



# Science Success Story

Barb Light

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# A few things about me...

- I have taught science for 19 years.
- I believe every student can and should learn the state content expectations.
- I haven't really taught if the students haven't really learned.
- I think educational technology is tremendously improving education for both teachers and students.

# What do students want from teachers?

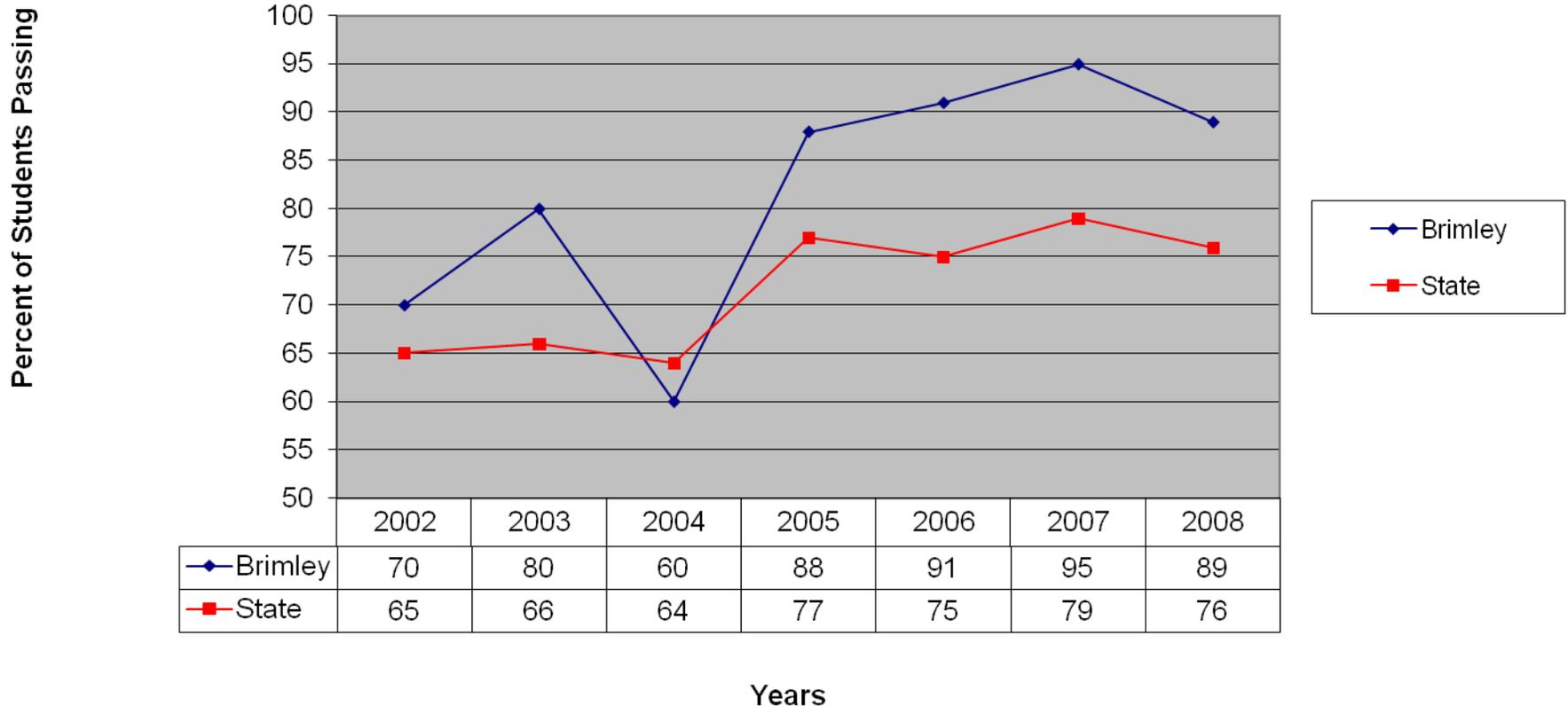
- A nice/fair teacher
- To learn what they will need to know
- A “not boring” class
- To sit by their friends
- To feel valued

## What do teachers want?

- To be a nice/fair teacher
- To teach what students will need to know to be successful in their futures
- An engaged class
- A community of learners
- To make a difference and empower my students

