

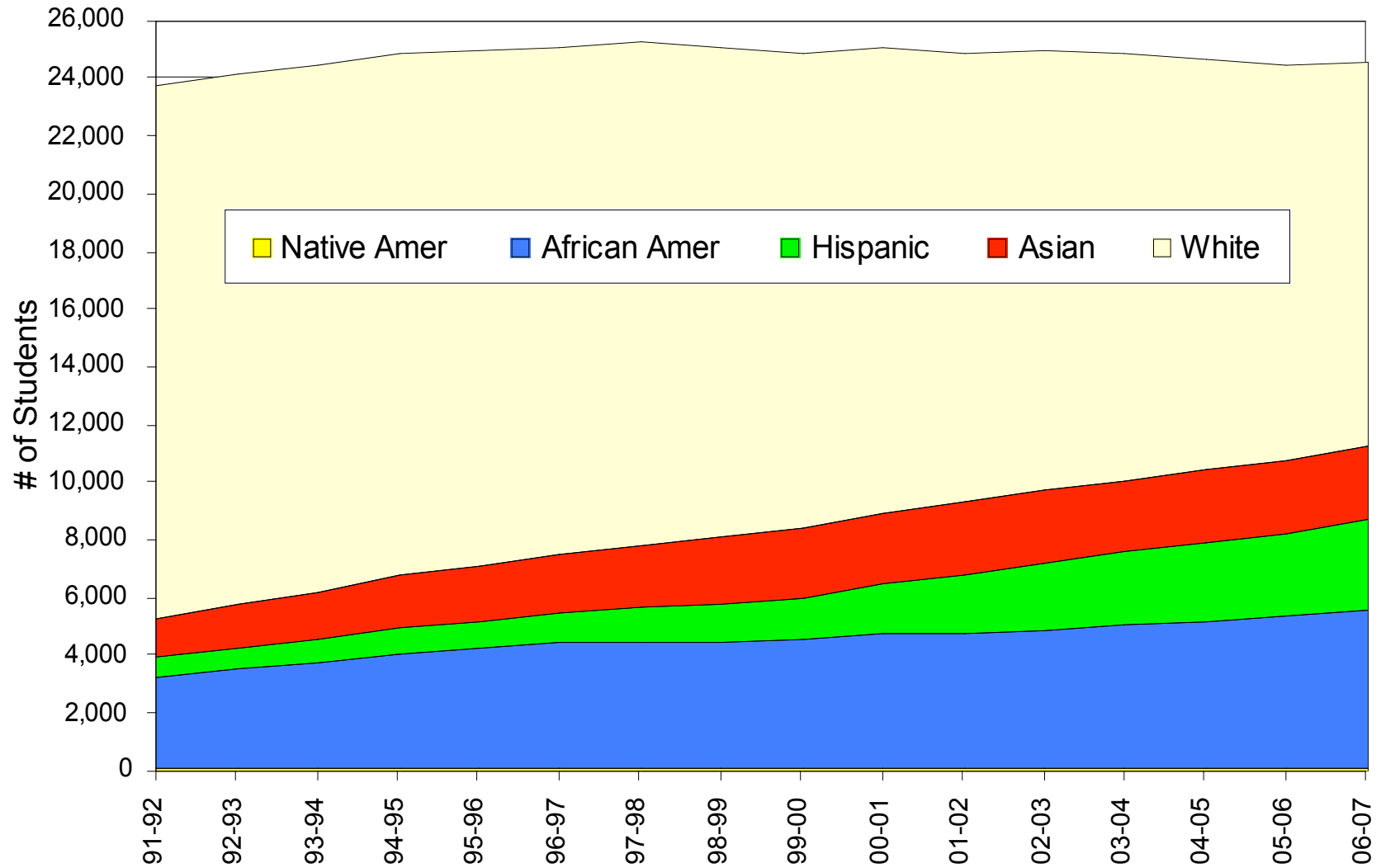
***K-12 Mathematics:  
Curriculum, Professional  
Development and Student Learning***

*Madison Metropolitan School District  
December 12, 2006*

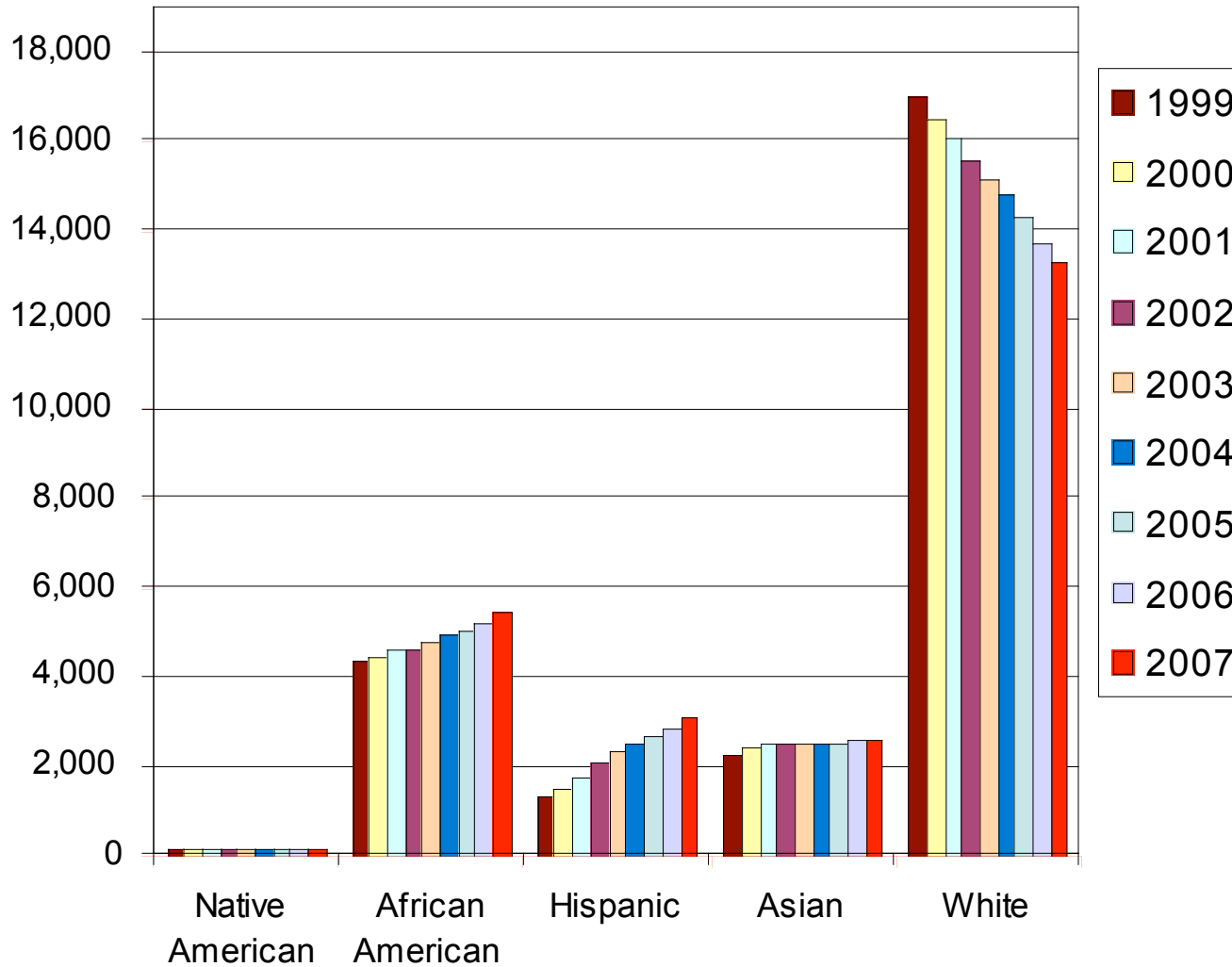
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# Students of MMSD

# MMSD ENROLLMENT BY ETHNICITY 1991-92 TO 2006-07



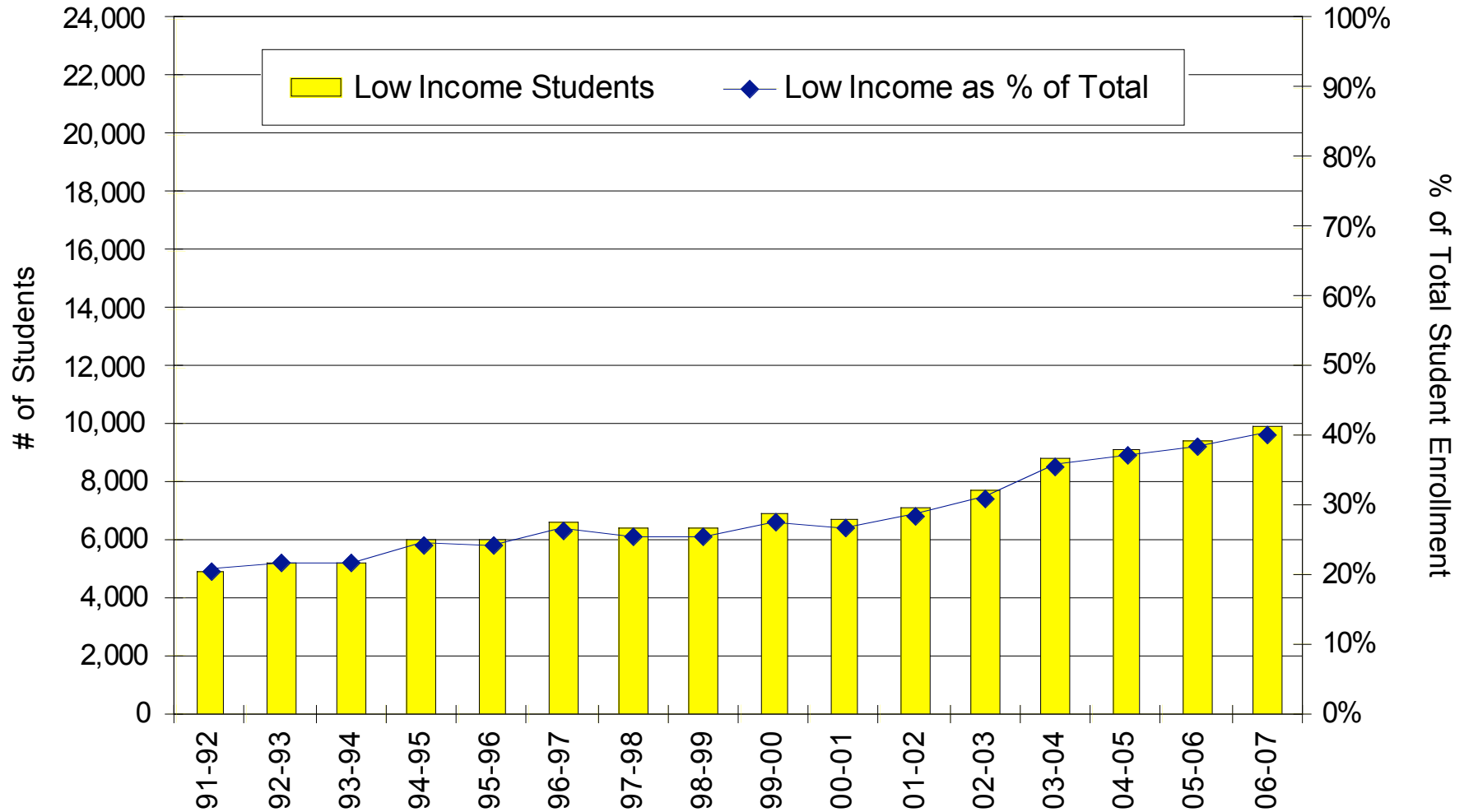
# MMSD ENROLLMENT BY ETHNIC/RACIAL STUDENT SUBGROUP 1998-99 TO 2006-07



In 1999 White students comprised 68% of district enrollment. In 2007 white students comprise 54% of district enrollment. The proportion has decreased every year since 1999. Hispanic students were 5% of district enrollment in 1999 and 13% in 2007.

