.6
LEP	-2.1	28.5

2009 Grade 8 Science Results

All Subgroups



Achievement Gap Reduction

Grade 8

	Reduction	% Prof./Adv.
African American	+3.7	44.4
Hispanic	+3.9	51.0
FARMs	+2.0	42.7
Special Ed	+1.3	31.0
LEP	+2.2	20.6

Summary

- Middle school performance showed improvement; elementary performance was flat.
- Science scores are similar to the first two administrations of reading and math except for Grade 8, where science has started stronger.
- Reading and math scores improved more significantly between year one and two than science.
- Services subgroups as well as African American and Hispanic students are lagging behind, but made progress in Grade 8.

Instructional Implications
MSDE

Four briefings annually, conducted in partnership with Maryland Science Supervisors Association

- **Curriculum**
  - model how the state curriculum was developed and how to use it
- **Assessment**
  - how to develop quality assessment items, scoring, purpose and Alt MSA
  - standards setting, content review, and range finding
- **Instruction**
  - Sharing national research and information from other states and professional associations
  - Best practices from LSS (curriculum development, instructional strategies)

Instructional Implications
MSDE

STEM

- 16 of 24 districts have elementary, middle and high school systemic plans

Primary Talent Development

- Federal grant that supports engaging K-2 students in science as a way to identify and nurture gifted and talented students

Instructional Implications

MSDE Professional Development

- Math and Science Partnership grants (Title IIB)
- Governors Academy
- Online Professional Development

Instructional Implications

Local School Systems

Highly Qualified Teachers

Increased time allotments for science

- 45 minutes daily grades 4 & 5;
- 30 minutes daily in grades 1-3;
- Full year science period daily in middle schools

Curriculum

- Redesigning local curricula to align with state curriculum
- Targeting units to specific sets of indicators
- Project based learning incorporated into local curricula
  - STEM for all units at each grade level
  - Real world local problems such as energy conservation, local habitat destruction, etc.

Instructional Implications

Local School Systems

Professional Development

- School based elementary grade level teams and middle school science teams
- Vocabulary development
- Specific strategies to support students who need differentiated instruction
- Focus on co-teaching teams

Assessment

- Majority of LSS have or are developing benchmarks to use diagnostically

Instructional Implications

Local School Systems

Instruction

- Inquiry based and hands-on to “uncover” science concepts
- Using local benchmark assessment data for student grouping practices
- Moving beyond a textbook

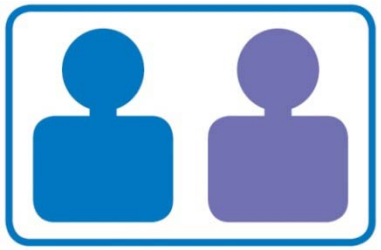
Instructional Implications

English Language Learners

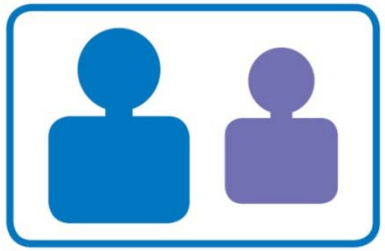
- **English Language Proficiency State Curriculum**
  - Language acquisition
  - Academic success
- **ELL State Curriculum linking tools** for grades 3-5 on the MSDE Title III website and distributed to all ELL Supervisors
- **MSDE/UMBC/CAL/District Professional Development Partnership**
- **Maryland Public Television/MSDE Professional Development Partnership**
- **Summer ELL professional development institute** for seven-district consortium hosted by Queen Anne's County

Special Education

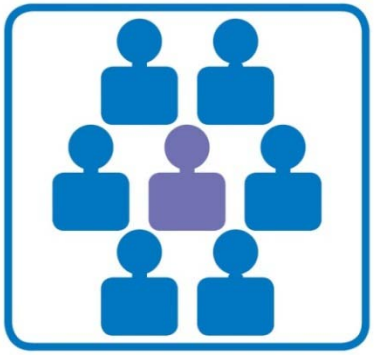
Improving Outcomes in Science



A general education content specialist co-teaches general education class with a special educator



An instructional assistant provides special education services in the general education classroom



A special educator within the science department

Instructional Implications

Focused Funding: Grants

- Adequate Yearly Progress (AYP)
- High School Assessments (HSAs)
- Least Restrictive Environment (LRE)
- Alternative Maryland School Assessment (Alt-MSA)
- State Performance Plan/Annual Performance Report (SPP/APR)
- Proposed - Academic Content Area Discretionary Grants