# What happened when I focused on what students wanted?

Science MEAP Score Comparison

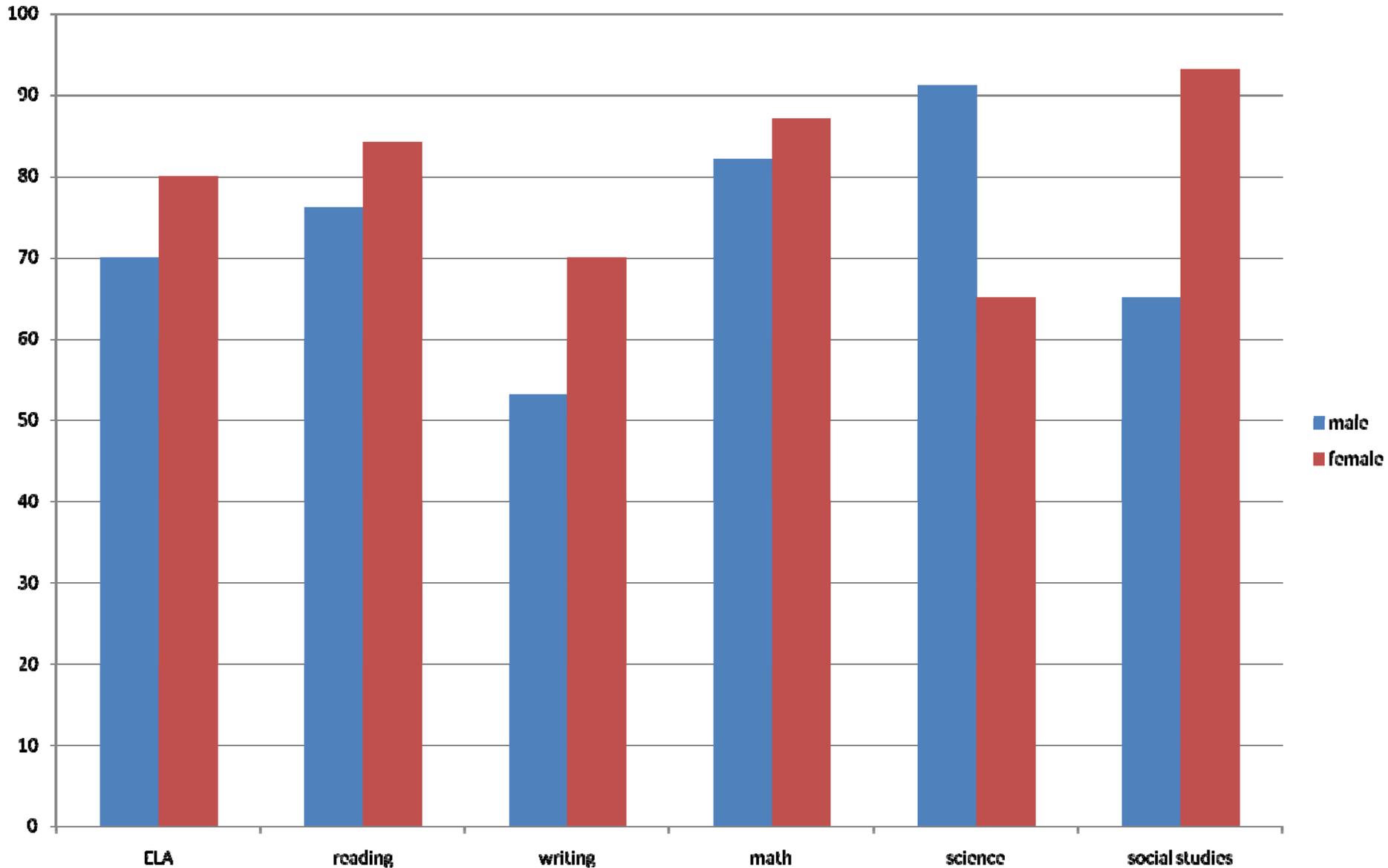


# What would you like to hear about?

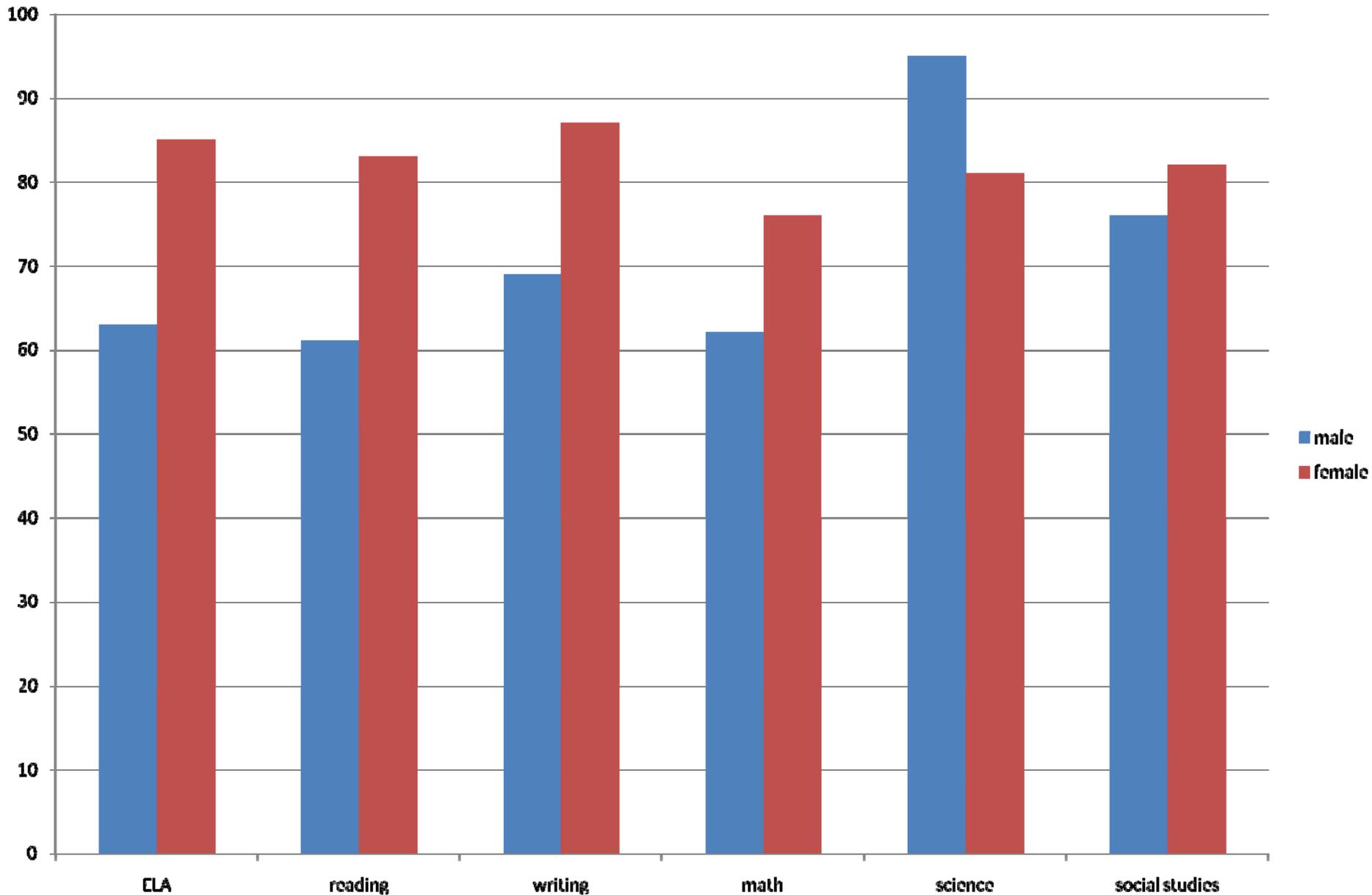
- District gender issue
- Special education/socio-economic status issue
- Ethnicity data



# 2005-2006 Elementary Percent Passed



# 2005-2006 Middle School Percent Passed



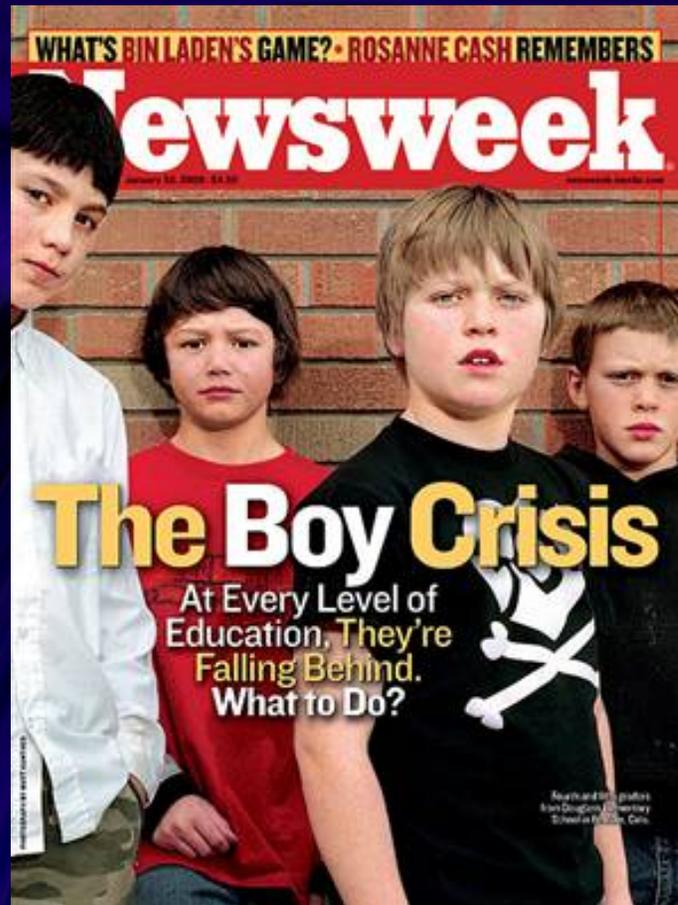
# Boys, boys, boys!

- Four years ago administrators noticed that we had 3 boys and about 25 girls recognized as honor roll students at the end of the year banquet (grades 7-12).
- A look at MEAP data by gender, showed a big difference between boys and girls.
- We knew we had to do something to promote boys academic achievement...

Help me!



Our problem may not be unique...



# What questions were raised?

- Was the problem instructional – did we need to change the way we taught?
- Was the problem a community/school culture problem – was it “cool” for boys to underachieve?
- Was the problem K-12 or specific to a certain grade range – did it start in elementary?
- Did Brimley boys underachieve Brimley girls in all subjects or only certain subjects – was it an ELA specific problem?

# Data showed

- It's not exactly subject specific – although boys did well in science, they underperformed girls in all other subjects on MEAP.
- The problem did start in elementary, but worsened in middle and high school.
- Ultimately, we attributed the problem to a combination of instructional practices and community/school cultural norms.

# What would you do?

- If this was your school, what things might you try?
- Take a few minutes to brainstorm ideas.



What can you do  
to help me?

# What did we do?

- Boys, boys, boys speaker
  - Changes in instructional strategies
  - Changes in behavior expectations of boys
- Change climate to do more to recognize all high achieving students

# Boys (and Girls) Speaker

- Dan Hodgins ([DKJ5075@aol.com](mailto:DKJ5075@aol.com))
- Brain based research about gender differences and how they impact learning
- Hormonal based research about gender differences and how they impact learning
- Numerous ideas for effective instructional methods to reach boys and girls

# Some Lesson We Learned

- Boys develop motor skills before thinking skills
- Girls develop thinking skills before motor skills
- To learn best boys need the room 69<sup>0</sup> F or cooler, while girls learn best at 75<sup>0</sup> F
- Boys work better in bright lights, with less visual distractions, and they respond to loud noises
- Girls work better in dim lights

# In Group Work

- Boys should be given the opportunity to manipulate visuals and move around
- Girls should be given the opportunity to discuss ideas with each other

# Dan Hodgins said:

Make Sure Literacy Activities are  
Relevant.....

Talking and writing about “Poop” is not  
just a word but a major life experience  
for boys.....

Get Over IT.

# The New Version: Yankee Doodle

Yankee Doodle

Went to town

A riding on a spider

Stuck an apple up his butt

And peed apple cider.