# MMSD LOW INCOME ENROLLMENT 1991-92 TO 2006-07

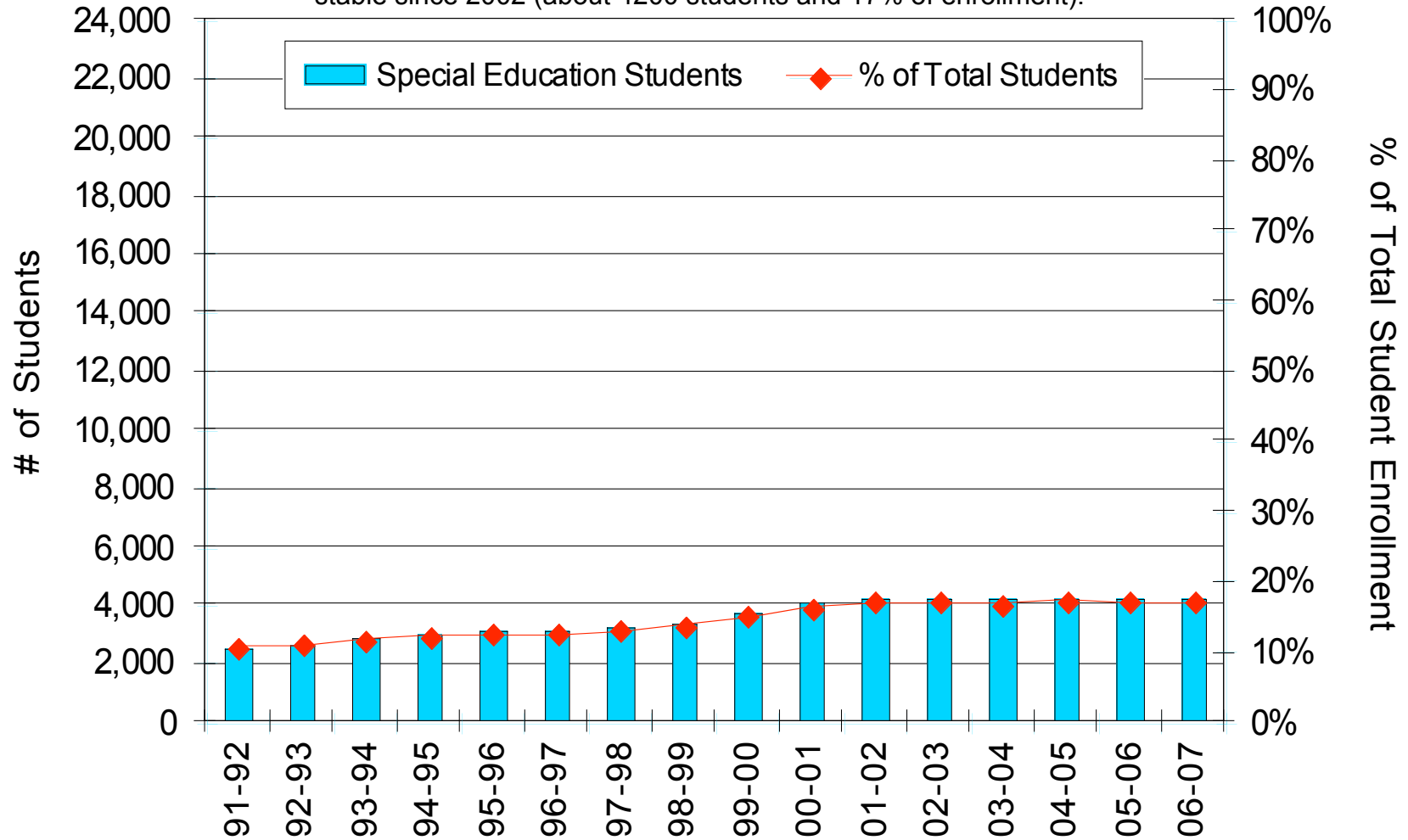
The number of students considered low income has increased within the district, particularly over the past five years. Over 40% of students resided in low income households in 2006-07.



# MMSD SPECIAL EDUCATION ENROLLMENT

## 1991-02 TO 2006-07

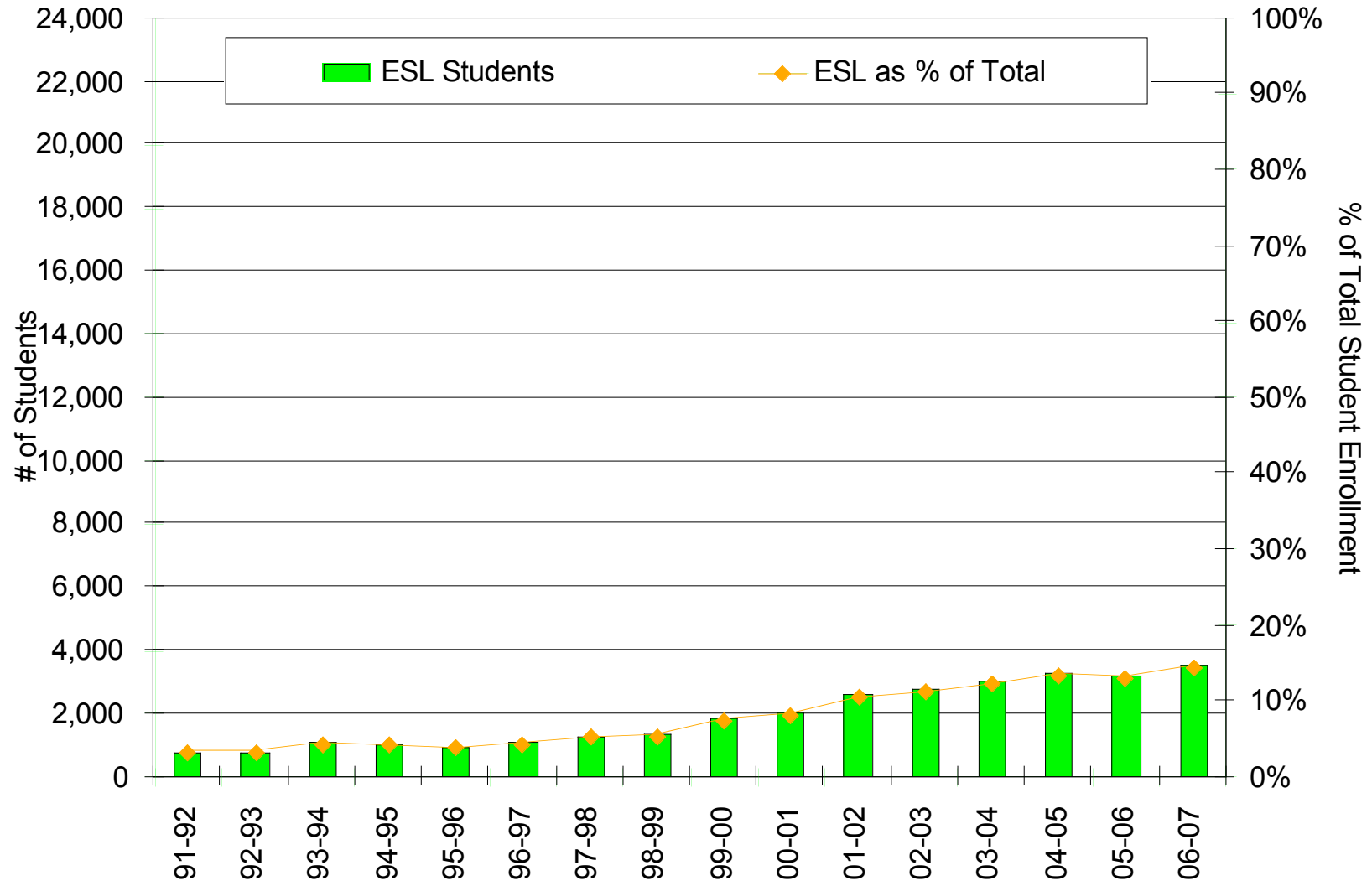
The proportion and number of students which receives special education services has remained stable since 2002 (about 4200 students and 17% of enrollment).



# MMSD ESL ENROLLMENT

## 1991-92 TO 2006-07

ESL enrollment increased this year (3223 to 3566 students, 13.2% to 14.5%).



## **District Mission**

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***Our mission is to assure that every student has the knowledge and skills needed for academic achievement and a successful life.***

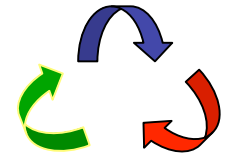


## Mathematics in MMSD

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- All students need to learn math with depth and understanding
- The need to understand and be able to use math has never been greater
  - Math for life
  - Math as a part of cultural heritage
  - Math for the workplace
  - Math for the scientific and technical community

<b>Engagement</b> ↔	<b>Learning</b> ↔	<b>Relationships</b>
• <i>Classroom</i>	• <i>Content</i>	<i>Student</i> ↔ <i>Student</i>
• <i>School</i>	• <i>Instruction</i>	<i>Student</i> ↔ <i>Staff</i>
• <i>Community</i>		<i>Staff</i> ↔ <i>Staff</i>
		<i>Staff</i> ↔ <i>Families</i>



**Core Practices, Services & Programs**  
**ALL Students**

← ASSESSMENT →

**IF A STUDENT ISN'T SUCCESSFUL?**

**Classroom Specific Supports**

**SOME Students**

**School/District Wide Supports**

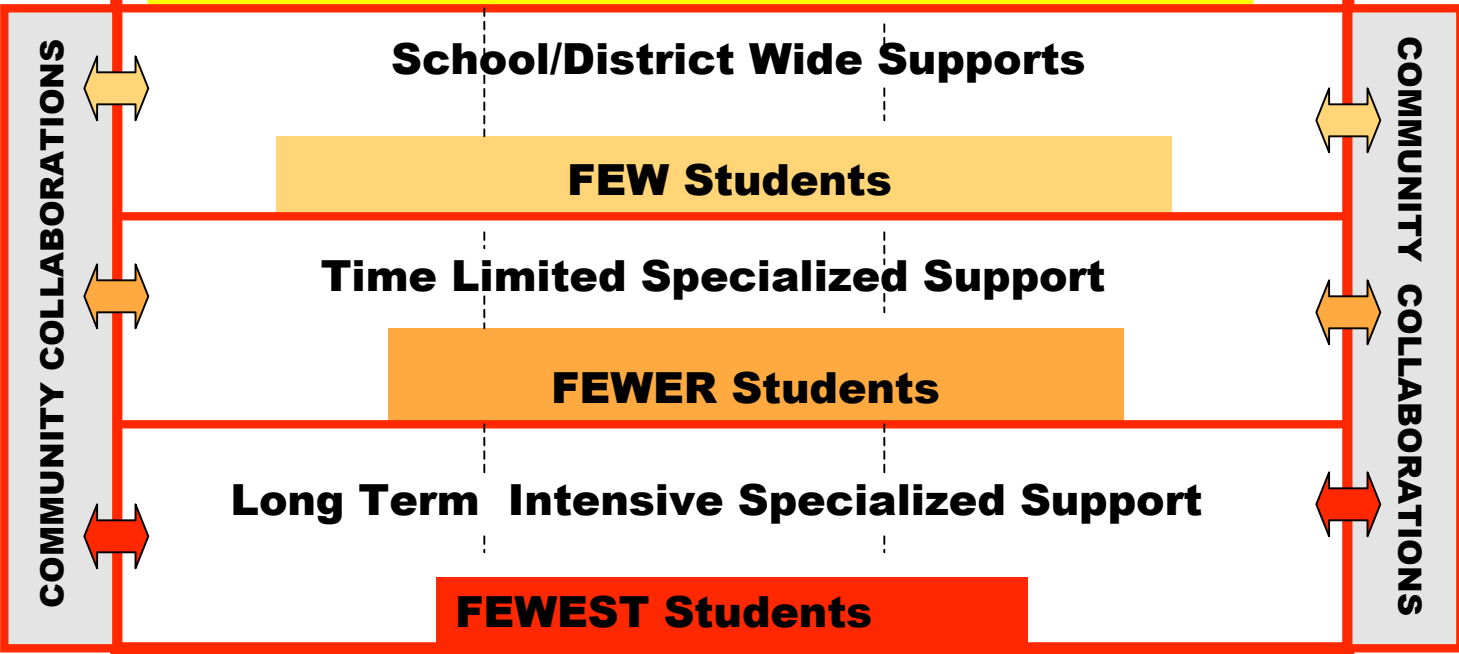
**FEW Students**

**Time Limited Specialized Support**

**FEWER Students**

**Long Term Intensive Specialized Support**

**FEWEST Students**



# Equity and Excellence

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- Superintendent Goals
  - Initiate and complete a comprehensive, independent and neutral review and assessment of the District's K-12 math curriculum:
    - Achievement data
    - Performance expectations
    - Curricula
    - Recommendations for improvement
    - Recommendations on measures to evaluate effectiveness of curricula

