

Madison Metropolitan School District

Forum: Middle School Math Curriculum

Wednesday February 22 2006

MMSD Algebra Completion Rates



CMP Research and Data from States

Field Test Research Result



AP Test Results Travis MI



Student Work



Math Masters Program



Madison Metropolitan School District



ALGEBRA COMPLETION (BEGINNING OF GRADE 10) RATES

2000 TO 2006

By:

Ethnicity



Income Group



English Language Learner Status



Special Education Status

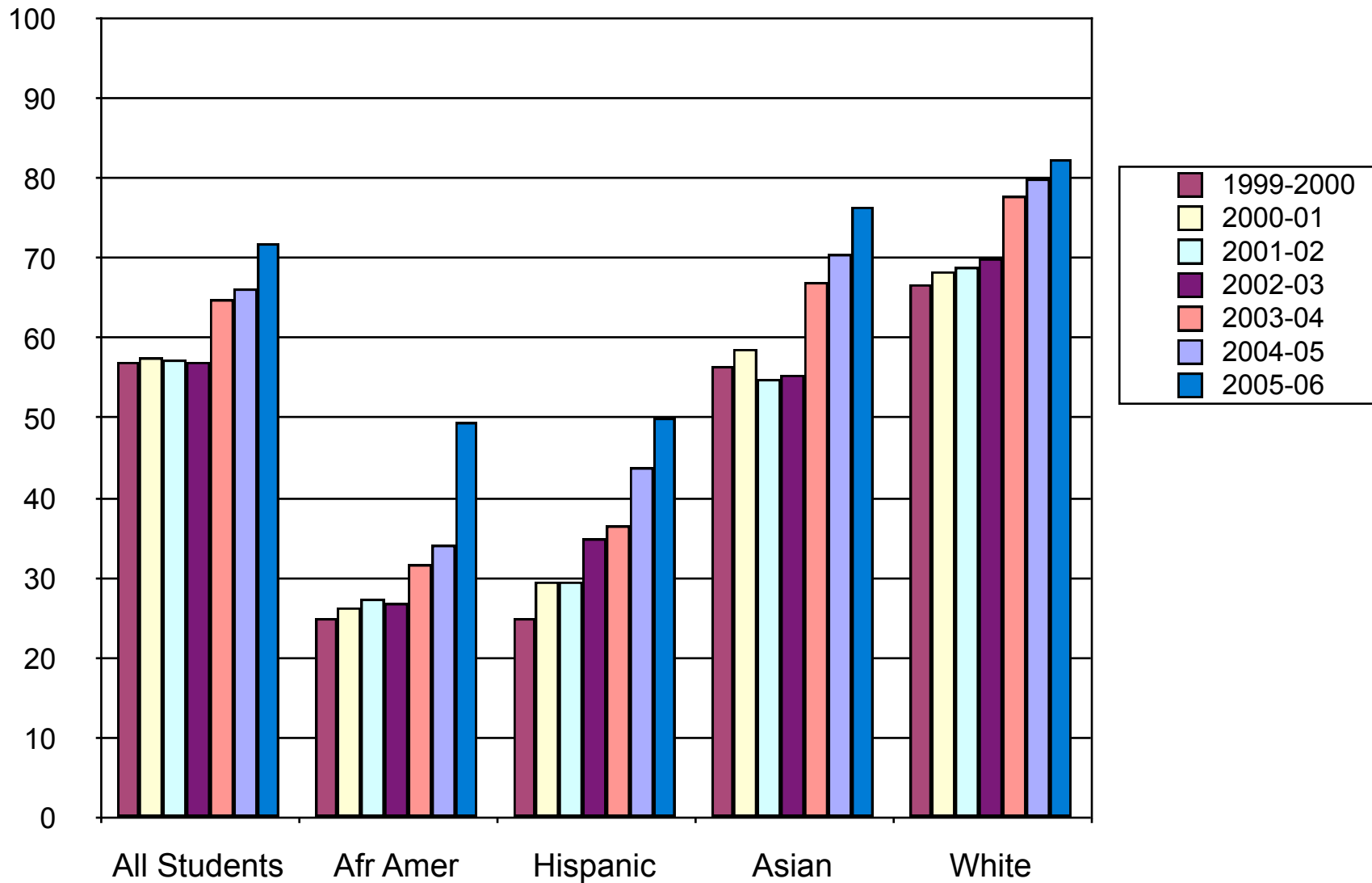


MMSD Eighth Grade WKCE Mathematics Report



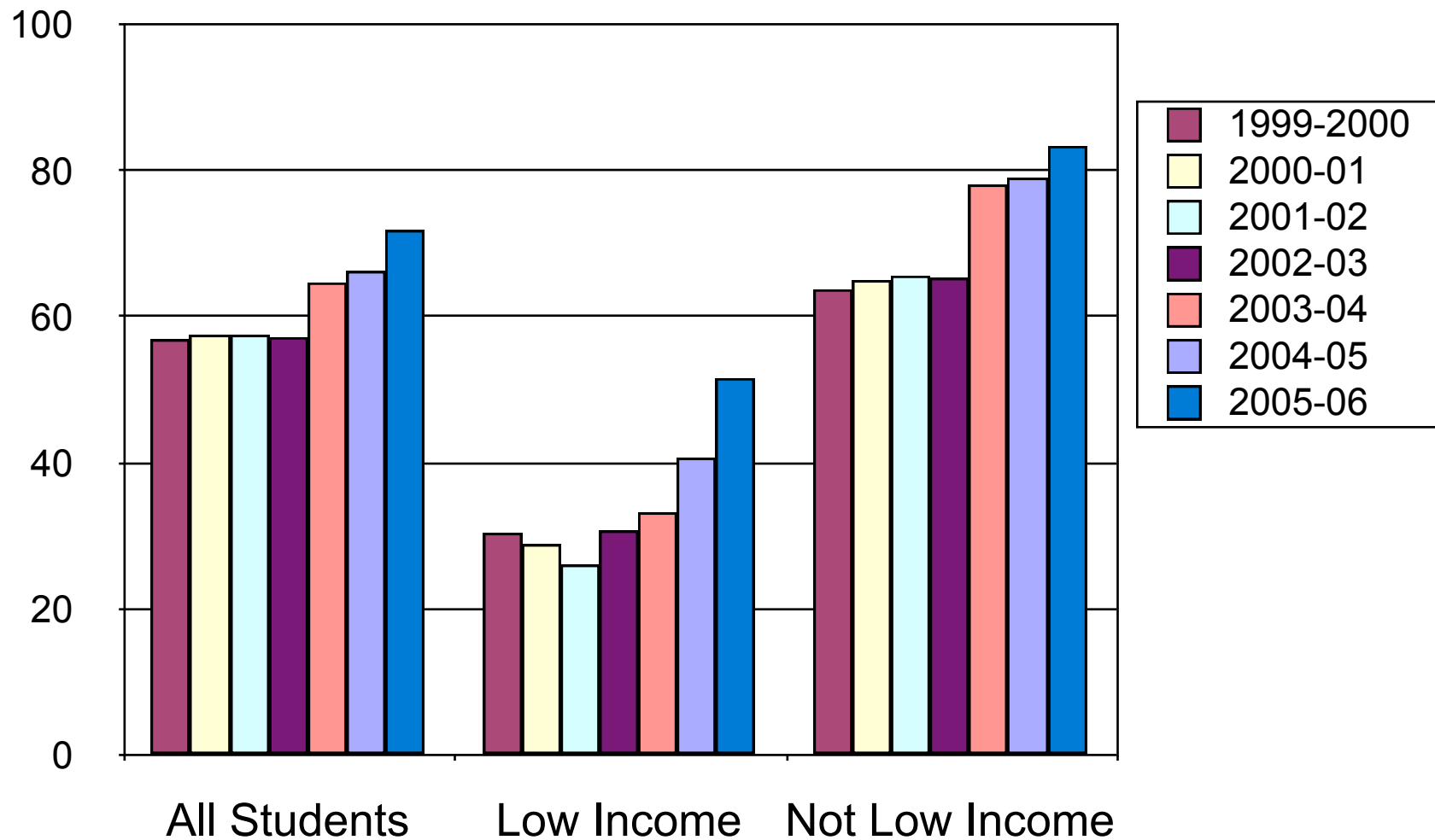
ALGEBRA COMPLETION (BEGINNING OF GRADE 10) RATES

