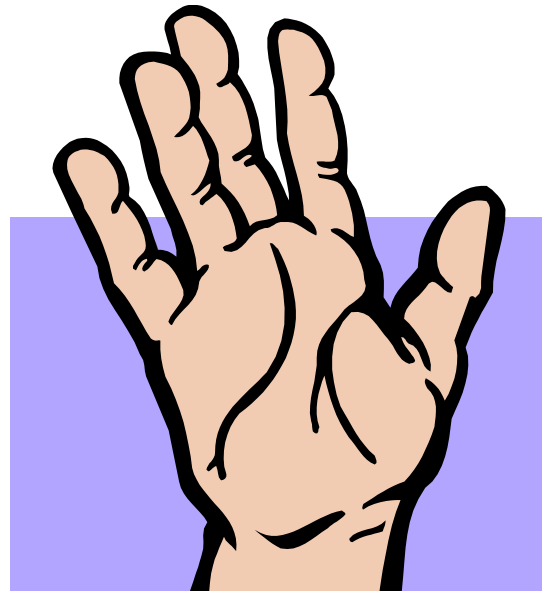


MATH AT JFK

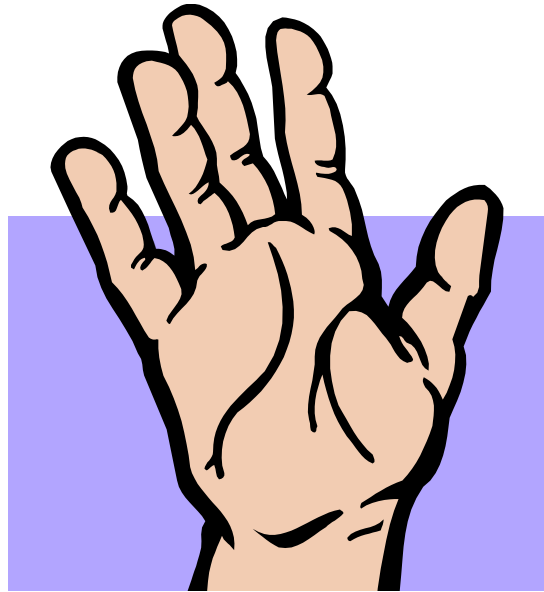
March 2014

Welcome and Introduction

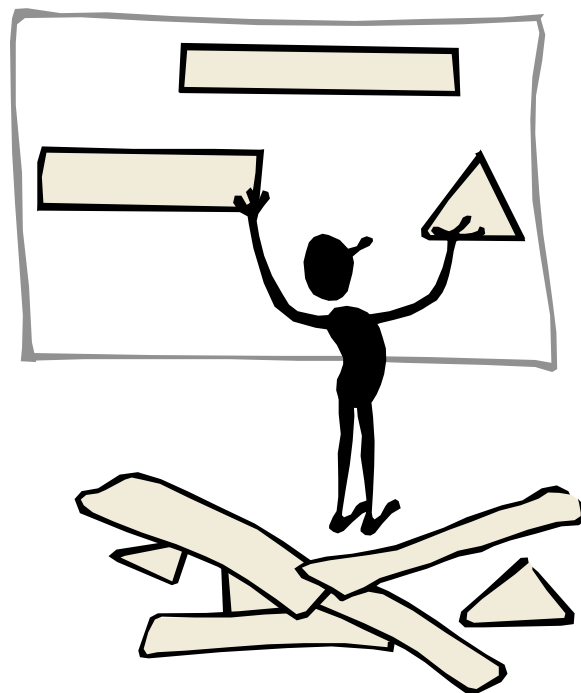
HOW MANY OF YOU ARE GOOD
READERS?



HOW MANY OF YOU ARE GOOD AT
MATH?



TONIGHT, WE'RE GOING TO TALK ABOUT THE CHANGES IN MATH



WHY ARE THERE ANY CHANGES AT ALL?

- Our “story” will begin with some of the international tests
- Trends in International Mathematics and Science Study (TIMSS)
- First collected in 1995 and last collection to date was 2011
- Example of 8th grade math results