# ***Mathematics in MMSD***

Elementary

## **District Resources**

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- K-5 District Mathematics Standards
- Learning Mathematics in the Primary Grades (Grades K-2)
- Teaching Mathematics in the Intermediate Grades (Grades 3-5) in production
- Everyday Math/Investigations alignment documents
- TAG/Elementary Math Team document for extra challenge
- 4 resource teachers and 6 in-school math facilitators

# Curricular Materials

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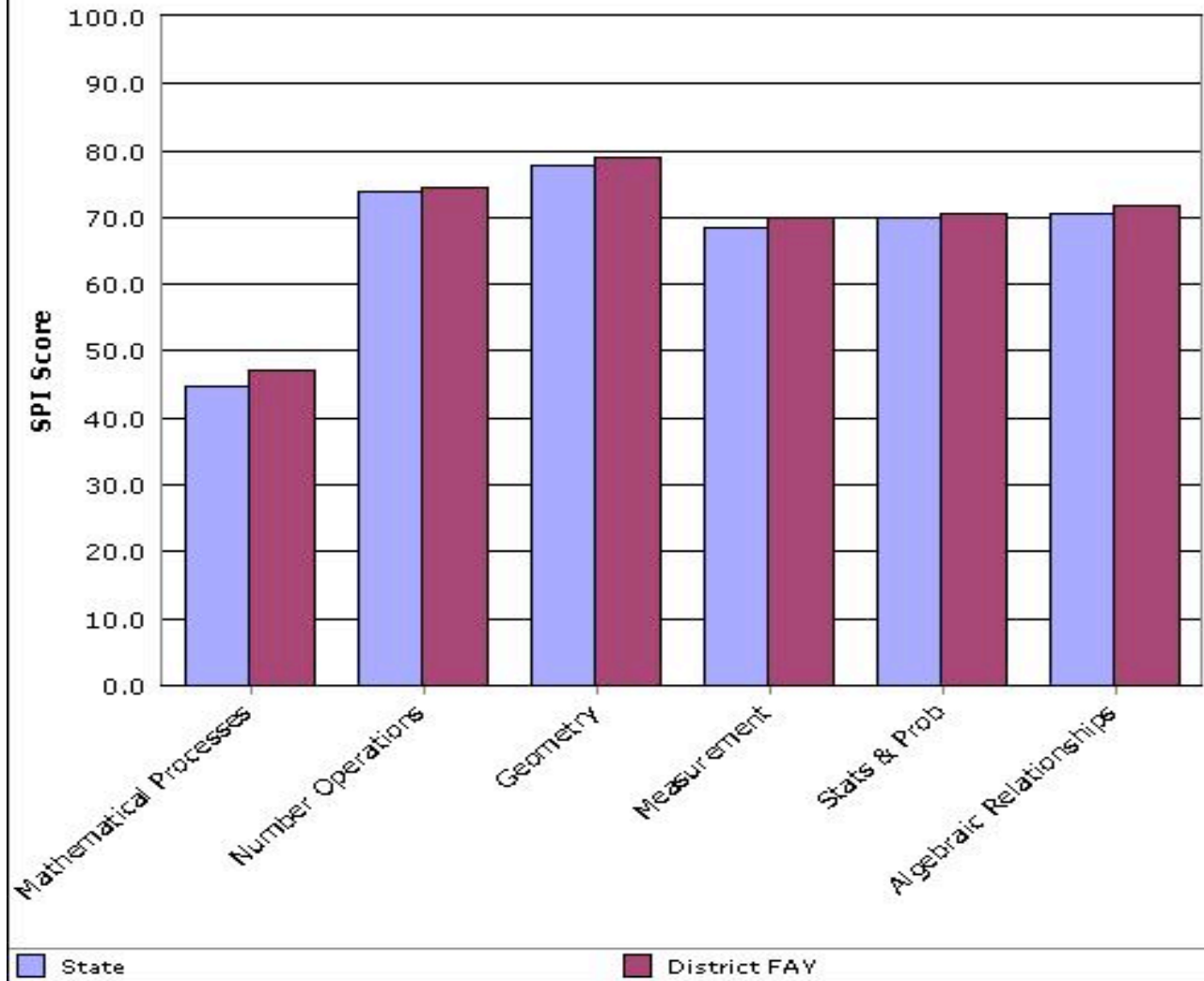
- Investigations
- Everyday Mathematics
- Primary Mathematics (Singapore)
- Pilots
  - Math Expressions
  - Number Worlds

# Professional Development

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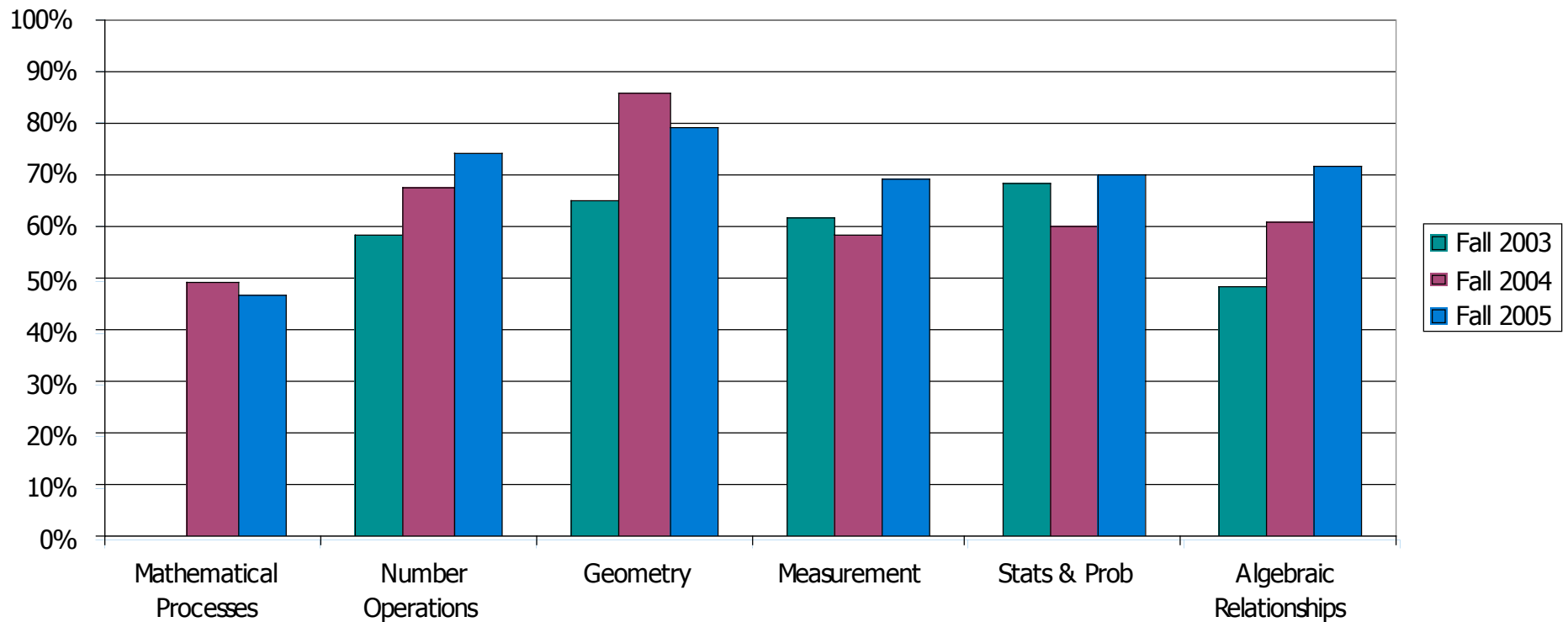
- Learning Mathematics in the Primary Grades
- Committee developing 3-5 version
- Committee updating the Primary Math Assessment
- Expanding Math Knowledge Title IIB Grant
  - Approximately 4 teachers with math focus in degree

**Mathematics Standards  
Fall 2005  
MADISON - All Schools  
Grade 04  
Mathematics**





# MMSD 4<sup>th</sup> Grade Mathematics WKCE Standards Performance

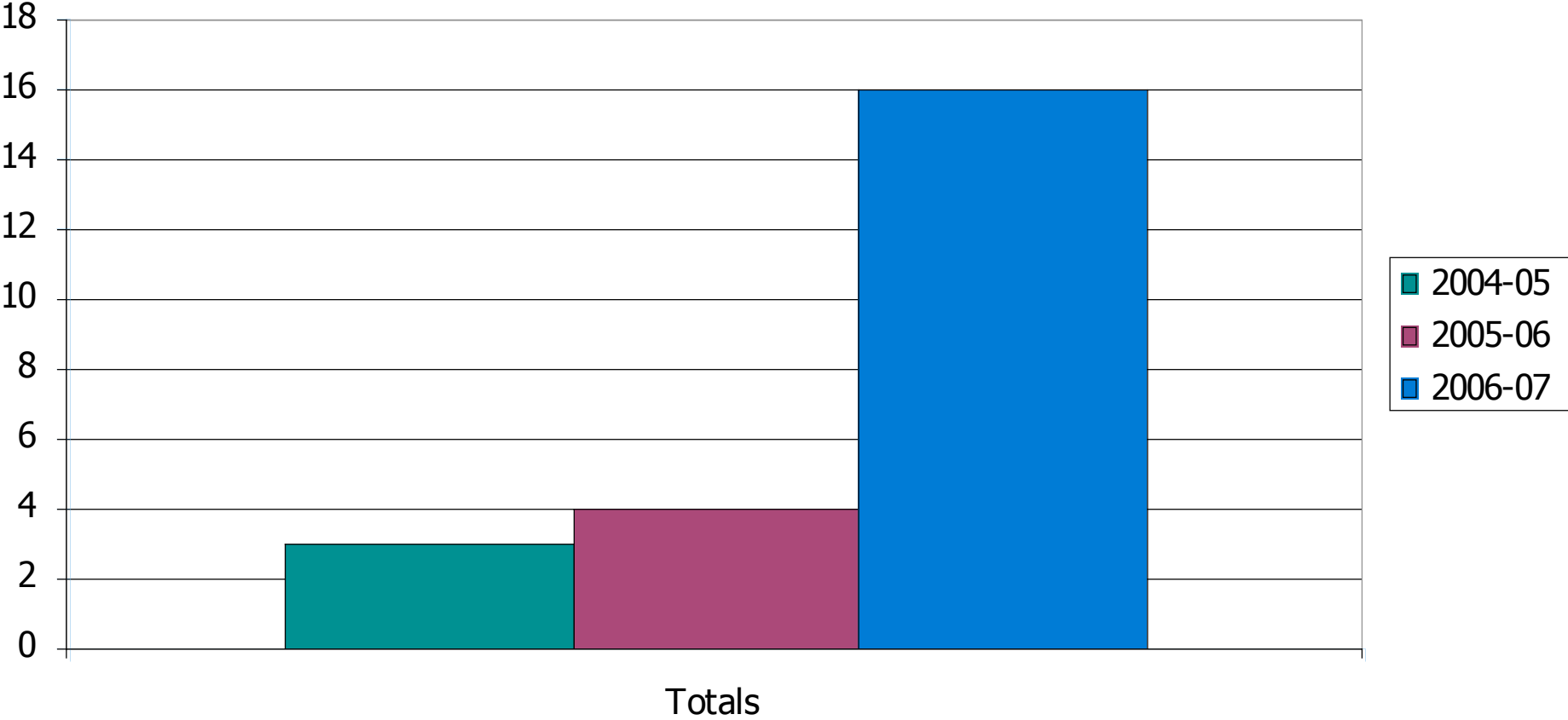


## **5<sup>th</sup> Grade Math Assessment Pilot**

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- Pilot a consistent approach to meet the needs of exceptionally high achieving students in mathematics
- Pilot a system to provide equal access at the beginning of 6<sup>th</sup> grade
- Implementation 2004, 2005, 2006
- 22 6<sup>th</sup> grade students have been placed in Algebra, 1 in Geometry