2000 TO 2006



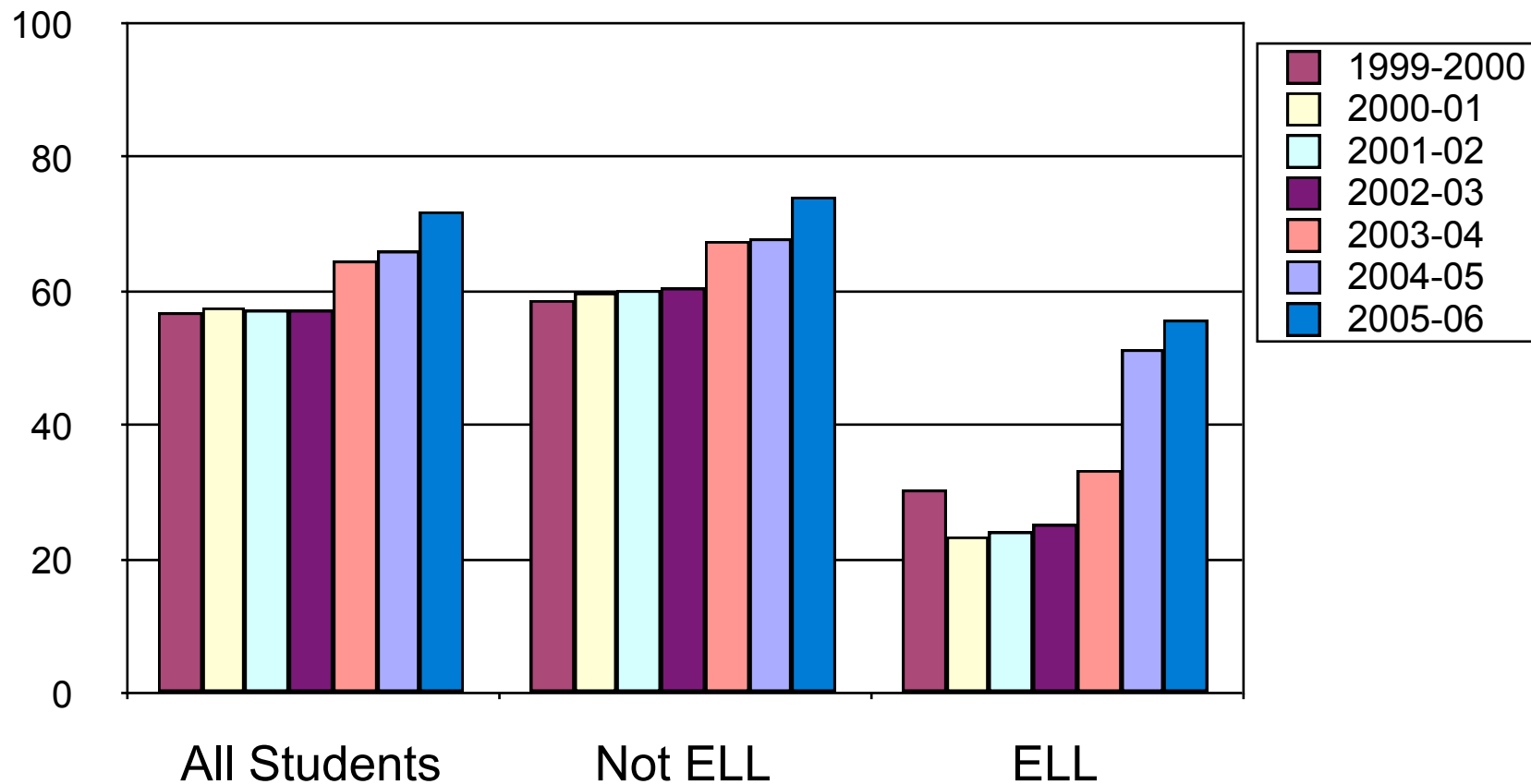
ALGEBRA COMPLETION (BEGINNING OF GRADE 10) RATES