# Is it working?

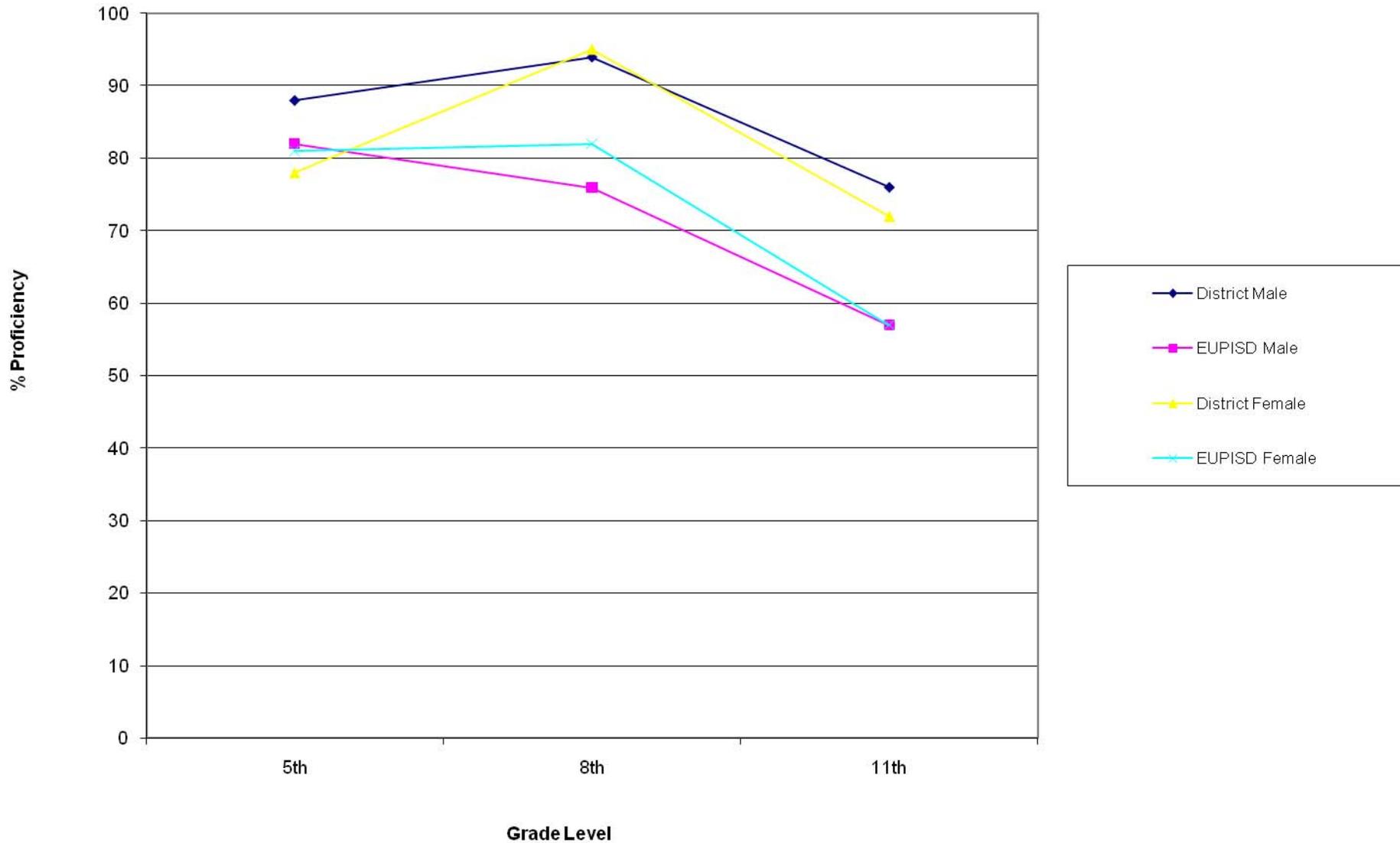
- YES!!
- Improved boys grades
- Improved boys MEAP scores
- Better engagement of boys in school
- Girls science scores have come up



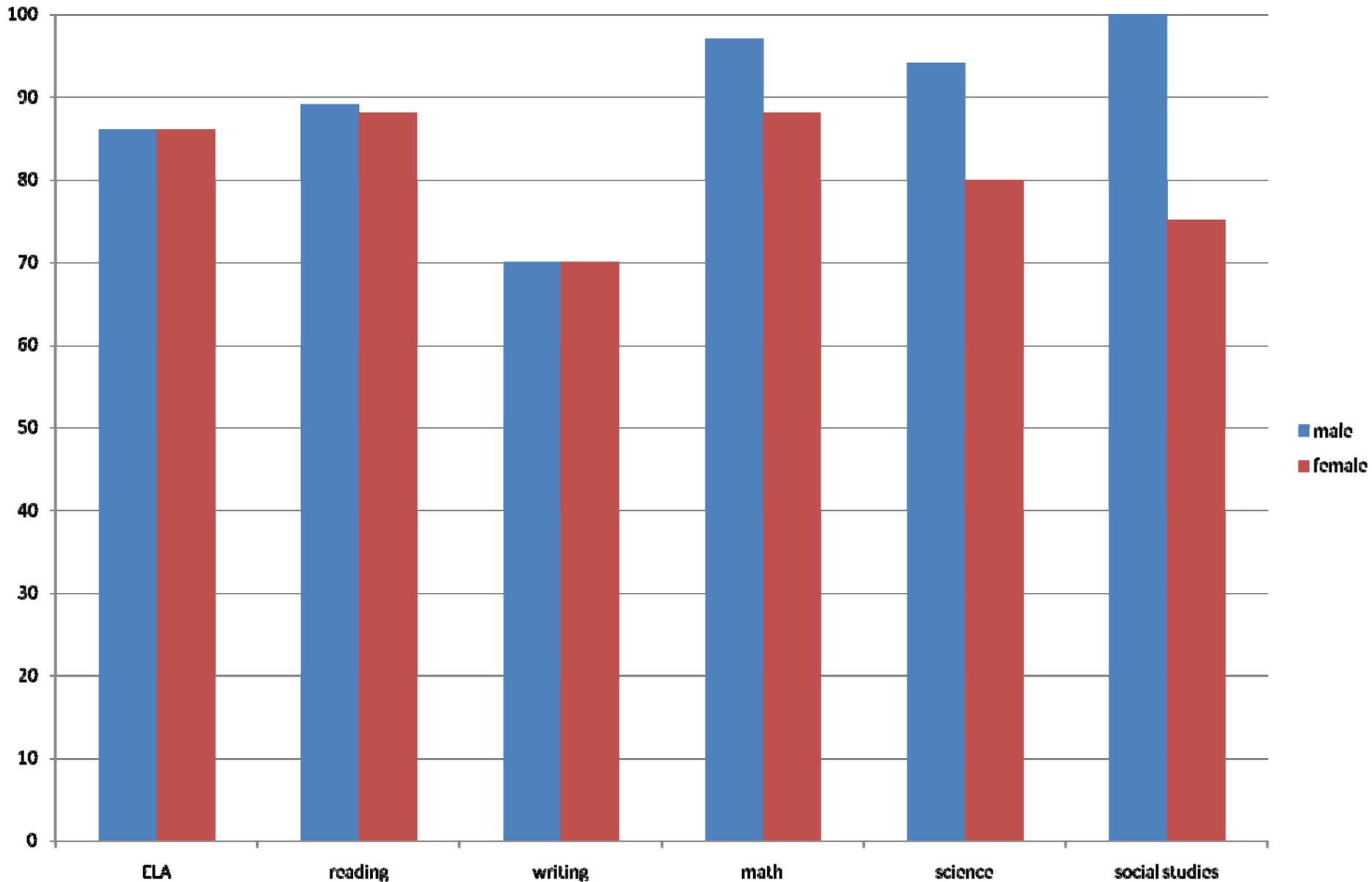
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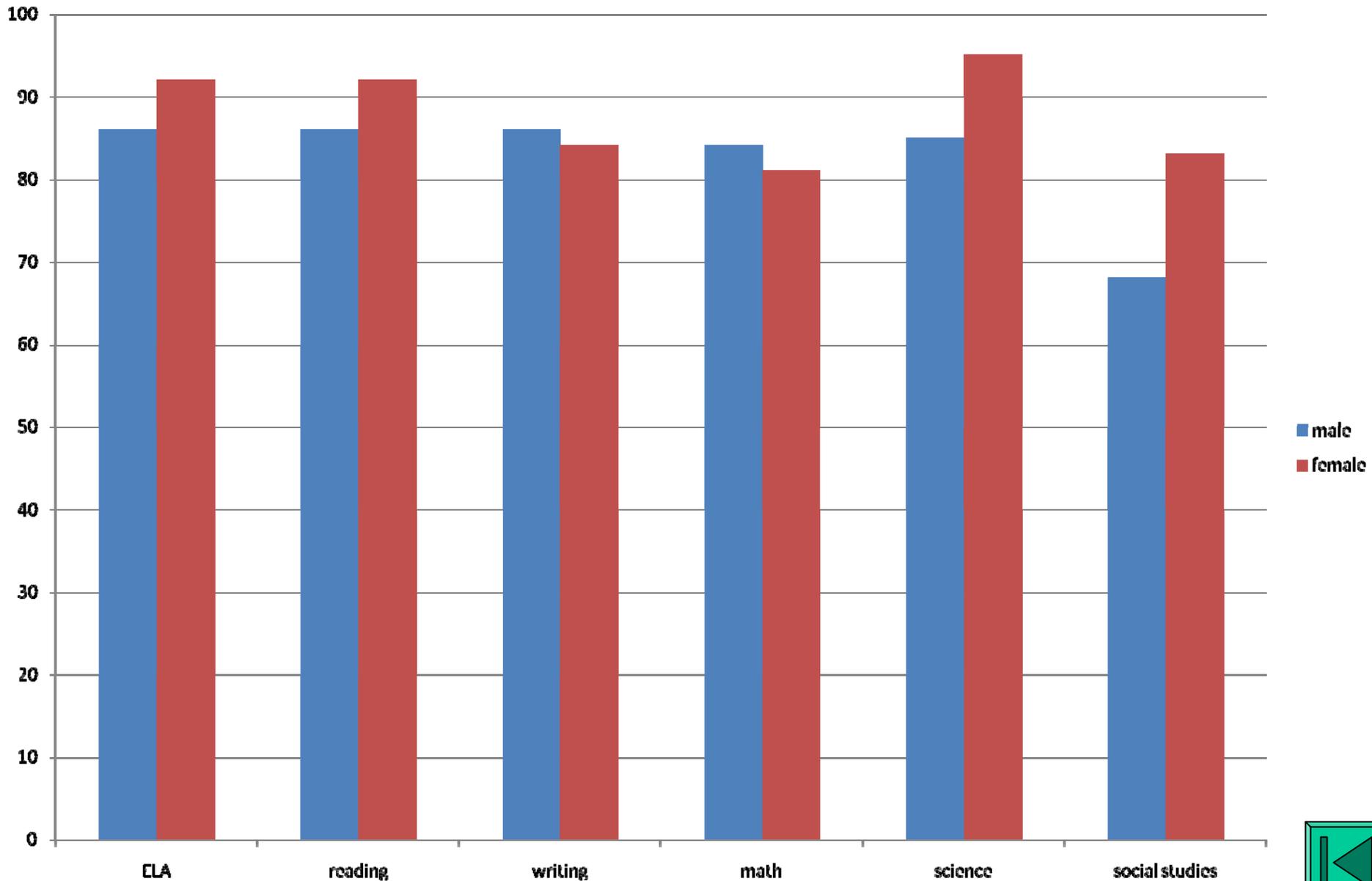
# 2007/2008 MEAP Brimley and EUPISD Gender, Science