# MMSD 6<sup>th</sup> Grade Students Enrolled in Math Classes That Are Two or More Years Above Grade Level



# ***Mathematics in MMSD***

Middle School

## **District Resources**

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- Resources on DWW
  - Modifications
  - Extra challenge problems and links
  - Assessments
- Essential Content documents
- 6-8 District Mathematics Standards
- Technology
- Two Resource Teachers

## Curricular Materials

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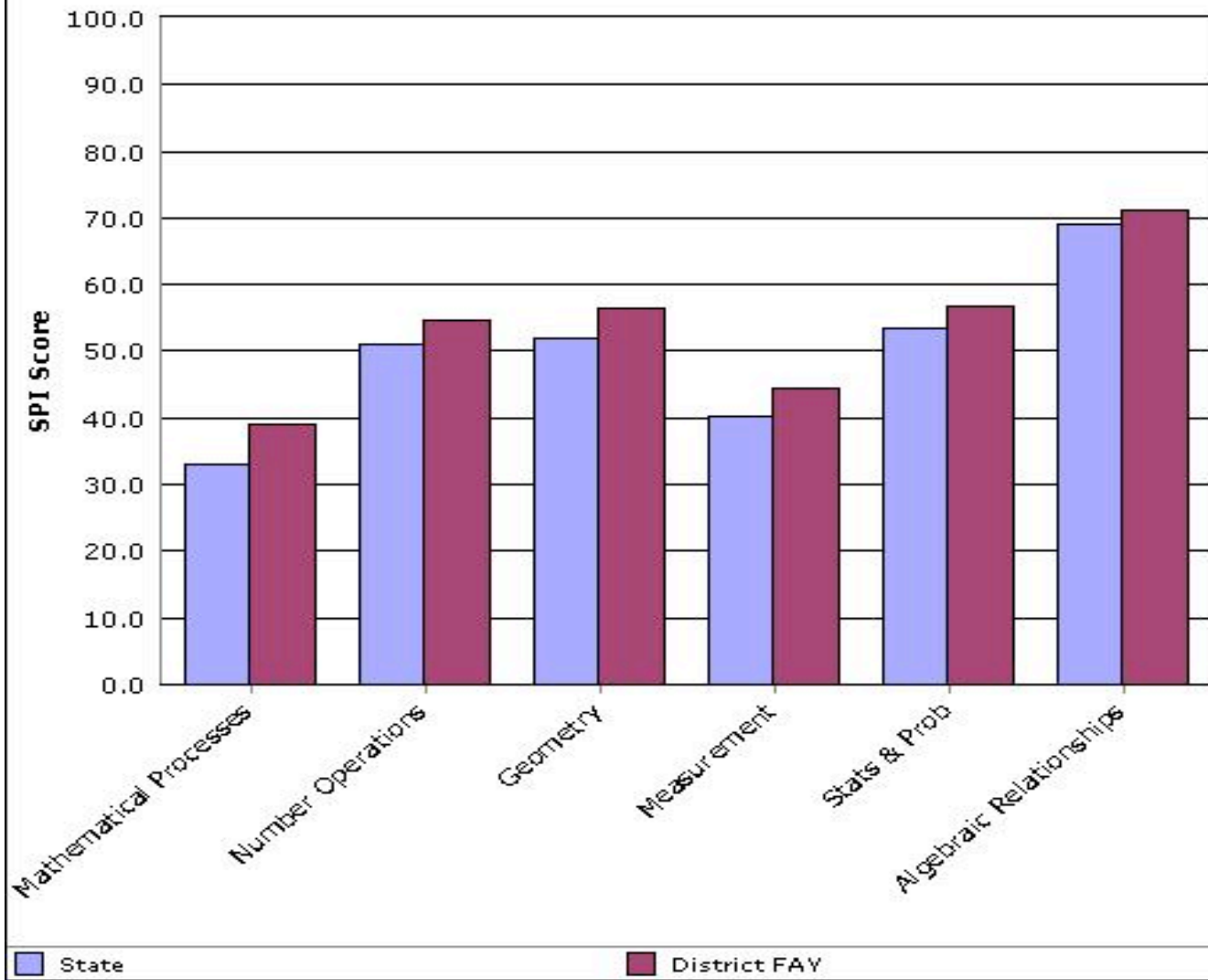
- Connected Mathematics Project 1
- Connected Mathematics Project 2
- McDougall Littell Algebra
- Discovering Algebra
- UCSMP Algebra
- Summer School
  - Math in Contexts

# Professional Development

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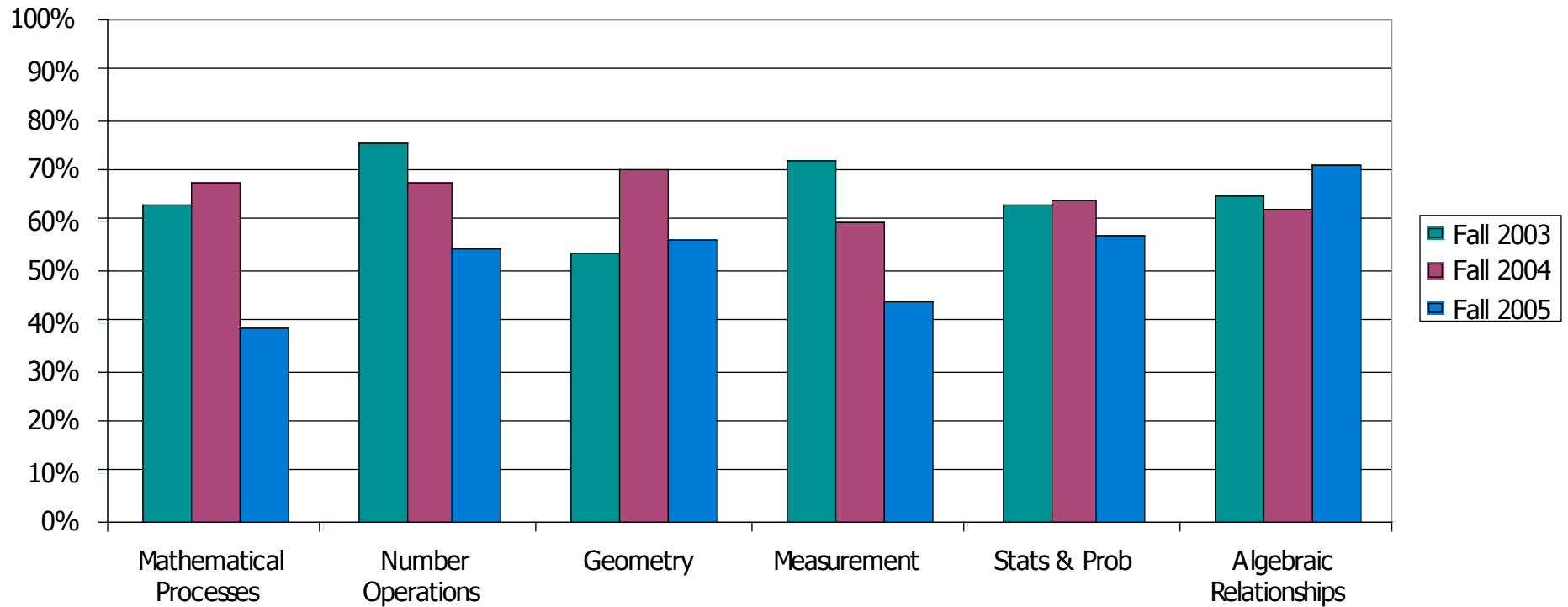
- CMP Leadership Academy
- New Teacher Training by Grade Level
- Math Masters Project
  - 5% of teachers have Secondary Certification in Mathematics
- Summer School Teacher Professional Development

**Mathematics Standards  
Fall 2005  
MADISON - All Schools  
Grade 08  
Mathematics**





# MMSD 8<sup>th</sup> Grade Mathematics WKCE Standards Performance



# ***Mathematics in MMSD***

High School

## **District Resources**

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- Recommended Minimal Competencies documents for Algebra and Geometry
- Technology
  - Geometer Sketchpad
  - Graphing Calculator and Navigator System
- Department Chair Meetings
- One Resource Teacher

# Curricular Materials

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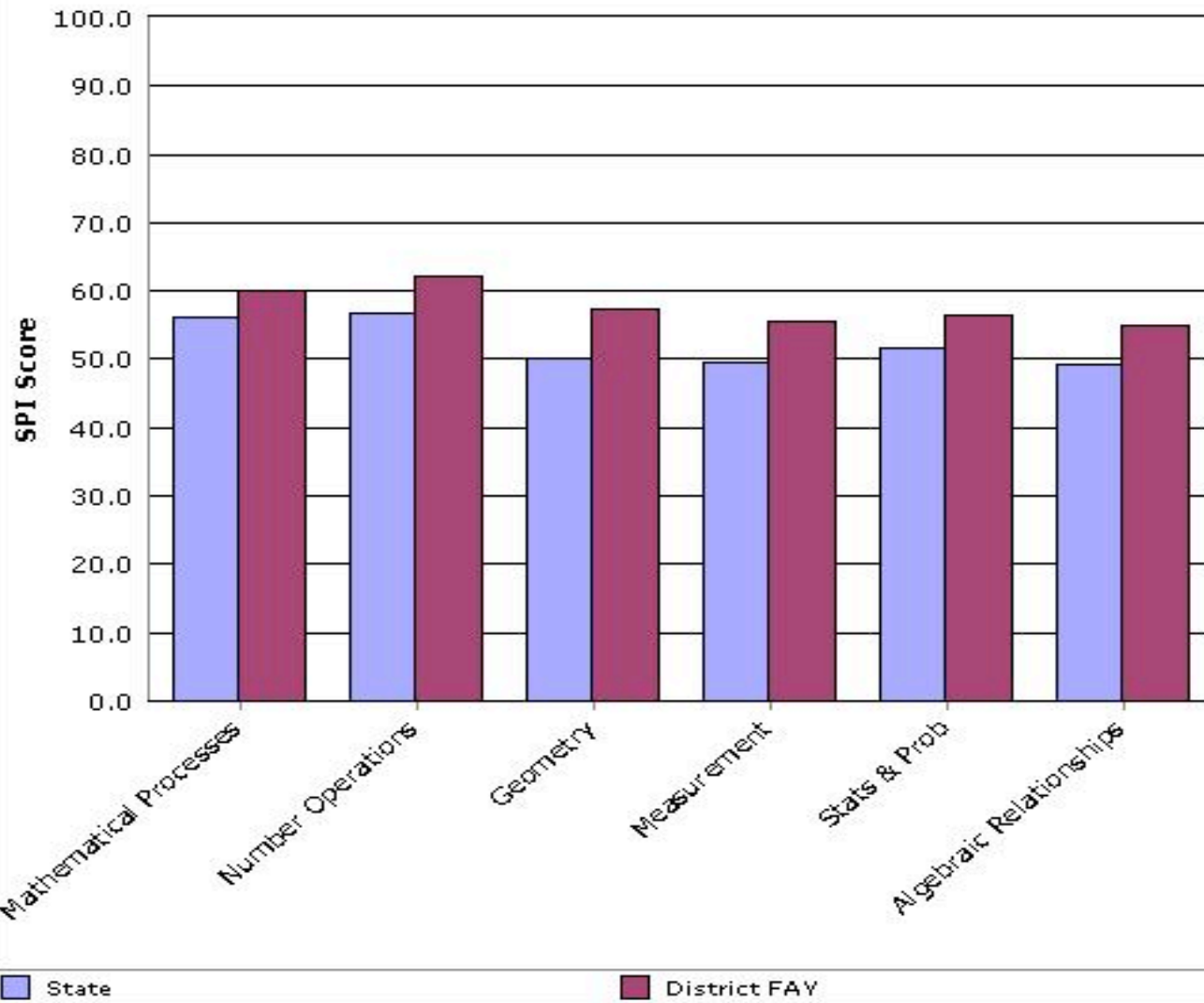
- Discovering Series
- McDougal Littell Series
- Core Plus Series
- Variety of curricular materials used at the higher levels