2000 TO 2006



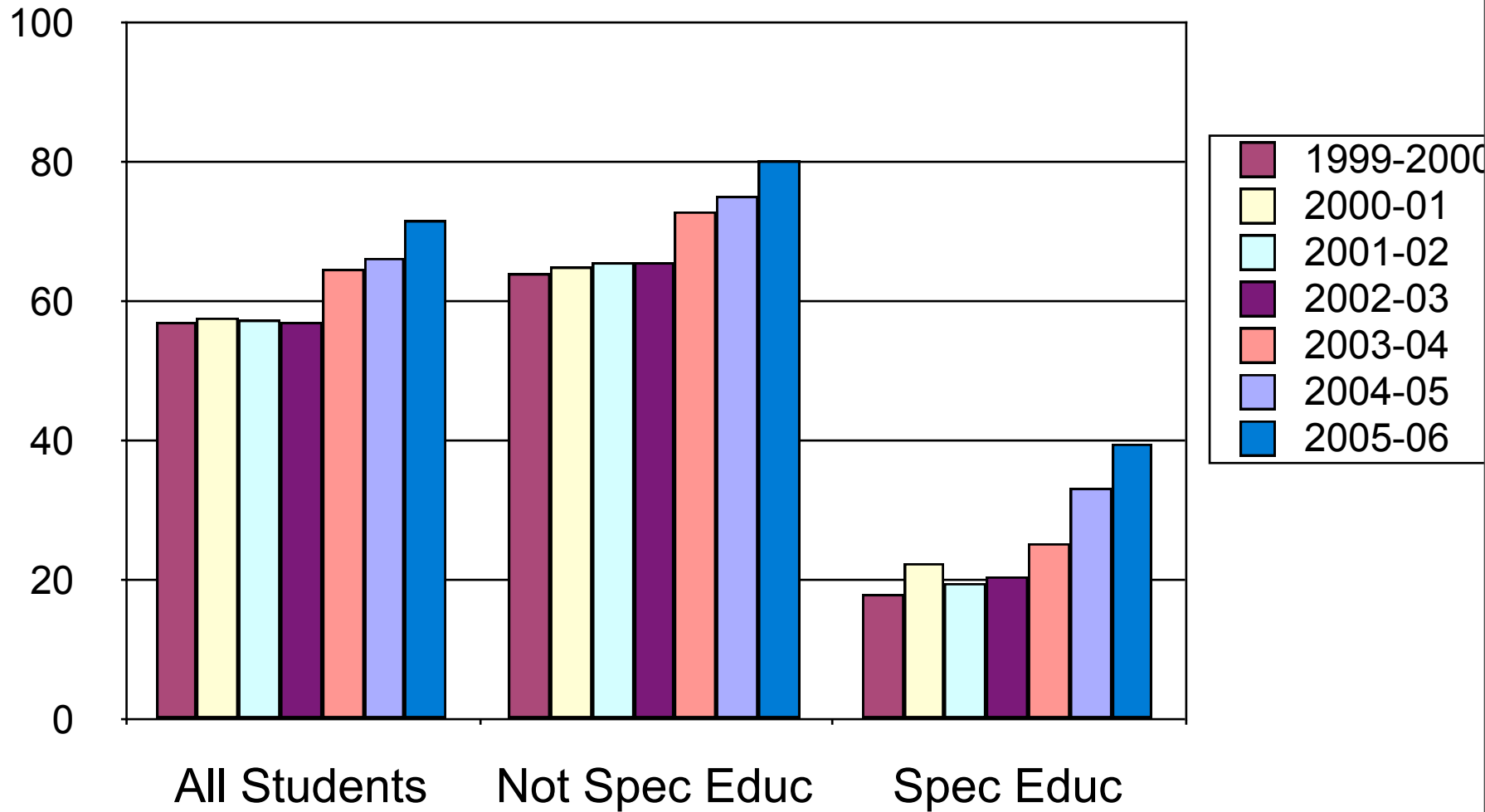
ALGEBRA COMPLETION (BEGINNING OF GRADE 10) RATES

2000 TO 2006



ALGEBRA COMPLETION (BEGINNING OF GRADE 10) RATES

2000 TO 2006



MMSD Eighth Grade WKCE Mathematics Report

Percent of Students Scoring at the Advanced and Proficient Levels

	1997-98	1998-99	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
All MMSD 8th grade students	43%	47%	49%	45%	48%	74%	64%	73%
Hispanic students	19%	25%	29%	21%	25%	48%	37%	50%
Black students	8%	10%	11%	8%	13%	44%	29%	39%
Asian students	25%	36%	35%	36%	41%	65%	55%	73%
White students	54%	59%	60%	58%	62%	86%	78%	88%
Students with disabilities	11% (63% of this group was tested)	10% (77% of this group was tested)	8% (92% of this group was tested)	8% (92% of this group was tested)	11% (97% of this group was tested)	37% (97% of this group was tested)	25% (99% of this group was tested)	34% (100% of this group was tested)
Economically disadvantaged students	9% (78% of this group was tested)	14% (78% of this group was tested)	13% (92% of this group was tested)	12% (98% of this group was tested)	17% (97% of this group was tested)	46% (93% of this group was tested)	32% (98% of this group was tested)	47% (100% of this group was tested)

Source: www.dpi.state.wi.us

Urban District In Massachusetts

Started CMP1 Implementation in 1999

Three middle schools in (Collins) dissertation study:

CMP1: Teachers participated in all District Professional Development (PD)