# 2008-2009 Elementary Percent Passed



# 2008-2009 Middle School Percent Passed



# Special Education

- My first two years at Brimley I realized I had students who could not read the textbook.
- I knew I needed to make BIG changes to help my lowest ability students successful.

# Why did I stop using a textbook?

- Our text was listed on a list of woefully inadequate texts.
- I have enough experience and education to create lessons without a text.
- Technology makes delivering material easy.



# I love no textbook!

- No textbook forms, no rebinding, no erasing dirty words, no textbook expense
- No worrying about reading level and my students who can't read
- Not having a textbook actually makes my life easier and gives me more control of what my students learn in my class.

# Aligned curriculum is critical.

- My lesson plans all begin with the state standard or grade level content expectation.
- Dump “frog units” out of your curriculum.

# Turn and Share

- What percent of your students don't do their homework on a regular basis?
- Why do you think they don't do the homework?

# The truth about my students:

- Many of them don't do homework.
- I have nonreaders in my classes every year.
- Some students come from homes that do not support their kids emotionally, much less educationally.
- A few of them would rather stay at school every night than go home to their families.

# Therefore...

- I don't trust their parents to be their teacher.
- I don't expect them to have a home environment conducive to doing homework.
- My goal is to teach in class everything they need to know about every state standard I am assigned to teach!

# Role of Homework:

- Enhance the education of the gifted or motivated students
- Practice something that can only be learned by repetition
- Teach students how to be responsible

# What if they don't do it?

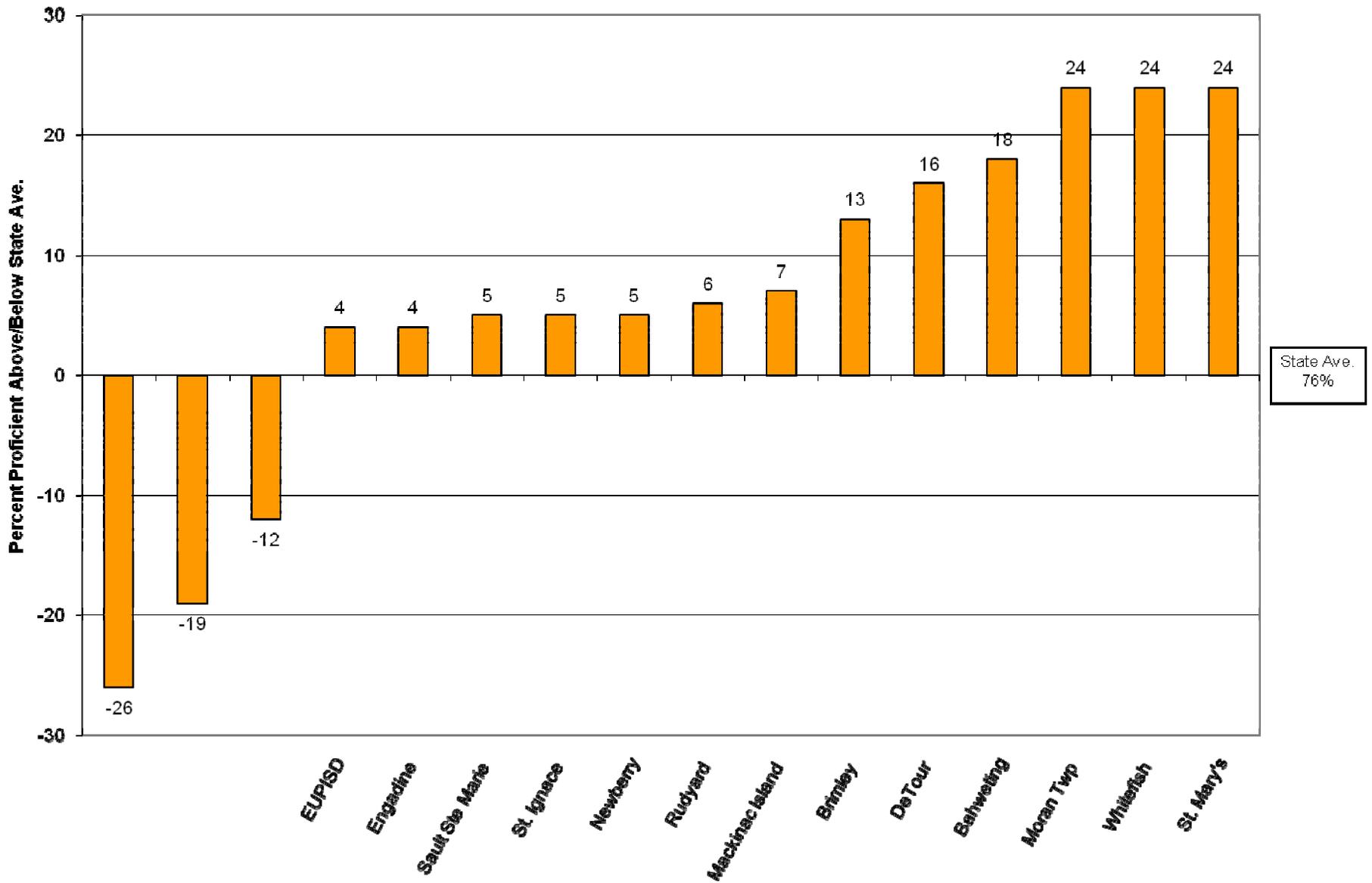
- Monthly homework assignments are worth 10% of their overall grade
- Daily work – anything we do in class plus science fair is worth 55% of their overall grade
- (That leaves 35% for tests and quizzes)