# Professional Development

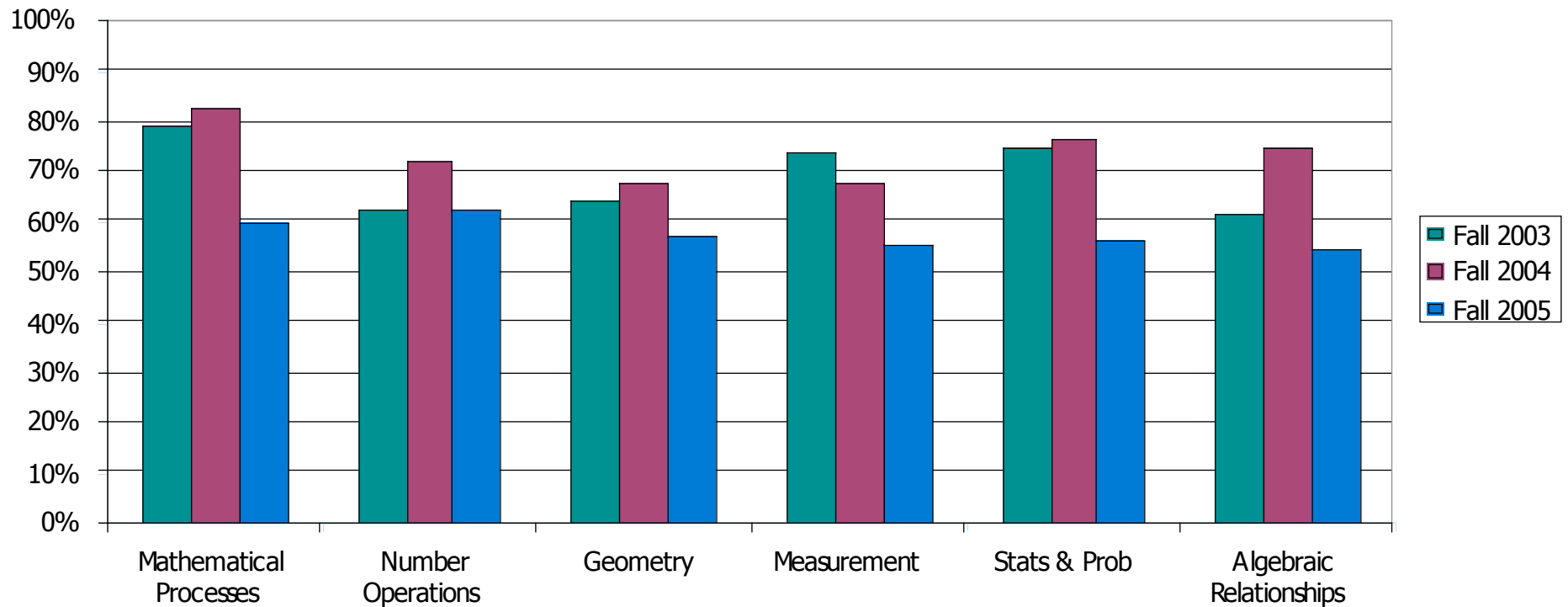
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- Algebra Leadership Team
- Geometry Leadership Team
- Integrated Mathematics Leadership Team
- MATC Dual Credit Development Team

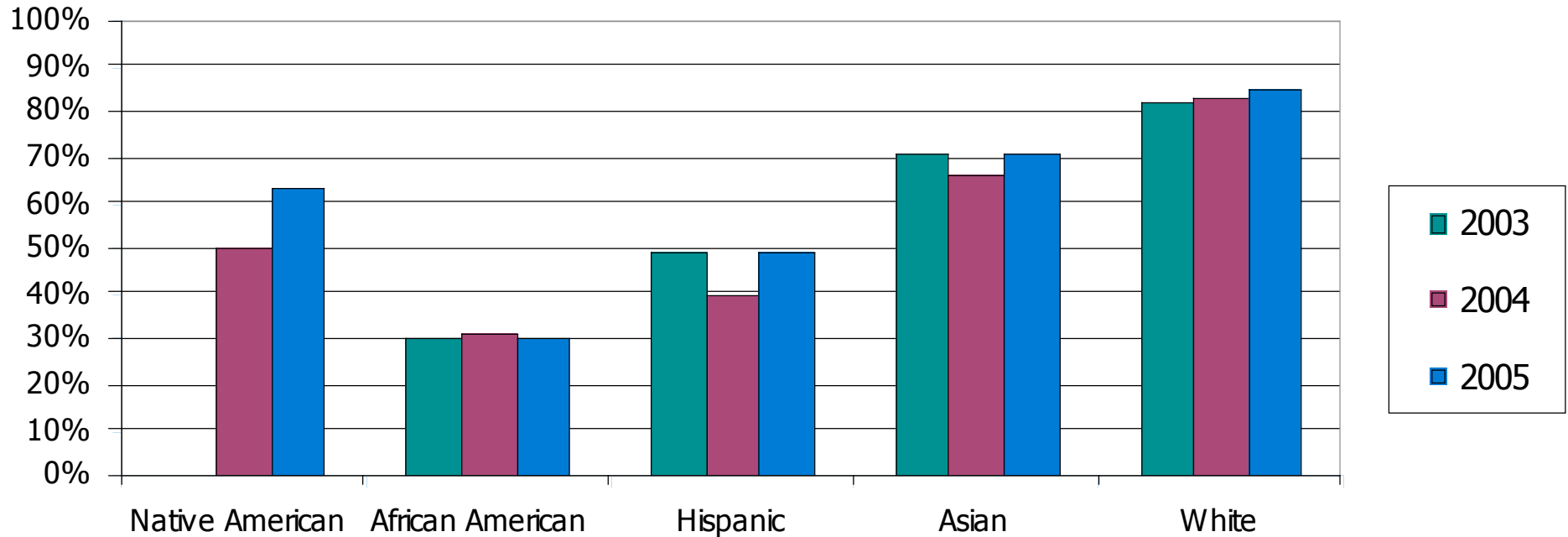
**Mathematics Standards  
Fall 2005  
MADISON - All Schools  
Grade 10  
Mathematics**