CMP1 primary math curriculum in school

6th and 7th grade students completing 9 6th and 7th grade units

School A: Teachers participated only in contractually mandated PD

In Year 1 school used traditional text

In Year 2 two teachers piloted some CMP1 units

In Year 3 school used 3-4 grade 7 units in 8th grade classes

School B: Teachers participated only in contractually mandated PD

In Year 1 and 2 school used traditional text

In Year 3 school used 3-4 grade 7 units in 8th grade classes

Urban District In Massachusetts

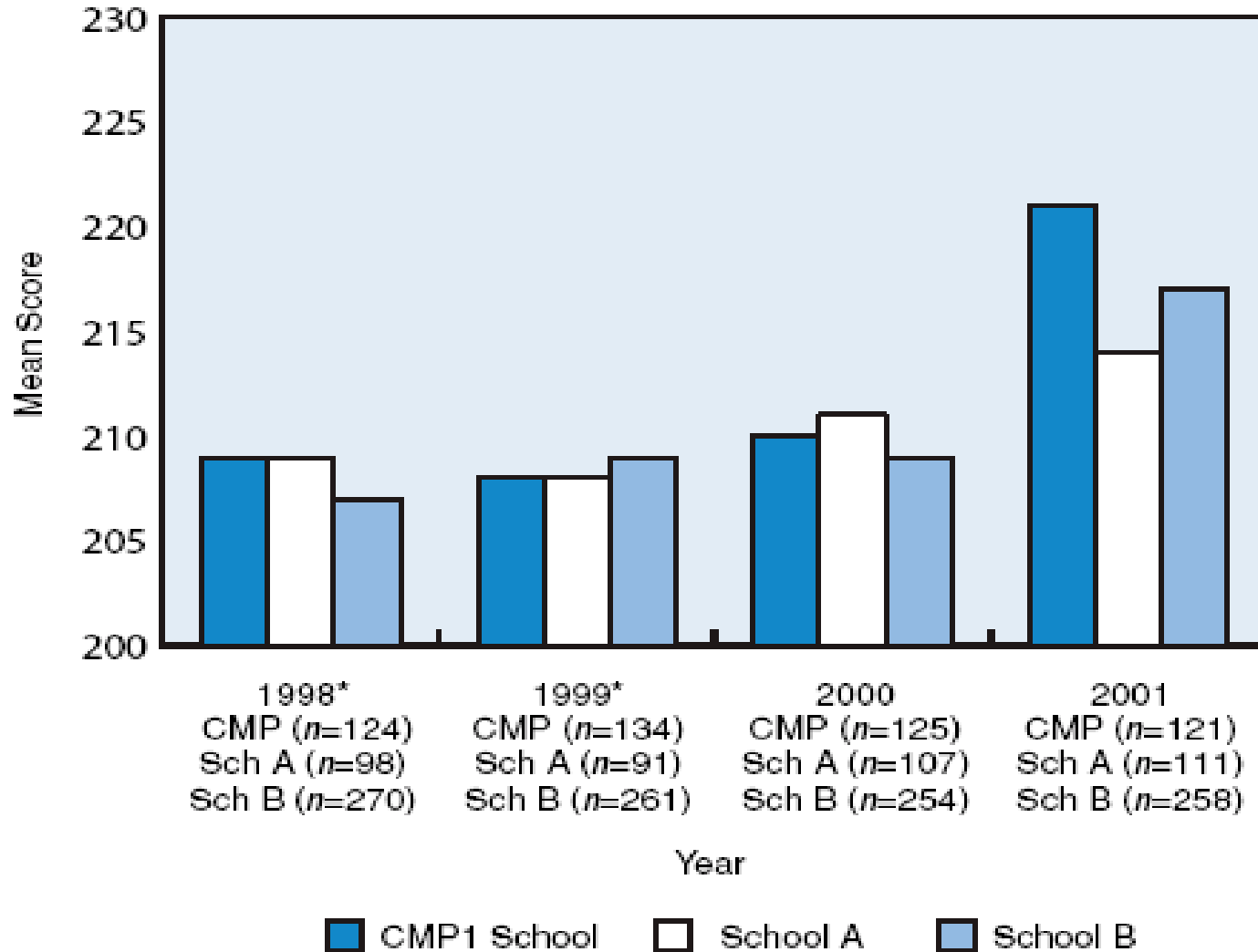
School Profiles

<i>Year</i>	<i>School</i>	<i>Total Enrollment</i>	<i>% White</i>	<i>% Minority</i>	<i>% Low Income</i>	<i>% FLNE (Free & Reduced Lunch)</i>	<i>% LEP (Limited English Proficiency)</i>
<i>2000</i>	CMP1 School	434	26	74	70	53	32
	School A	336	12	88	77	83	8
	School B	895	24	76	78	60	26
<i>2001</i>	CMP1 School	420	22	78	84	58	5
	School A	373	9	91	91	84	26
	School B	928	25	75	65	60	26
<i>2002</i>	CMP1 School	411	24	76	86	22	21
	School A	346	24	76	86	71	21
	School B	934	11	89	59	60	27