# A few other thoughts...

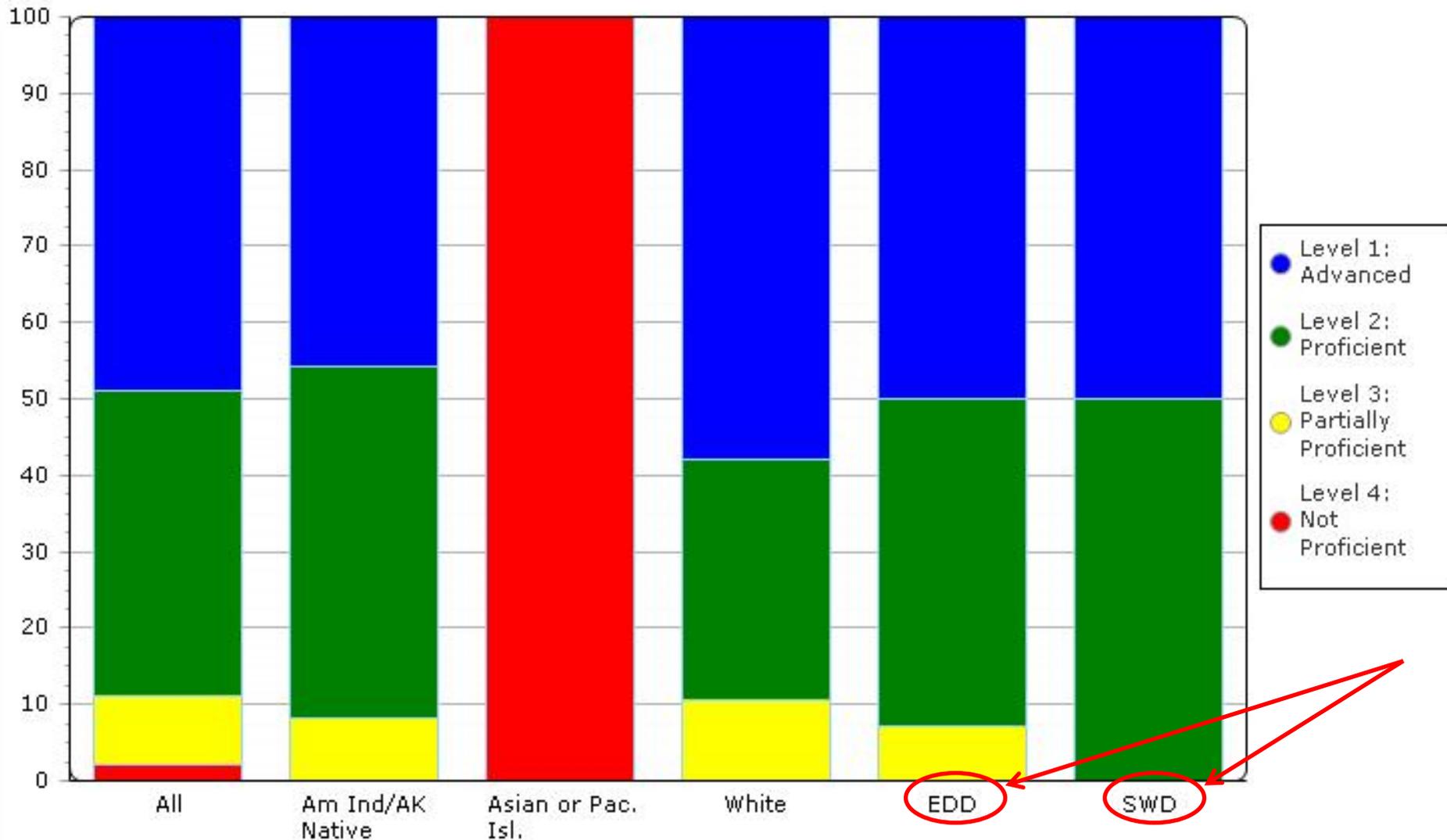
- Giving busy work as homework decreases your popularity with students.
- Your professional relationship with your students has a huge impact on how well they learn in your class.
- Good teachers deliberately work to have a good image with their classes because students learn more when they like the teacher.
- Extra credit is free. Free time is free. Candy is cheap (use sparingly).

**Does it work??**

# Grade 8 Science Fall 08 Percent Proficient District vs. State



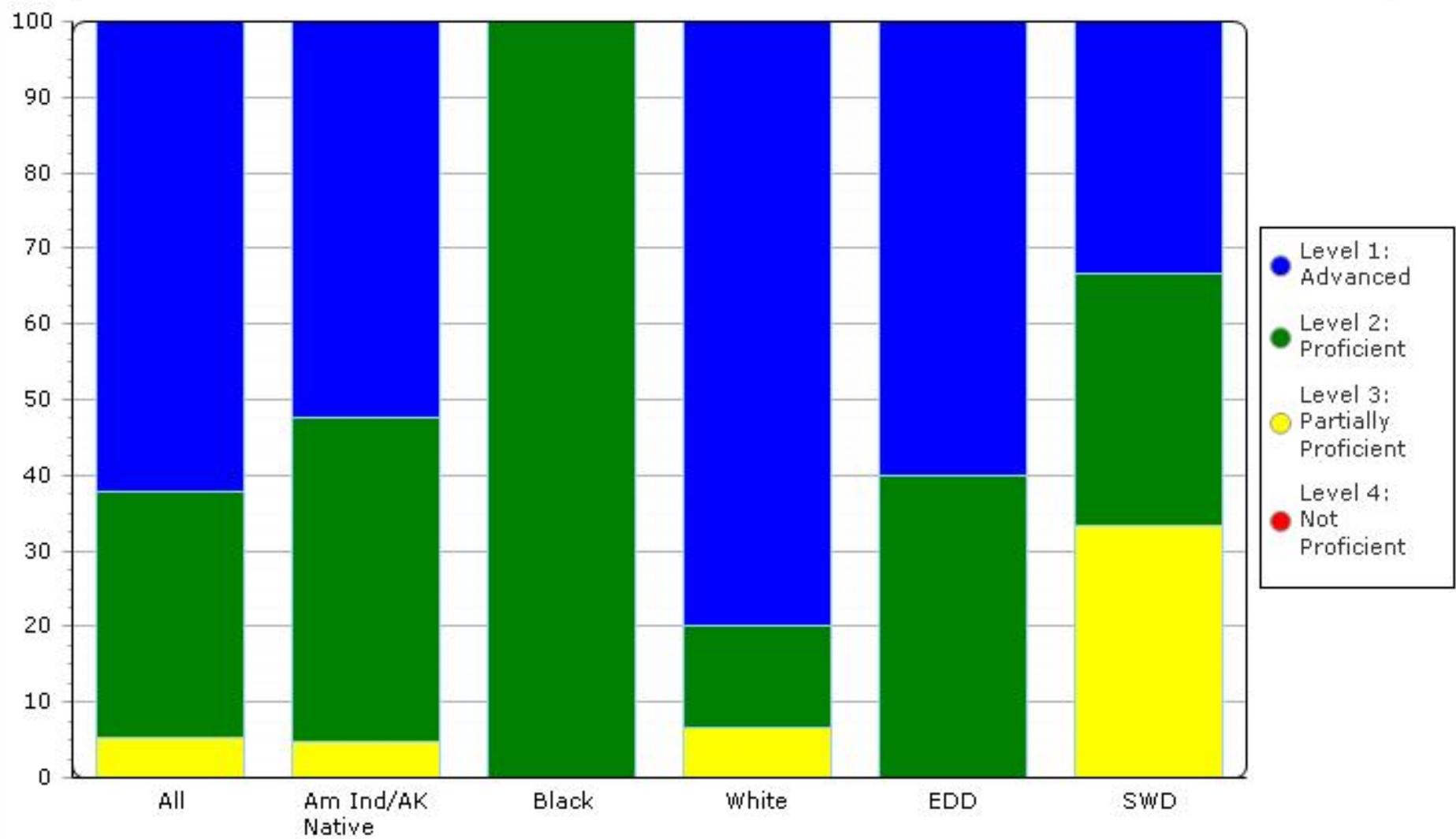
Science MEAP Proficiency Report with AYP Groups for Eastern Upper Peninsula ISD, Brimley Area Schools, Brimley Jr./Sr. High 2008/2009 School Year - Grade 08