# MMSD 10<sup>th</sup> Grade Mathematics WKCE Standards Performance

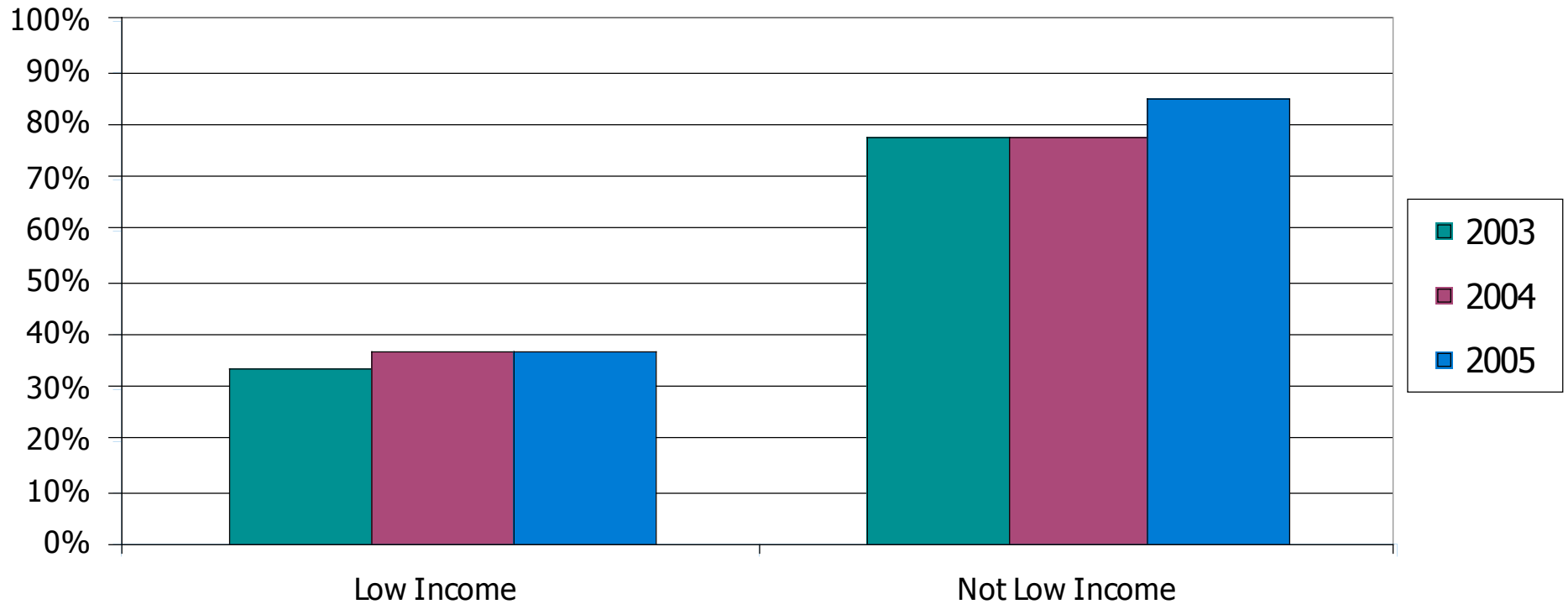


# MMSD 10<sup>th</sup> Grade Mathematics WKCE Proficient and Advanced by Ethnicity

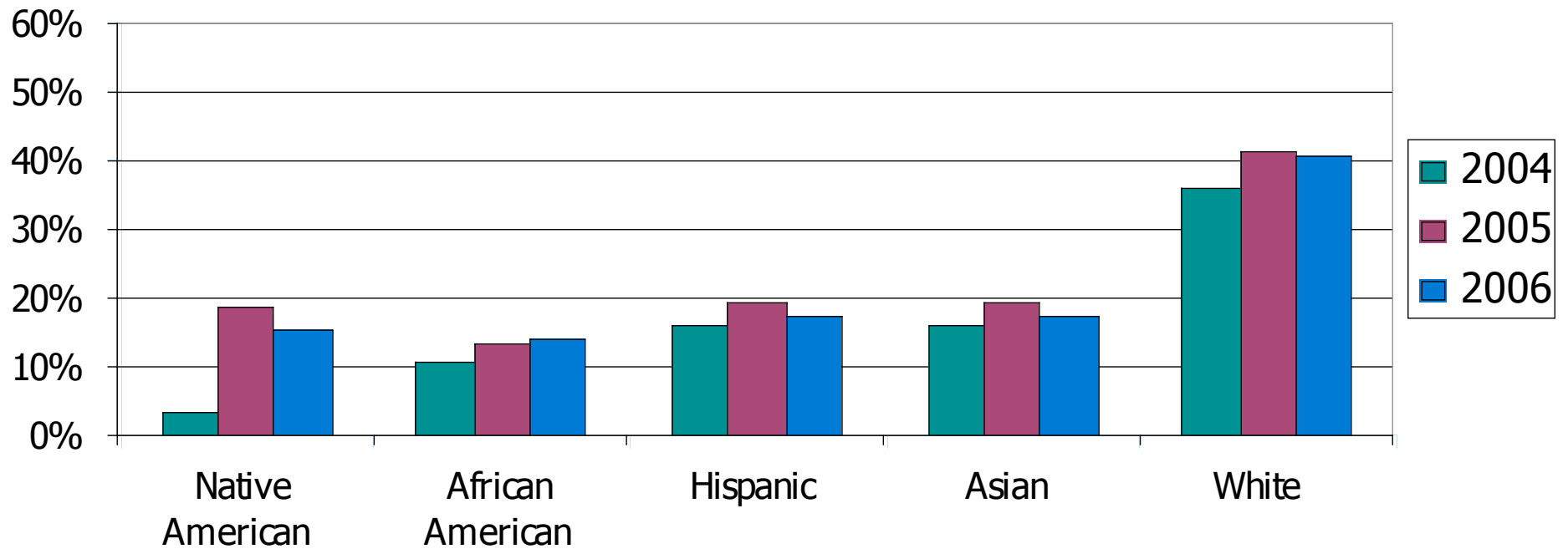




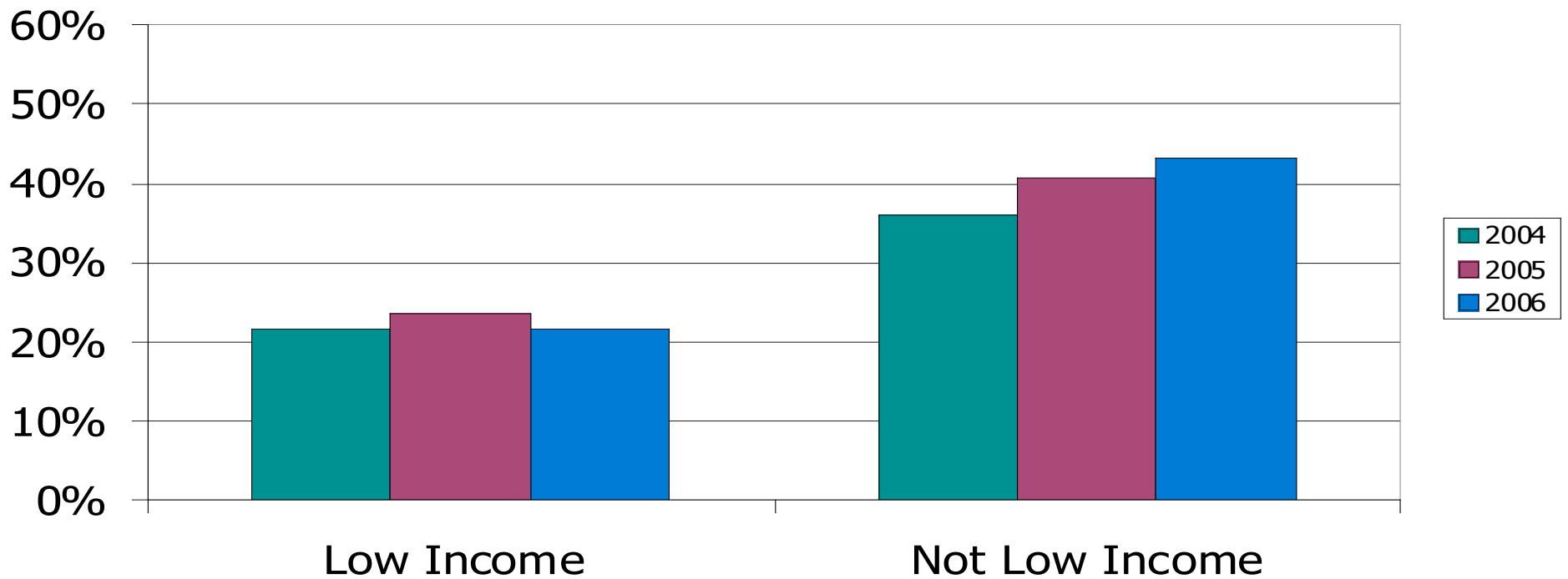
# MMSD 10<sup>th</sup> Grade Mathematics WKCE Proficient and Advanced by Income



# MMSD HS Students Enrolled in Higher Math by Ethnicity (Math Higher Than Geometry)



# MMSD HS Students Enrolled in Higher Math Classes by Income (Math Higher Than Geometry)



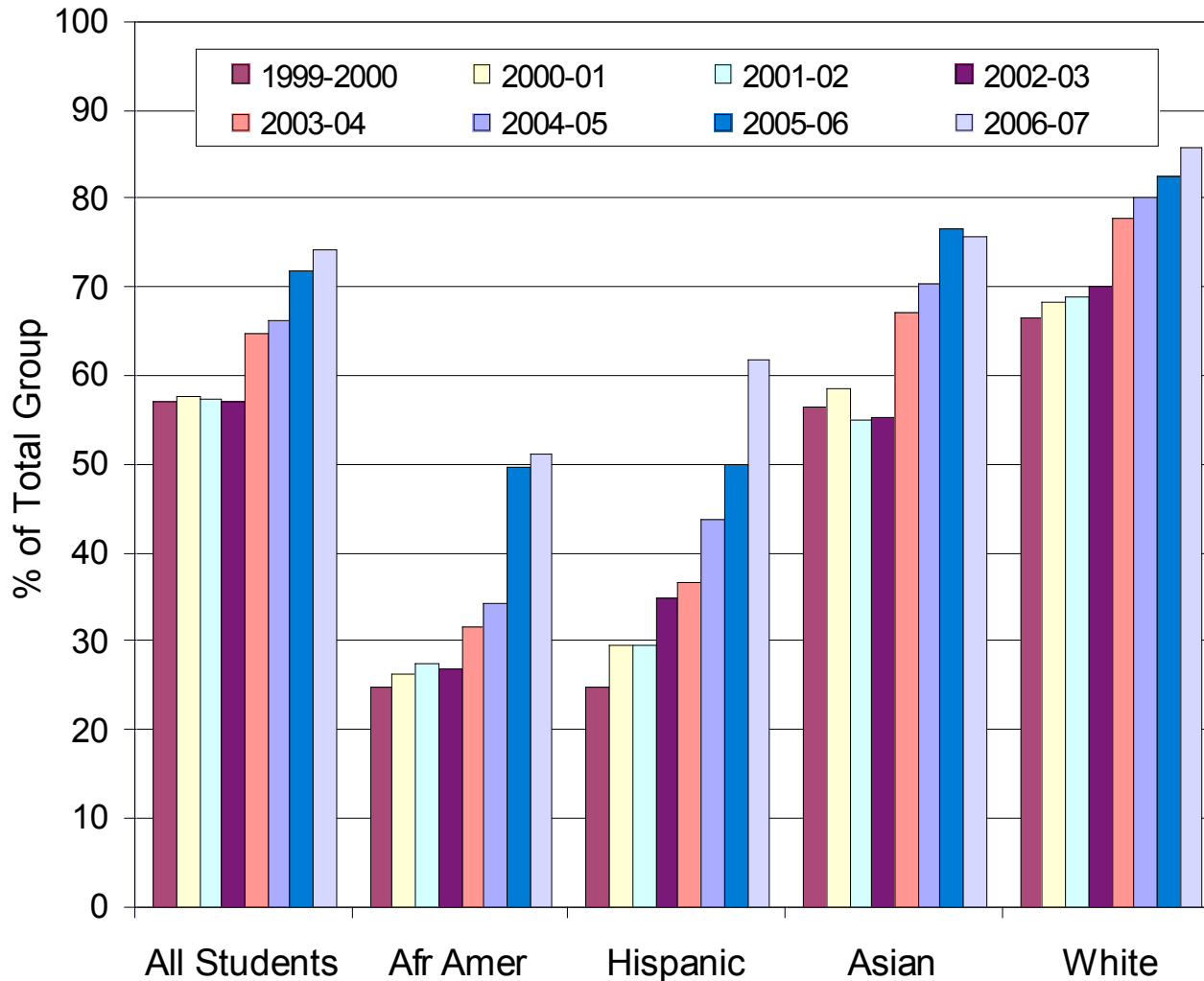
# Board of Education Priority

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- *All students complete Algebra by the end of ninth grade and Geometry by the end of tenth grade*

# ALGEBRA COMPLETION BEGINNING OF GRADE 10 2000 TO 2007

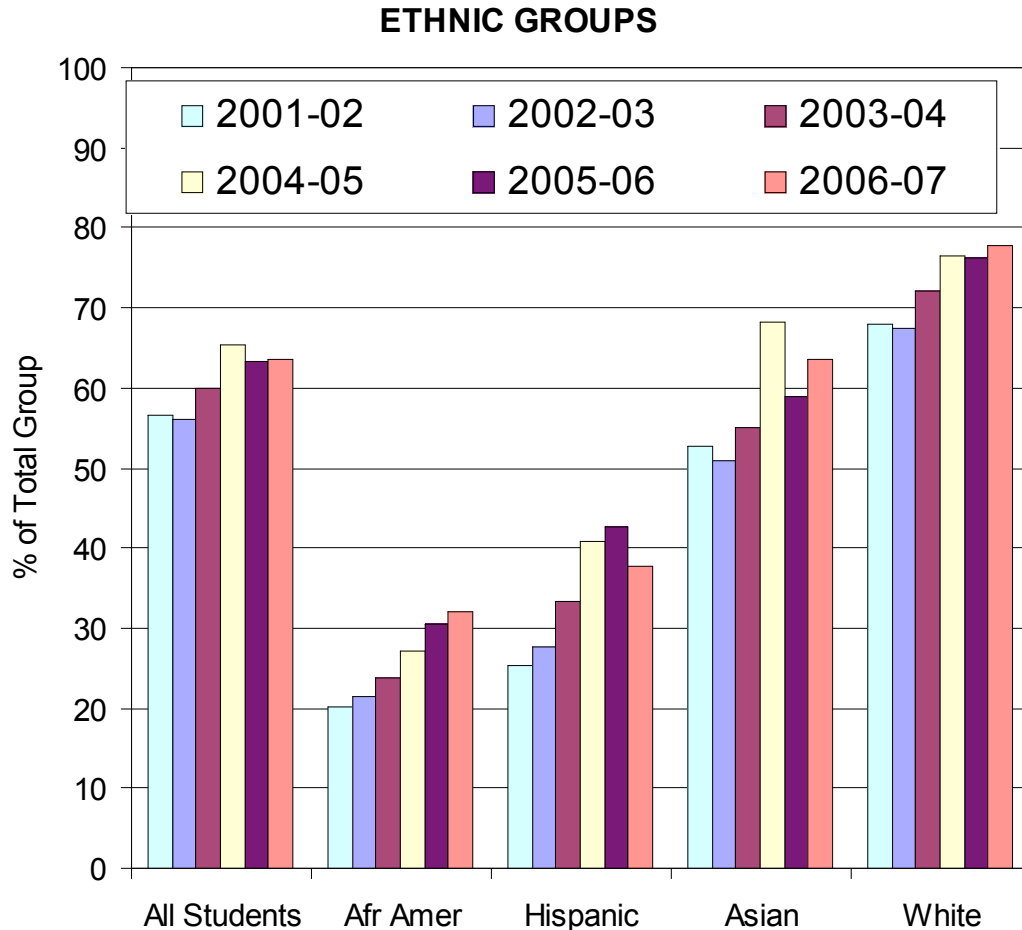
## ETHNIC GROUPS



Overall, Algebra completion by the beginning of grade 10 went up for all ethnic and racial subgroups as of 2006-07 compared with previously recorded school years.