Urban District In Massachusetts

Massachusetts Comprehensive Assessment System

Mean MCAS Scaled Math Scores

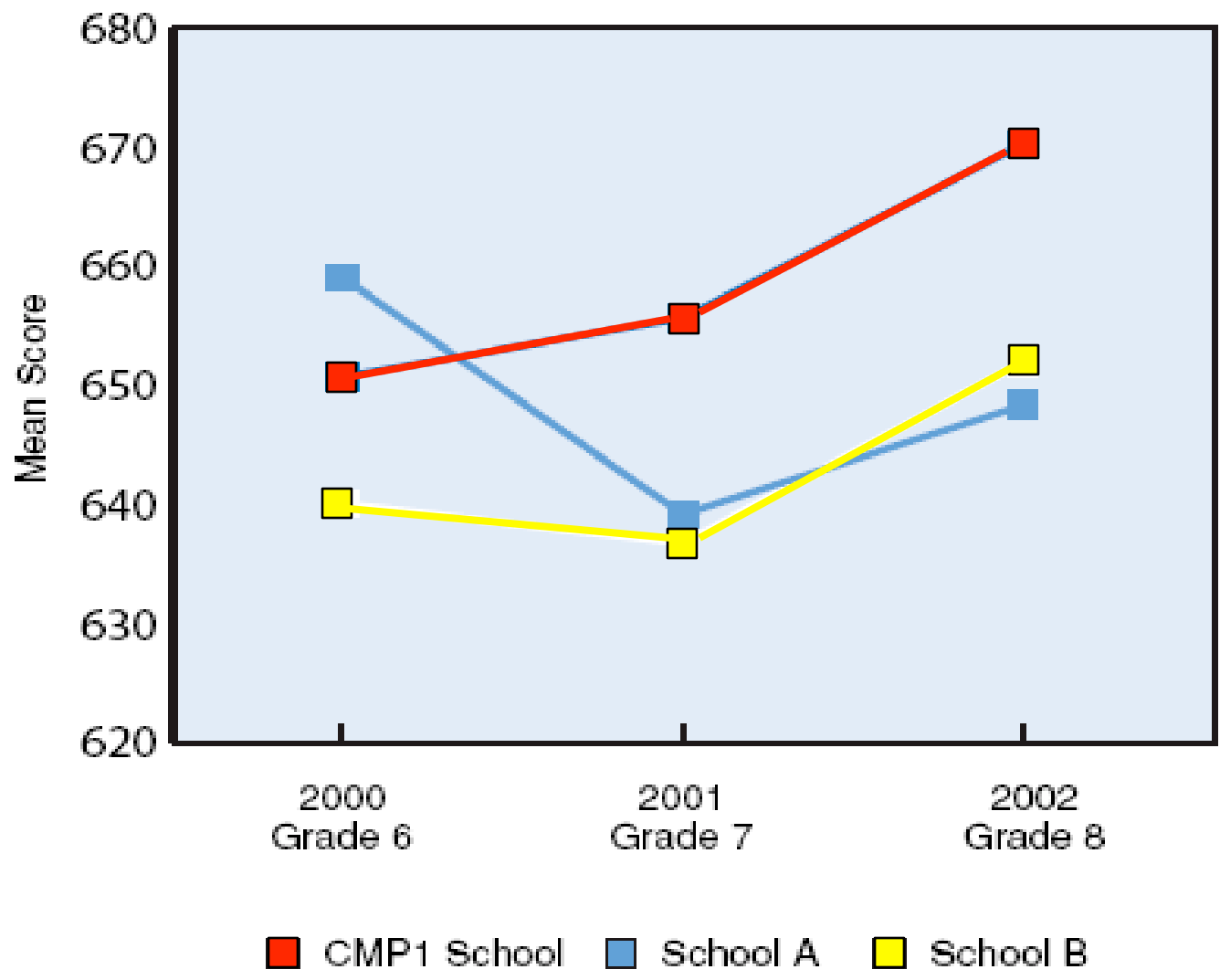


*Prior to CMP implementation

Urban District In Massachusetts



Mean TerraNova Scores



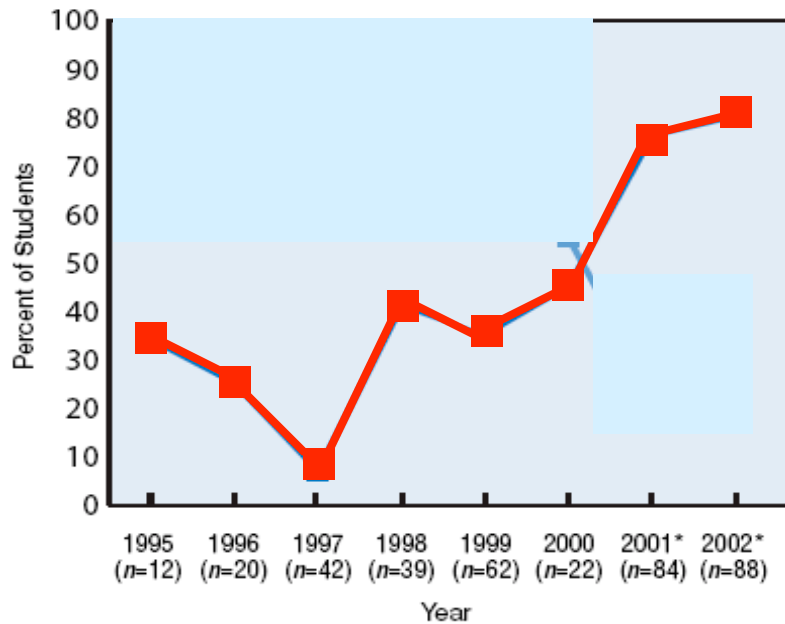
AP TEST RESULTS FOR TRAVERSE CITY, MICHIGAN (2002)



FINDINGS

The graphs below show Traverse City's results for the Advanced Placement AB calculus, BC calculus, and statistics exams. Note that 2001 was the first year the AP students had completed grades 6, 7, and 8 of *Connected Mathematics 1* and an accelerated version of *Contemporary Mathematics in Context*. The percentage of students who passed the exams increased dramatically that year. Notice also that the number of students taking the exams has increased. For example, from 1999 to 2001, the number of students taking the AP statistics exam doubled.