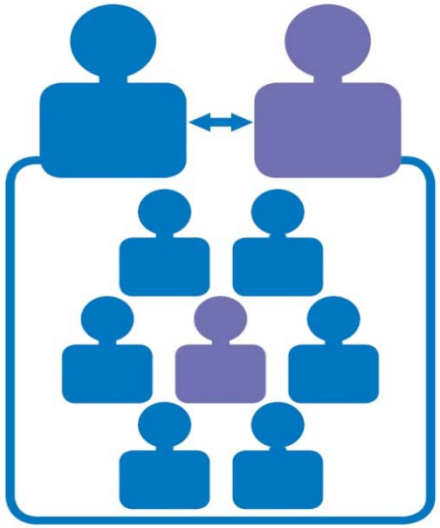
In addition, Local School Systems (LSS) may use American Reinvestment and Recovery Act (ARRA) funds

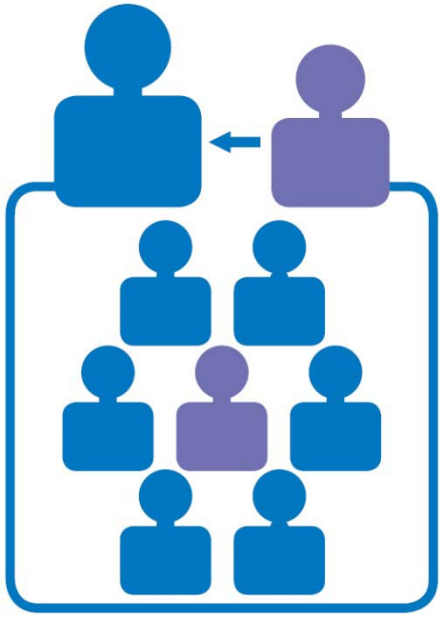
Instructional Delivery Models

Elementary and Middle

Co-taught classes

- General education content specialist
- Special education teacher
- Instructional assistant

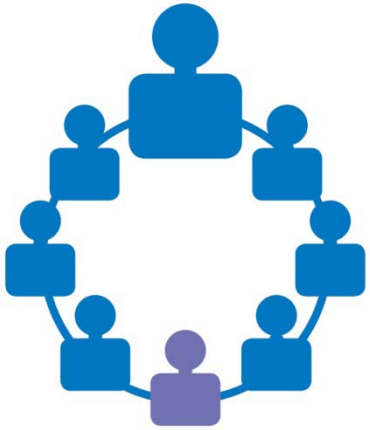




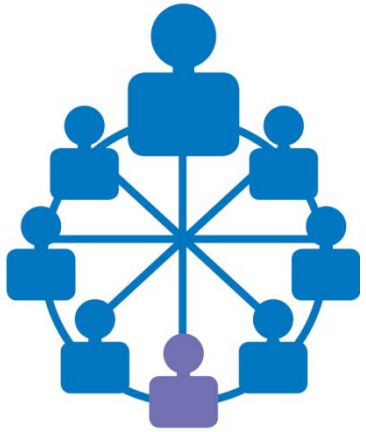
Instructional Delivery Models

Elementary and Middle

Hands-on Approach



Small group instruction



Cooperative Learning

Special Education

Local School Systems

- Professional Development
- Integrate technology
- Assistive technology
- Library media tools
- Project-based learning
- Team-based curriculum development w/special educator participation
- Convert/adapt science curriculum for Kurzweil software

Special Education

Current Strategies

Howard County

- Content Enhancement Routines (University of Kansas) implemented in science classes to support the content

Baltimore County

- Science curriculum guides call for differentiation of content, process and product, incorporating Universal Design for Learning

Montgomery County

- Co-Teaching provided in science classes. Professional development provided for co-teaching teams in the content area of science

Special Education

Current Strategies

Carroll County

- Support students with Technology
  - PowerPoint presentations are used to teach science content and as notes or content review/reinforcement

Talbot County

- Environmental field trips for hands-on experience
  - Alternative assignments for students with disabilities that cover the same content

Special Education

Next Steps

- Professional Development through Discretionary Grants
- Increase availability of Kurzweil software
- “Science specific” research-based interventions
- Additional “hands-on” activities
- Focused funding

Questions & Discussion