TIMMS: CHANGE IN AVG MATH SCORE OF 8TH GRADERS 1995-2011

Grade 8

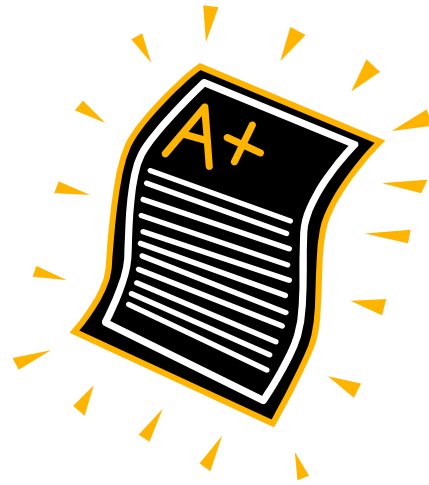
Average score			Education system
1995	2007	2011	
581 ○	597 ○	613 ○	Korea, Rep. of
609 ○	593 ○	611 ○	Singapore ²
	598 ○	609 ○	Chinese Taipei-CHN
569 ○	572 ○	586 ○	Hong Kong-CHN
581 ○	570 ○	570 ○	Japan
524 ○	512	539 ○	Russian Federation ²
492	508	509	United States²
498	513	507	England-GBR ³
527 ○	517	505	Hungary
509 ○	496 ▼	505	Australia
494	501 ▼	505	Slovenia
472 ▼	506	502	Lithuania ⁴
	480 ▼	498 ▼	Italy
501		488 ▼	New Zealand
540 ○	491 ▼	484 ▼	Sweden
	462 ▼	479 ▼	Ukraine
498	469 ▼	475 ▼	Norway
474 ▼	461 ▼	458 ▼	Romania
	449 ▼	449 ▼	Lebanon
	474 ▼	440 ▼	Malaysia
	410 ▼	431 ▼	Georgia ^{4,5}
	441 ▼	427 ▼	Thailand
	420 ▼	425 ▼	Tunisia
418 ▼	403 ▼	415 ▼	Iran, Islamic Rep. of ⁶
	398 ▼	409 ▼	Bahrain ⁶
	427 ▼	406 ▼	Jordan ⁶
	367 ▼	404 ▼	<i>Palestinian Nat'l Auth.</i> ⁶
	397 ▼	386 ▼	Indonesia ⁶
	395 ▼	380 ▼	Syrian Arab Republic ⁶
	372 ▼	366 ▼	Oman ⁶