The largest relative gain between the previous year of measure, 2005-06, and last school year was among Hispanic students.

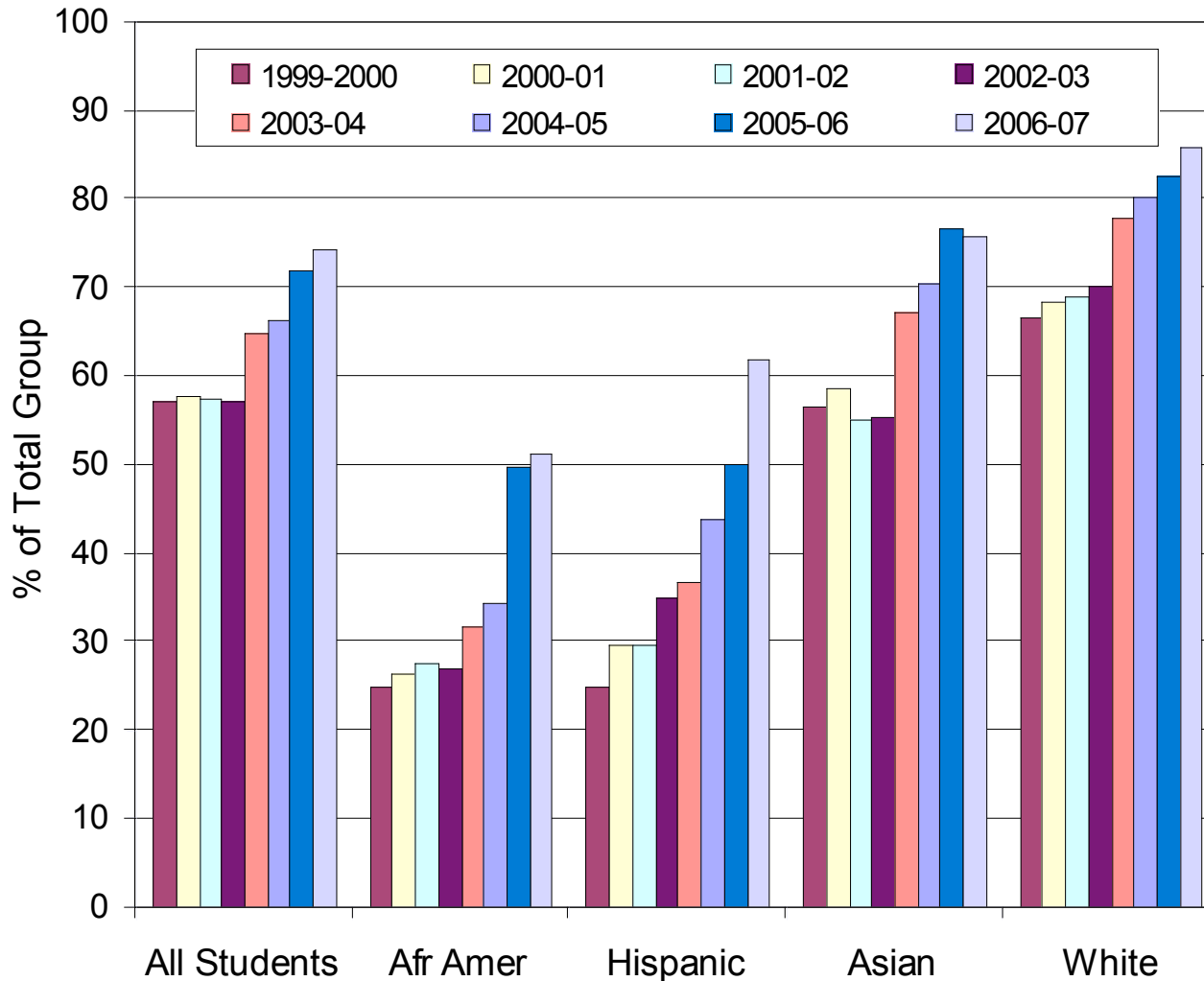
# GEOMETRY COMPLETION BEGINNING OF GRADE 11 2002 to 2007



- As of the beginning of the 2006-07 school year, approximately 64% of all students successfully completed Geometry by grade 11. Geometry completion was comparable to the previous year.
- White students continue to be more likely to complete Geometry than other ethnic subgroups. Enrollment among Hispanic American students decreased in 2006-07.

# ALGEBRA COMPLETION BEGINNING OF GRADE 10 2000 TO 2007

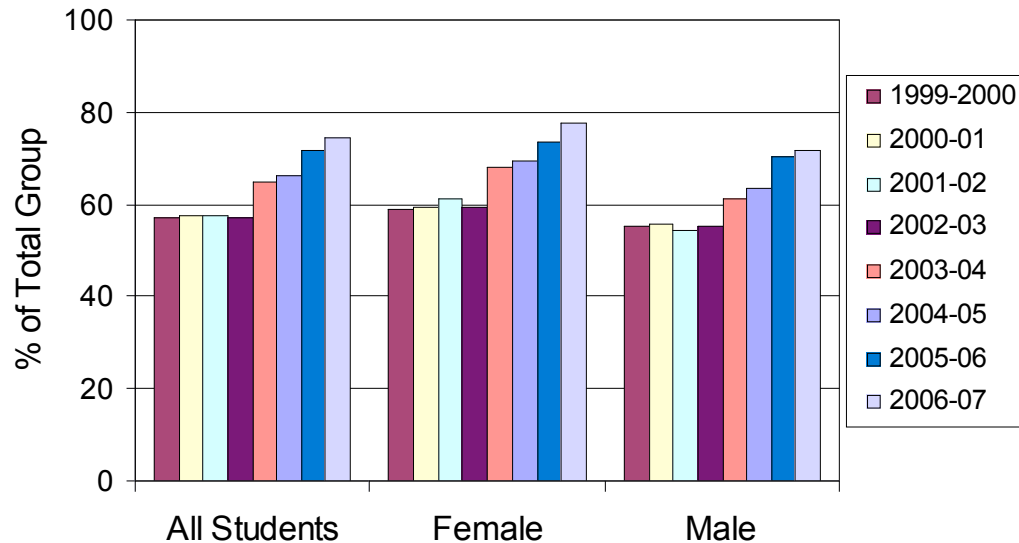
## ETHNIC GROUPS



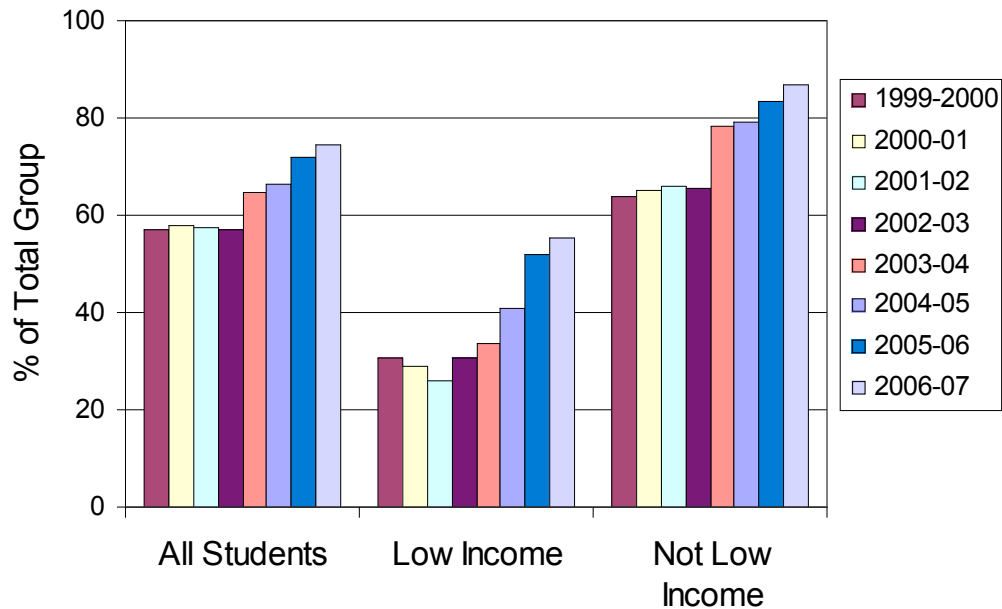
Overall, Algebra completion by the beginning of grade 10 went up for all ethnic and racial subgroups as of 2006-07 compared with previously recorded school years.

The largest relative gain between the previous year of measure, 2005-06, and last school year was among Hispanic students.

## GENDER



## INCOME GROUPS

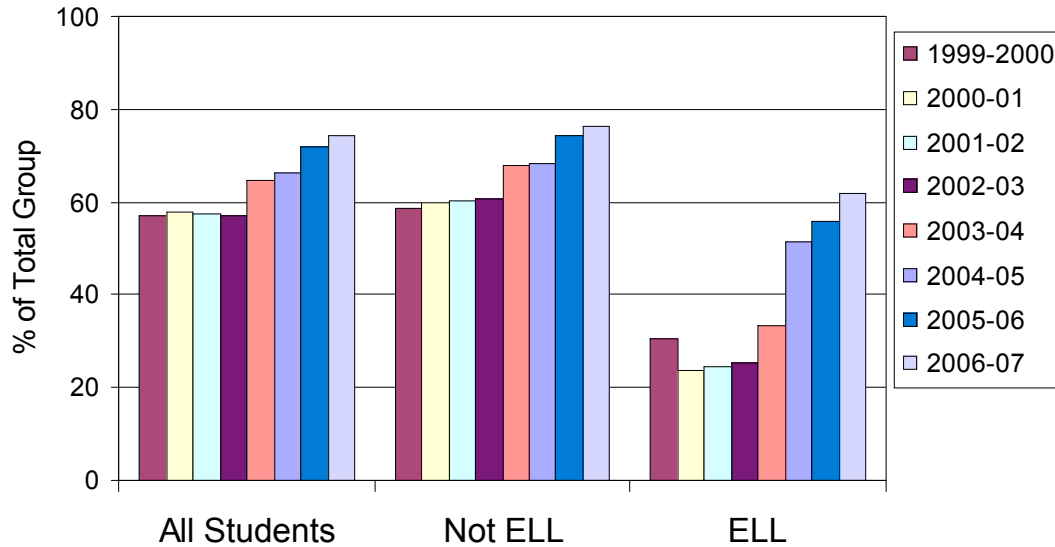


## ALGEBRA COMPLETION BEGINNING OF GRADE 10 2000 TO 2007

- At the beginning of 2006-07, both males and females successfully completed Algebra by grade 10 at a consistently increasing rate over the past 4 years.
- Students living in low income households who successfully completed Algebra by grade 10 at the beginning of 2006-07 increased since the previous year. Algebra completion for students living in non-low income households did as well.