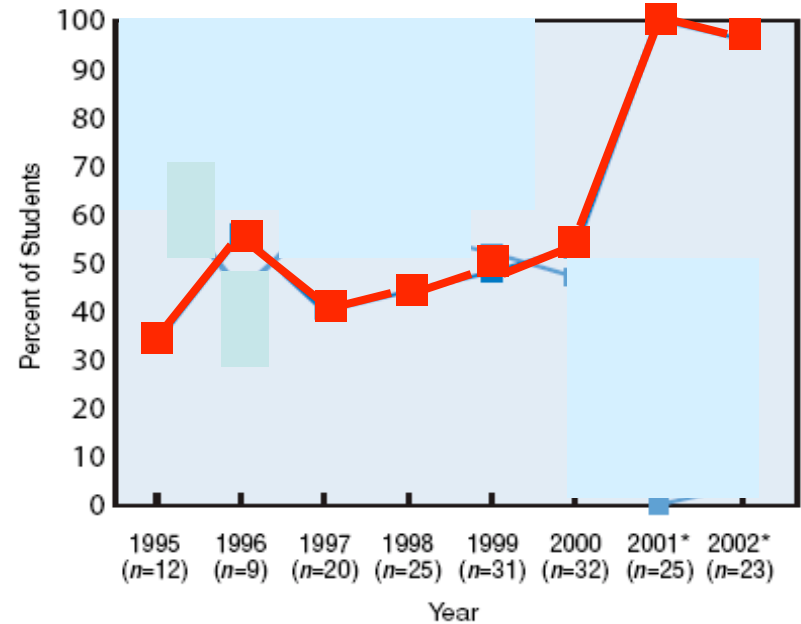
Advanced Placement AB Calculus Results



■ Students passing test ■ Students not passing test

*Above the international percentage results

Advanced Placement BC Calculus Results



■ Students passing test ■ Students not passing test

*Above the international percentage results

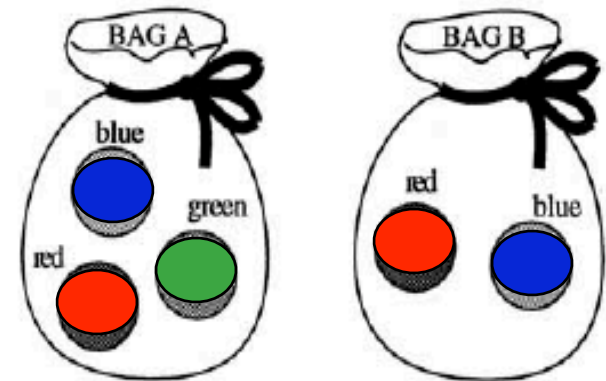
Student Work - Example

Carnival Game Problem

1. Luisa is designing a game for a carnival. She has prepared two bags with marbles.

Bag A contains 3 marbles—
one red, one blue and one green.

Bag B contains 2 marbles—
one red and one blue.



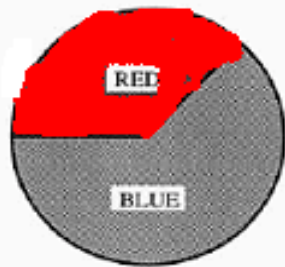
TO PLAY THE GAME: Draw one marble from each bag. If the marbles match, the person wins a prize.