## Science MEAP Proficiency Report with AYP Groups for Eastern Upper Peninsula ISD, Brimley Area Schools, Brimley Jr./Sr. High 2008/2009 School Year - Grade 08

Category	Level 1	Level 2	Level 3	Level 4	Number Met	Not Met	Total Students
All	22 (48.9%)	18 (40%)	4 (8.9%)	1 (2.2%)	40 (88.9%)	5 (11.1%)	45
Am Ind/AK Native	11 (45.8%)	11 (45.8%)	2 (8.3%)	0 (0%)	22 (91.7%)	2 (8.3%)	24
Asian or Pac. Isl.	0 (0%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	1 (100%)	1
White	11 (57.9%)	6 (31.6%)	2 (10.5%)	0 (0%)	17 (89.5%)	2 (10.5%)	19
EDD	7 (50%)	6 (42.9%)	1 (7.1%)	0 (0%)	13 (92.9%)	1 (7.1%)	14
SWD	2 (50%)	2 (50%)	0 (0%)	0 (0%)	4 (100%)	0 (0%)	4

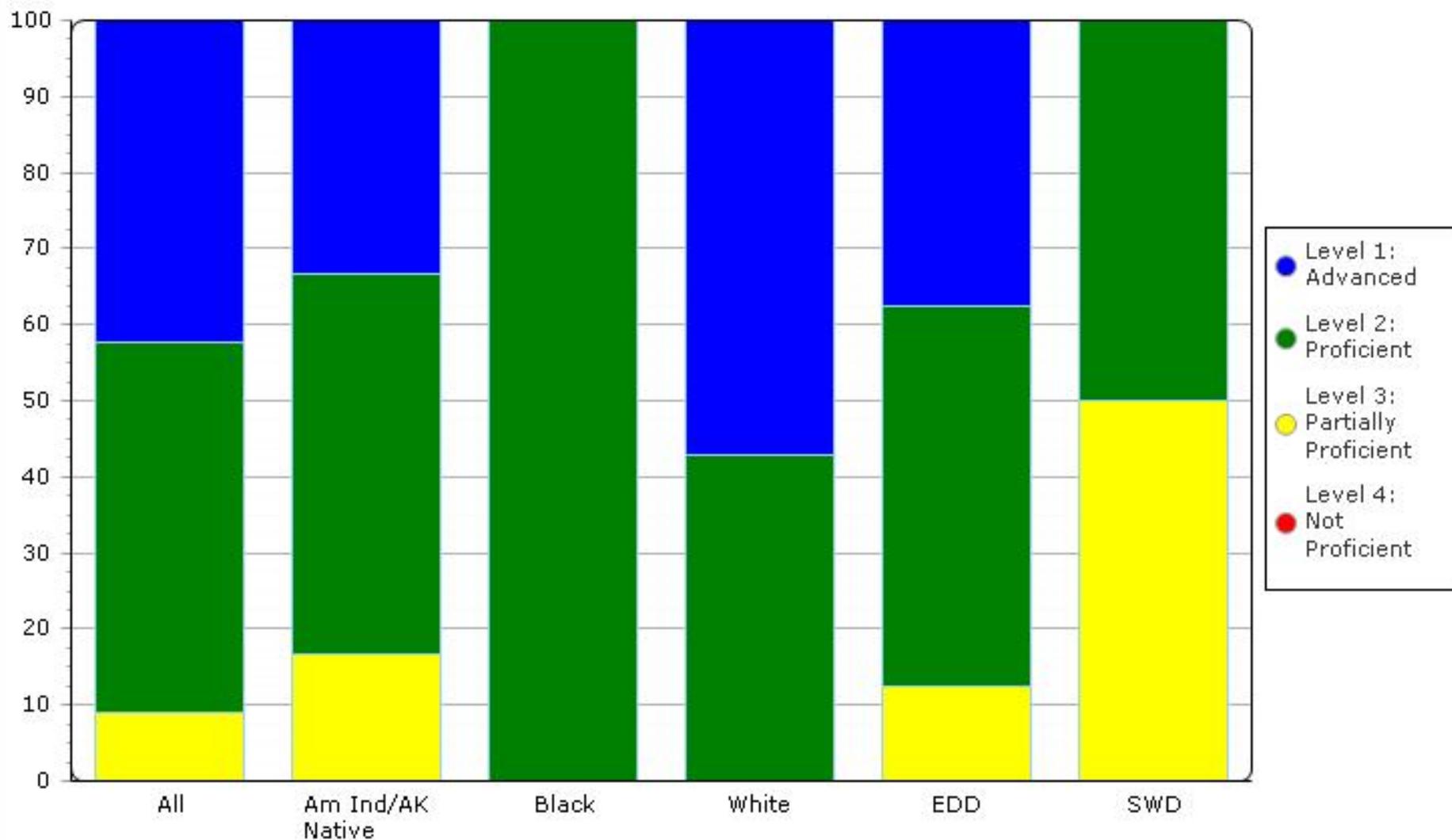
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Category	Level 1	Level 2	Level 3	Level 4	Number Met	Not Met	Total Students
All	23 (62.2%)	12 (32.4%)	2 (5.4%)	0 (0%)	35 (94.6%)	2 (5.4%)	37
Am Ind/AK Native	11 (52.4%)	9 (42.9%)	1 (4.8%)	0 (0%)	20 (95.2%)	1 (4.8%)	21
Black	0 (0%)	1 (100%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	1
White	12 (80%)	2 (13.3%)	1 (6.7%)	0 (0%)	14 (93.3%)	1 (6.7%)	15
EDD	12 (60%)	8 (40%)	0 (0%)	0 (0%)	20 (100%)	0 (0%)	20
SWD	1 (33.3%)	1 (33.3%)	1 (33.3%)	0 (0%)	2 (66.7%)	1 (33.3%)	3