13 of 16

7 of 30 but only +1
Gain recently

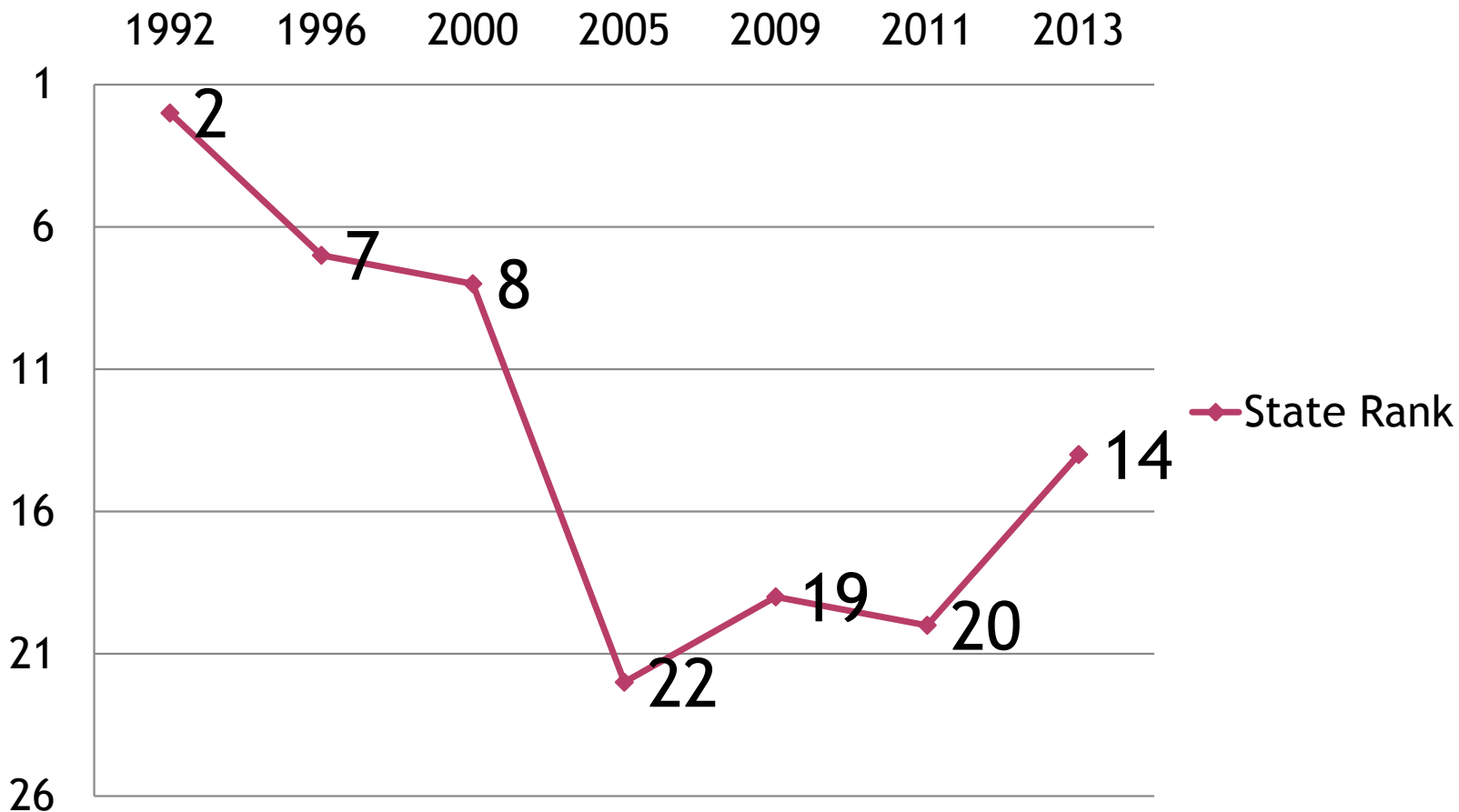
STUDY OF HIGH ACHIEVING SYSTEMS BOTH IN US AND AROUND THE WORLD

Districts and
states began
to make
changes

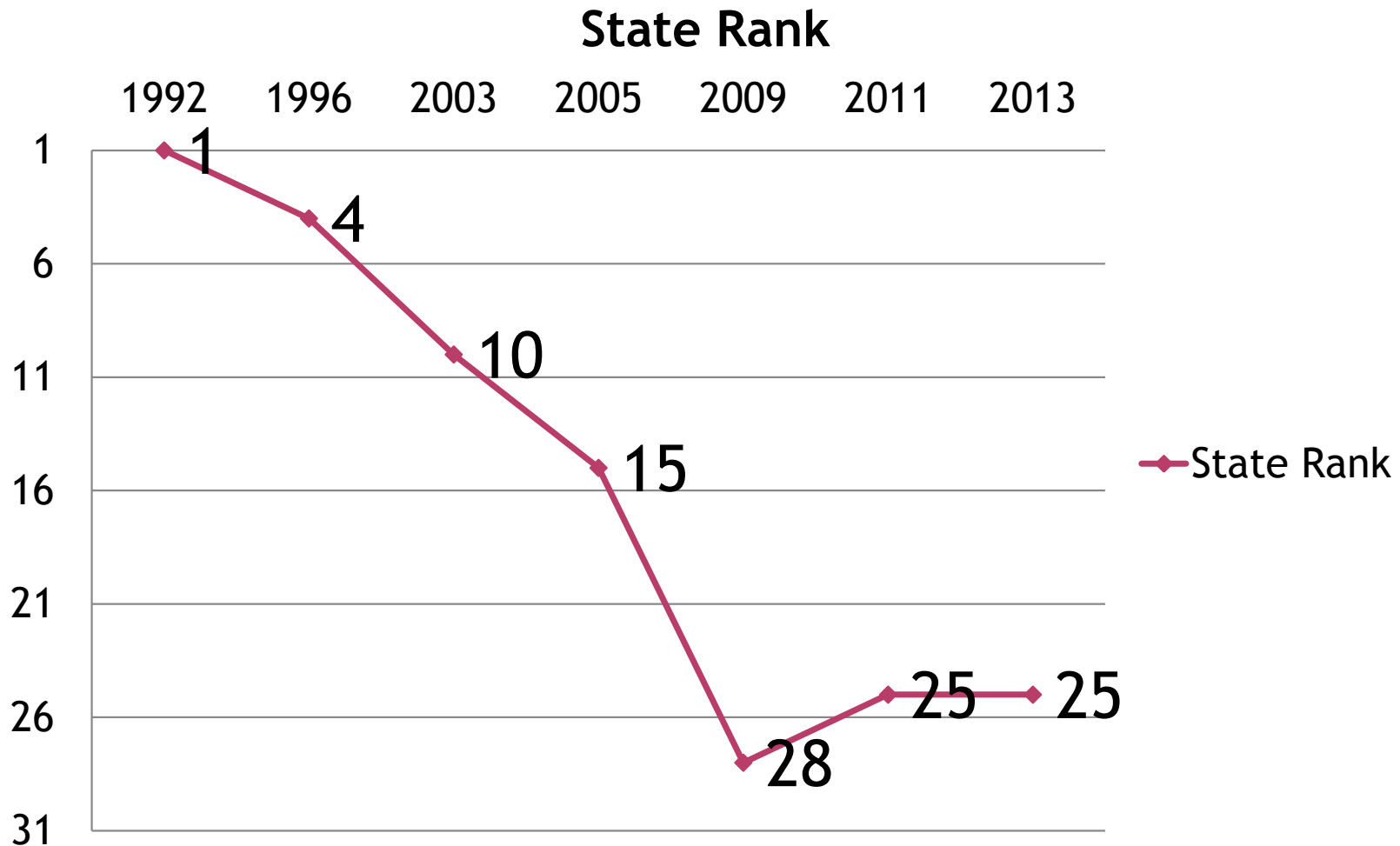


IOWA'S RANK ON NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS: PUBLIC 4TH GR. MATH