- a) What is the probability of winning the game? Show your work.

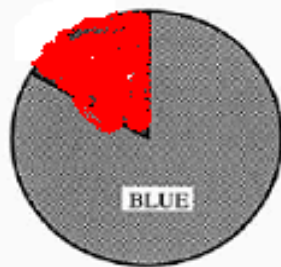
possibilities
win - ~~B-B~~
B-R
G-R
G-B
win - ~~R-R~~
R-B
probability = $\frac{2}{6}$
2 of the 6 possibilities
are winners.

Student Work - Example

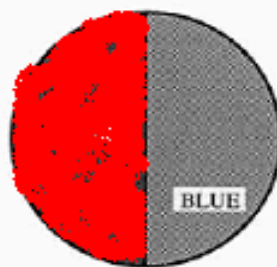
d) Luisa created five more spinner games for the carnival.



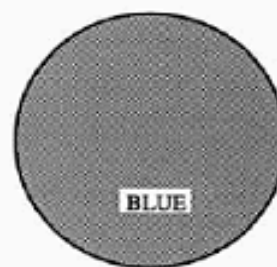
(a)



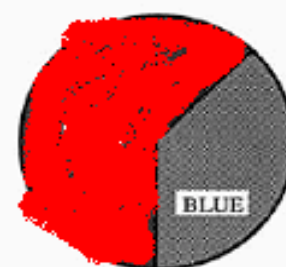
(b)



(c)



(d)



(e)

Luisa spun one of the spinners 100 times. She recorded her results in a chart.

OUTCOME	BLUE	RED
# OF TIMES	86	14

Which spinner is most likely the one she used? Explain your reasoning.

B. First I narrowed it down to the ones where blue has more than red. Then I had 2 choices, A or B. I chose B because on B it looks like 86% is blue & 14% is red. On the other one red is shown as taking up $\frac{1}{3}$. $\frac{1}{3}$ of all is $33.\overline{3}$ which is more than 14.

is $33.\overline{3}$ which is more than 14.

MATH MASTERS PROJECT



School District of Beloit
*Committed to Excellence **
Strengthened by Diversity

Sauk Prairie School District

Professional Development Opportunity in Mathematics

- 4 - 20 hour Mathematics Content Courses
 - Probability and Statistics
 - Algebraic Relationships/Number Operation
 - Geometry
 - Measurement
- Pedagogy course with each Content Course
- Each Content Course is offered again in the summer

Features

- UW Mathematicians contribute content expertise
- Instructional Resource Teachers from MMSD contribute pedagogical expertise
- Content and Pedagogy courses are directly connected to what teachers use in their classroom (Connected Mathematics Project)

Teacher Benefits

- Compensation
 - 1 UW credit in Mathematics for each content course
 - 1 UW credit in Curriculum & Instruction for each pedagogy course
 - or Extended Employment Pay
- More content and pedagogical knowledge
- Improved instruction in mathematics classes

Project Team Benefits

- MMSD staff gain more content knowledge from UW stem faculty
- UW STEM faculty gain more pedagogical knowledge from MMSD staff

Course Design

- All work is done in class
- Investigations in mixed small groups
- Oral/Poster presentations
- Large group discussions

2004 – 2005 Participation

- Madison
 - 47 teachers
 - 74 classes (Avg. 1.57 classes)
- Beloit
 - 9 teachers
 - 18 classes (Average 2 classes)
- Sauk Prairie
 - 3 teachers
 - 6 classes (Average 2 classes)

2004-2005 Results

- **Statistics and Probability**
 - Pre-test Average (55%)
 - Post-Test Average (73%)
 - Gain of 17.5 points
- **Algebraic Relationships**
 - Pre-test Average (66%)
 - Post-Test Average (80%)
 - Gain of 14 points

2004-2005 Results

- Geometry
 - Pre-test Average (55%)
 - Post-Test Average (71%)
 - Gain of 16.5 points
- Measurement
 - Pre-test Average (45%)
 - Post-Test Average (61%)
 - Gain of 15 points

Summer Repeat Courses

- Attendance
 - Madison 16 teachers/27 classes
 - Beloit 7 teachers/ 10 classes
- Results
 - Measurement (45% / 57%)
 - Algebra(71% / 83%)
 - Geometry(assessment not complete)



2005-2006 School Year

- Statistics and Probability
 - Pre-Test 58%
 - Post-Test 82%
 - Gain of 24 points
- Statistics and Probability
 - Pre-Test 52%
 - Post-Test 71%
 - Gain of 19 points
- Measurement
 - Pre-Test 53.0%