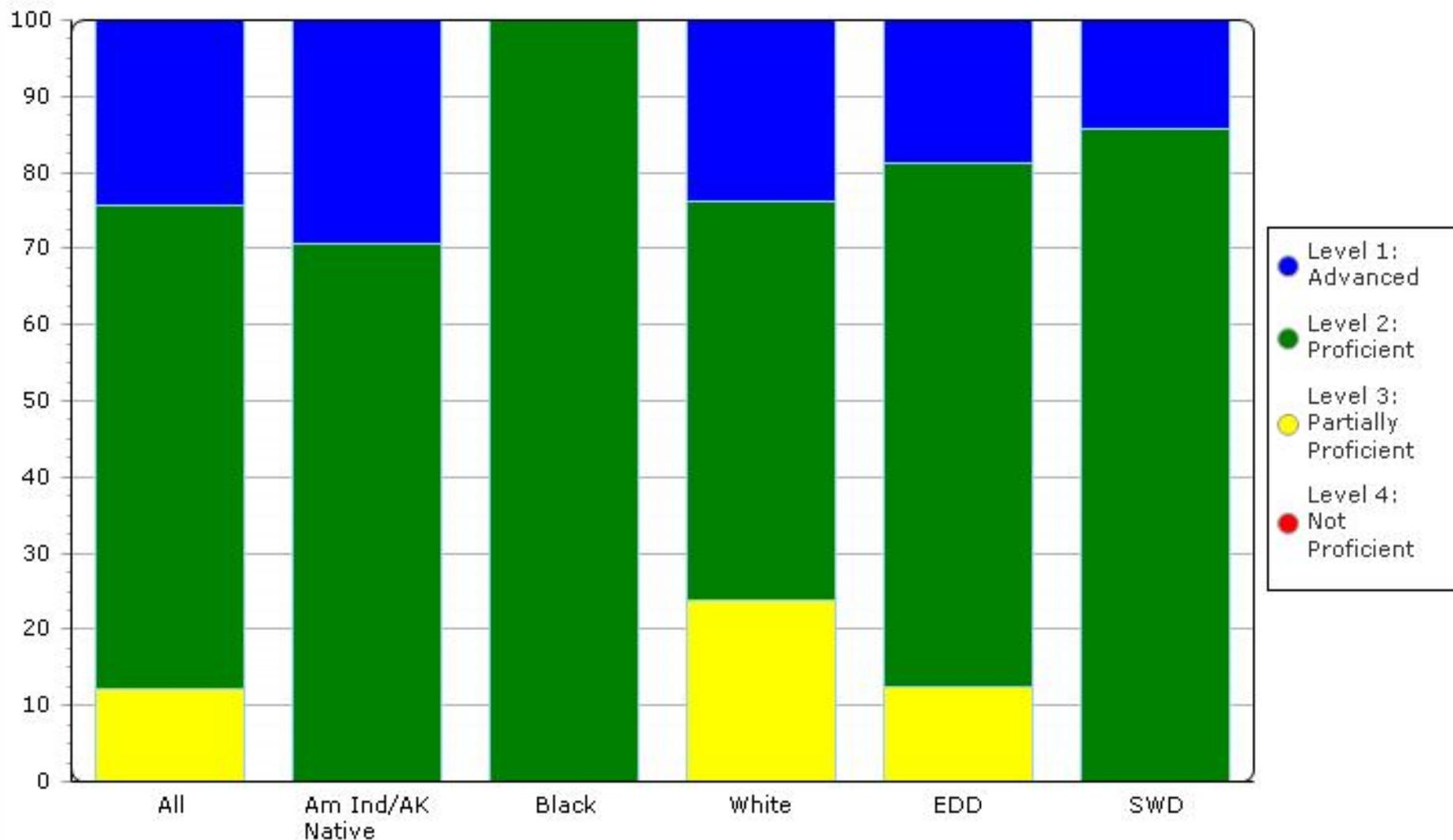
Science MEAP Proficiency Report with AYP Groups for Eastern Upper Peninsula ISD, Brimley Area Schools, Brimley Jr./Sr. High 2006/2007 School Year - Grade 08



## Science MEAP Proficiency Report with AYP Groups for Eastern Upper Peninsula ISD, Brimley Area Schools, Brimley Jr./Sr. High 2006/2007 School Year - Grade 08

Category	Level 1	Level 2	Level 3	Level 4	Number Met	Not Met	Total Students
All	14 (42.4%)	16 (48.5%)	3 (9.1%)	0 (0%)	30 (90.9%)	3 (9.1%)	33
Am Ind/AK Native	6 (33.3%)	9 (50%)	3 (16.7%)	0 (0%)	15 (83.3%)	3 (16.7%)	18
Black	0 (0%)	1 (100%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	1
White	8 (57.1%)	6 (42.9%)	0 (0%)	0 (0%)	14 (100%)	0 (0%)	14
EDD	6 (37.5%)	8 (50%)	2 (12.5%)	0 (0%)	14 (87.5%)	2 (12.5%)	16
SWD	0 (0%)	2 (50%)	2 (50%)	0 (0%)	2 (50%)	2 (50%)	4

Science MEAP Proficiency Report with AYP Groups for Eastern Upper Peninsula ISD, Brimley Area Schools, Brimley Jr./Sr. High 2005/2006 School Year - Grade 08



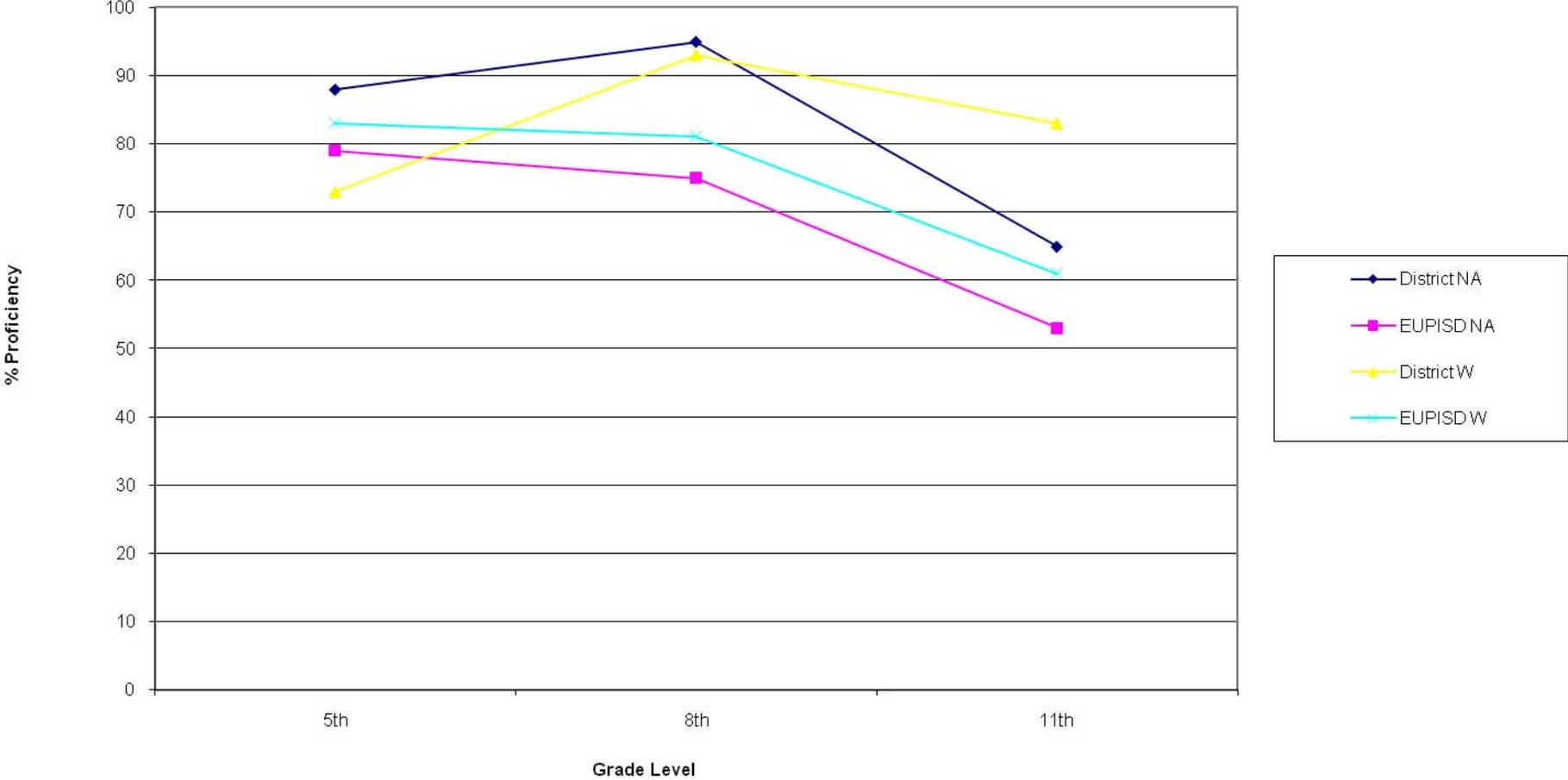
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Category	Level 1	Level 2	Level 3	Level 4	Number Met	Not Met	Total Students
All	10 (24.4%)	26 (63.4%)	5 (12.2%)	0 (0%)	36 (87.8%)	5 (12.2%)	41
Am Ind/AK Native	5 (29.4%)	12 (70.6%)	0 (0%)	0 (0%)	17 (100%)	0 (0%)	17
Black	0 (0%)	1 (100%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	1
White	5 (23.8%)	11 (52.4%)	5 (23.8%)	0 (0%)	16 (76.2%)	5 (23.8%)	21
EDD	3 (18.8%)	11 (68.8%)	2 (12.5%)	0 (0%)	14 (87.5%)	2 (12.5%)	16
SWD	1 (14.3%)	6 (85.7%)	0 (0%)	0 (0%)	7 (100%)	0 (0%)	7