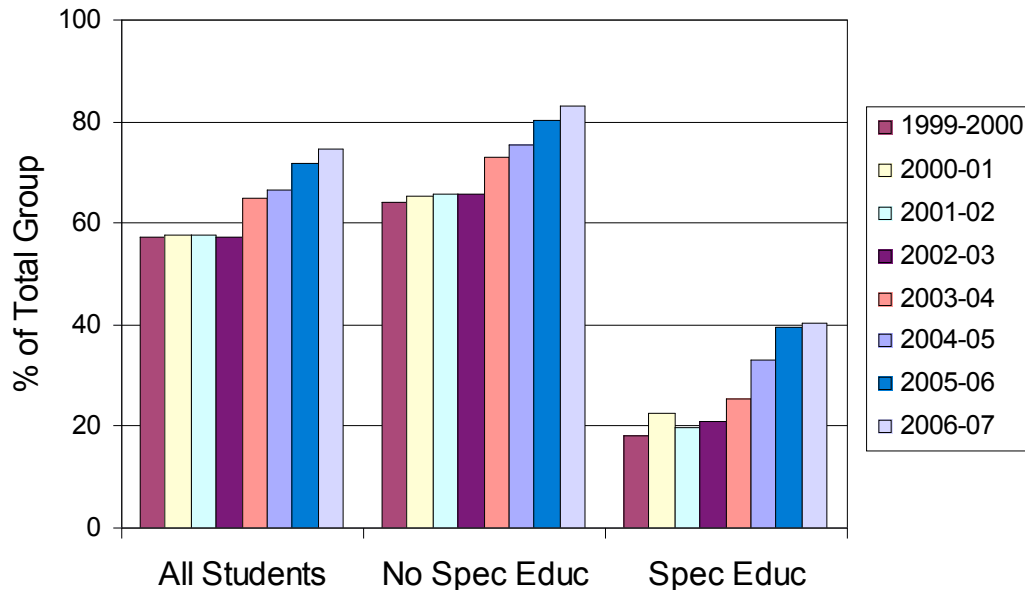
## ENGLISH LANGUAGE LEARNERS (ELLs)



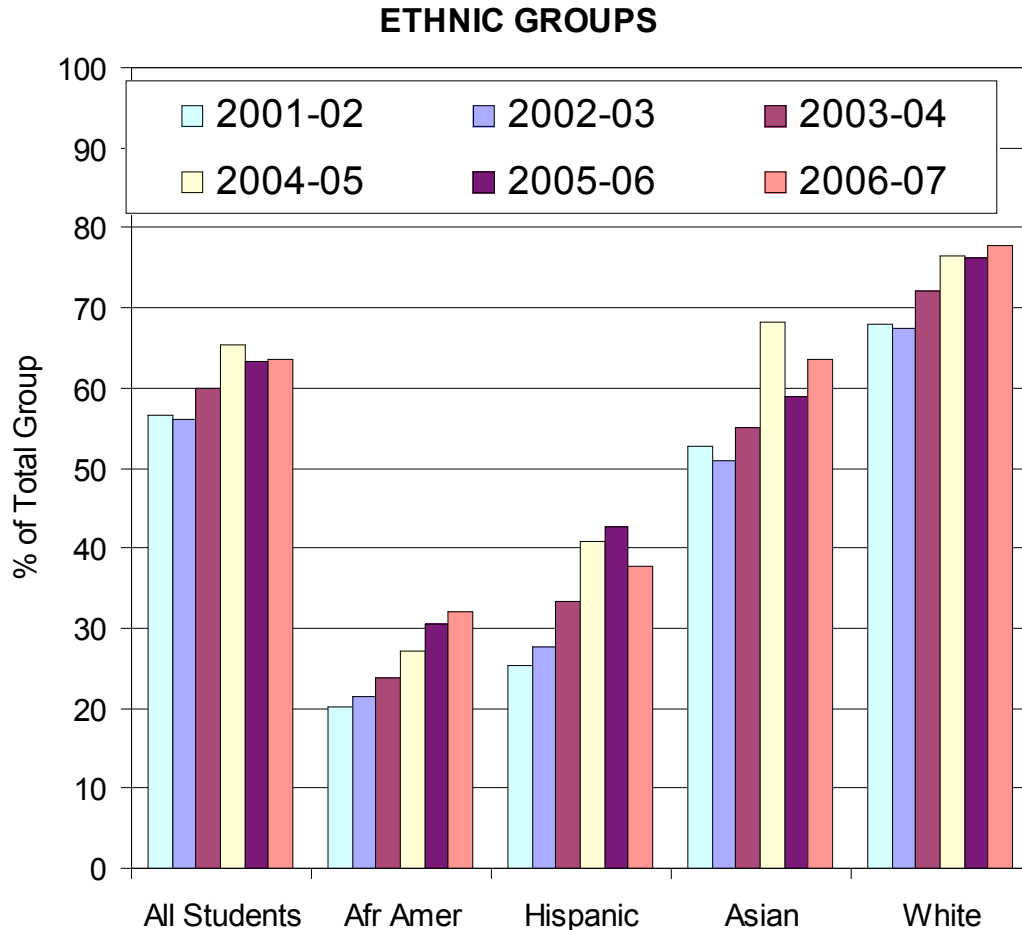
## ALGEBRA COMPLETION BEGINNING OF GRADE 10 2000 TO 2007

- Algebra completion showed marked improvement among ELL students over the past five years.
- Algebra completion by students receiving special education services by the beginning of grade 10 has been increasing consistently for the last 5 years. Algebra completion by students not receiving special education services improved as well.

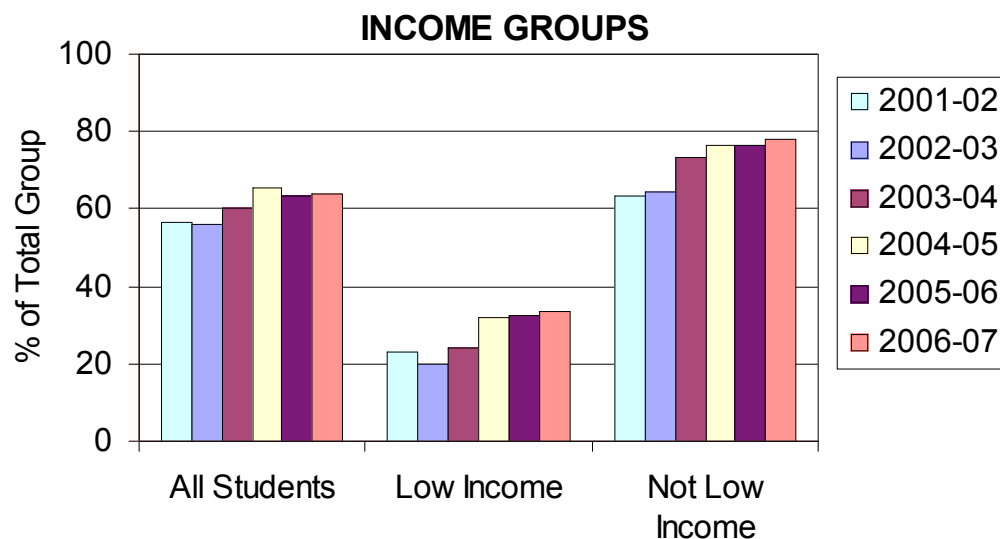
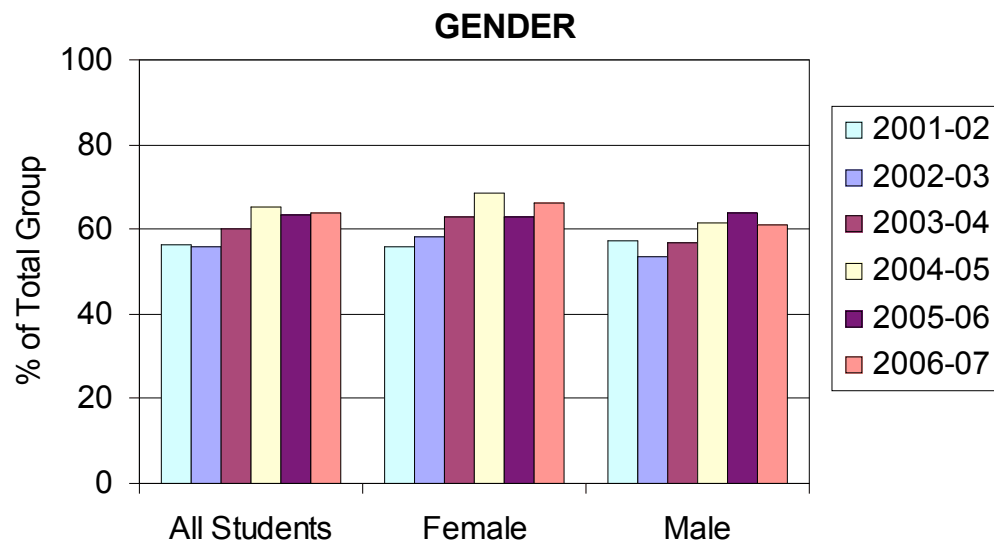
## SPECIAL EDUCATION



# GEOMETRY COMPLETION BEGINNING OF GRADE 11 2002 to 2007



- As of the beginning of the 2006-07 school year, approximately 64% of all students successfully completed Geometry by grade 11. Geometry completion was comparable to the previous year.
- White students continue to be more likely to complete Geometry than other ethnic subgroups. Enrollment among Hispanic American students decreased in 2006-07.

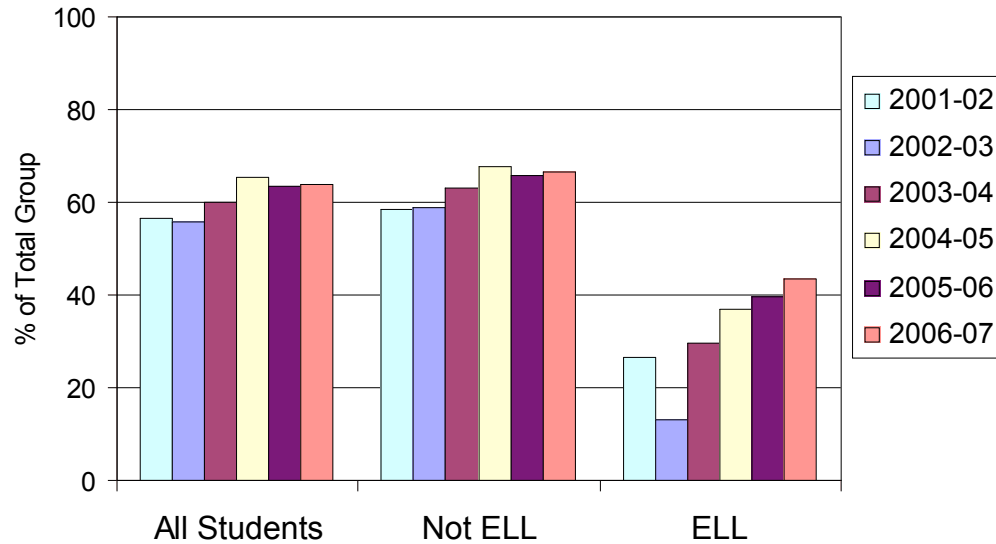


## GEOMETRY COMPLETION BEGINNING OF GRADE 11

### 2002 to 2007

- Geometry completion among females is higher than their male counterparts as of the beginning of the 2006-07 school year. The rate for females increased from one year ago.
- Just over 1 in 3 students living in low income households successfully completed Geometry prior to their junior year. This group's completion rate was only 1 in 5 five years ago. More than 3 of every 4 students living in non-low income households completed geometry by grade 11 as of the beginning of 2006-07.

### ENGLISH LANGUAGE LEARNERS (ELLs)



## GEOMETRY COMPLETION BEGINNING OF GRADE 11 2002 to 2007

- Students receiving ESL/Bilingual services have completed Geometry by the beginning of grade 11 at a consistently higher rate over the last four years.
- Over two thirds of non-special education students completed Geometry by the beginning of grade 11 at the beginning of this school year compared to just under one third of the students receiving special education services.

### SPECIAL EDUCATION