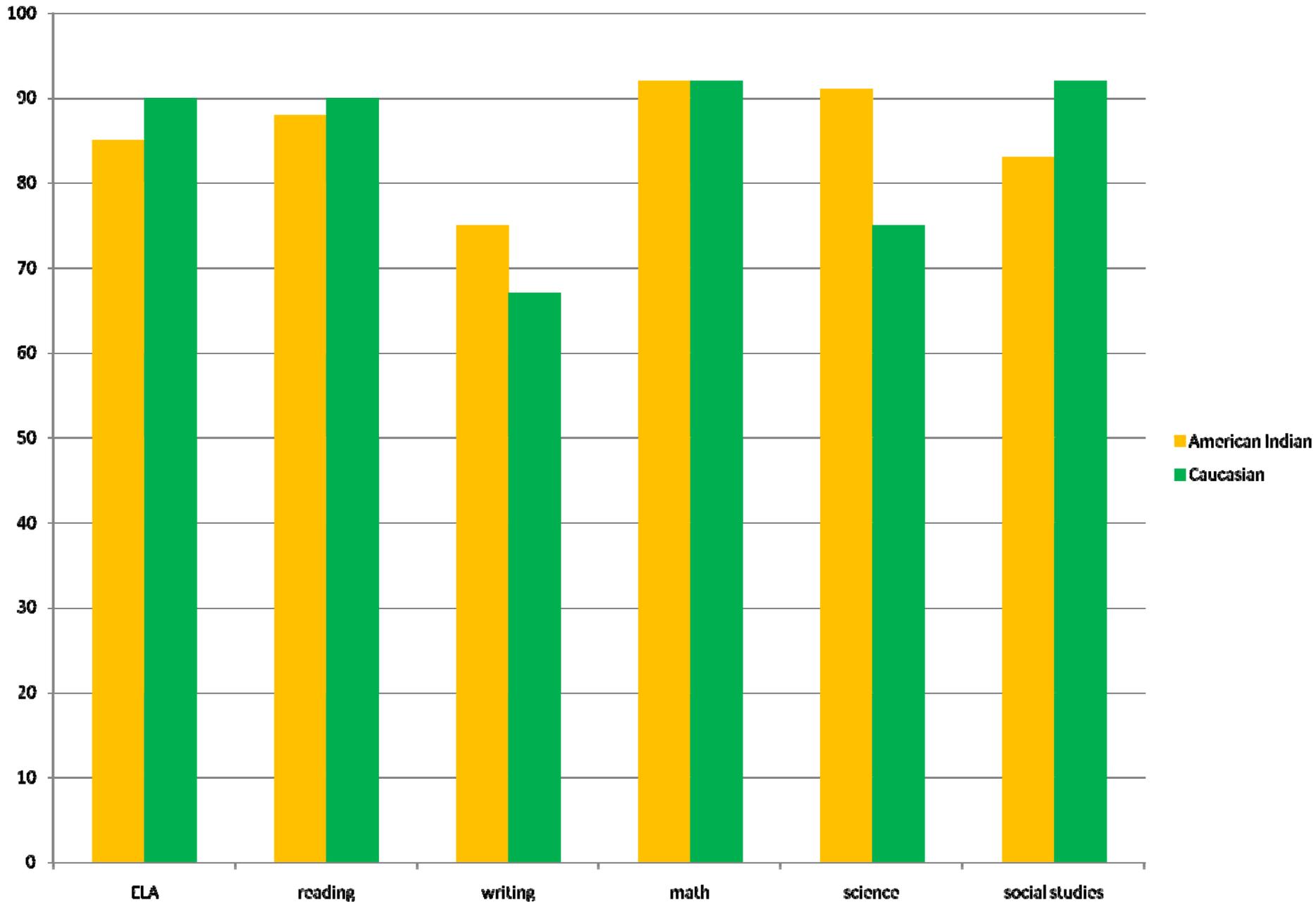


# Ethnicity Data

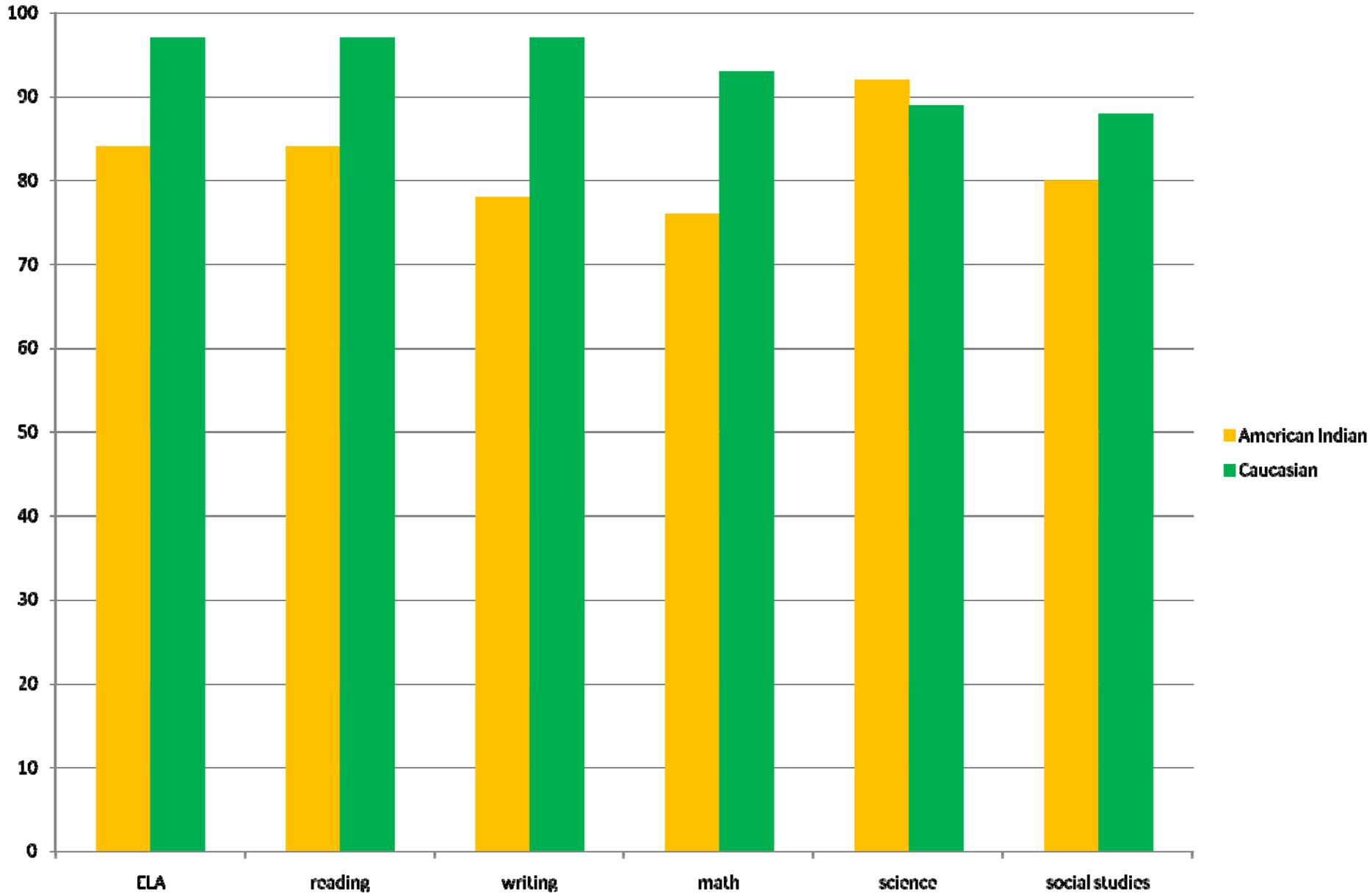
## 2007/2008 MEAP Brimley and EUPISD Ethnicity, Science



# 2008-2009 Elementary Ethnicity Data



# 2008-2009 Middle School Ethnicity Data



# Why do Native American students excel in science?

- No textbook?
- Science fair?
- Relationship building?
- Project based learning?