State Rank

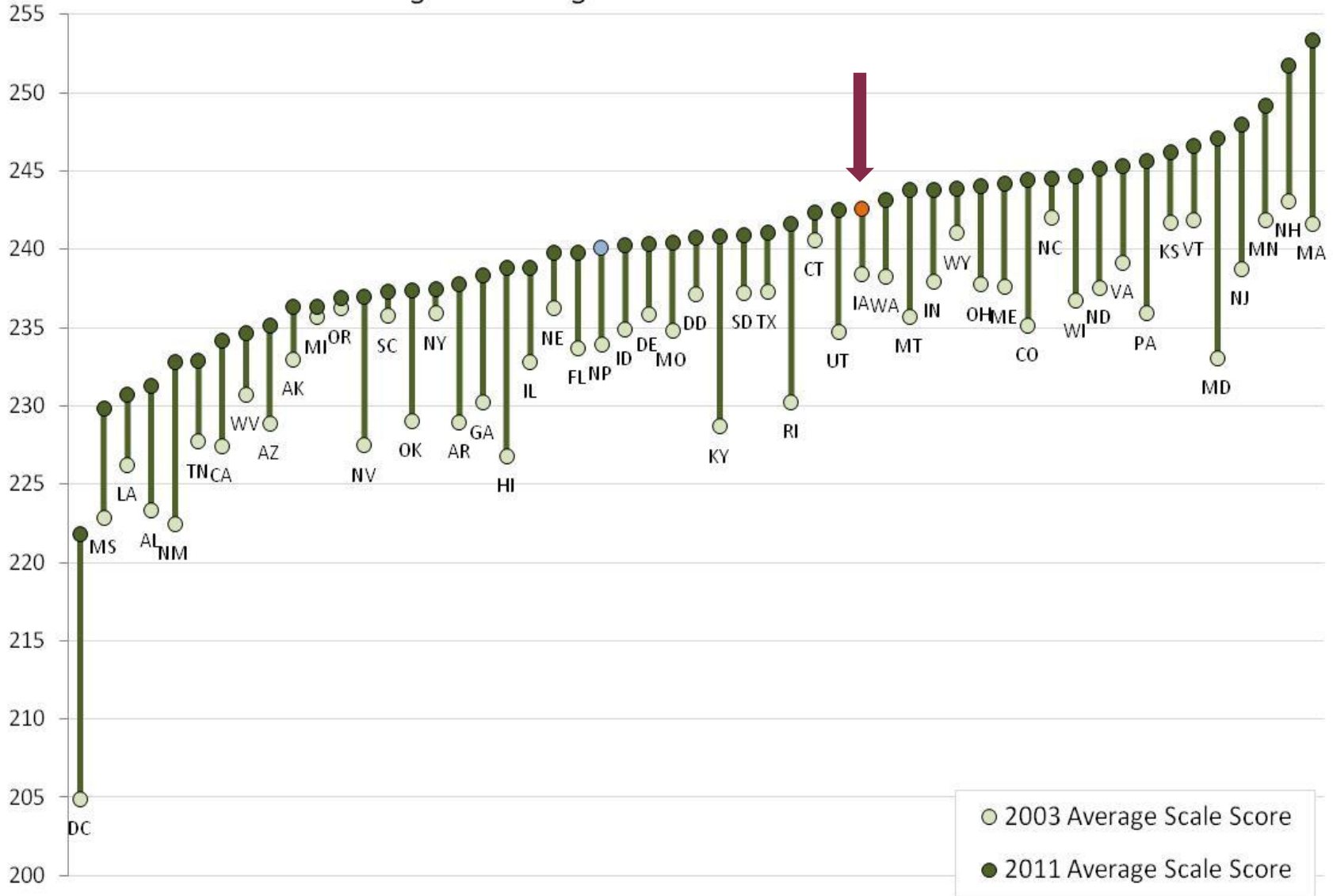


IOWA'S RANK ON NAEP: PUBLIC 8TH GRADE MATH



NAEP Mathematics Grade 4

Change in Average Scale Score: 2003-2011



NAEP Mathematics Grade 8

Change in Average Scale Scores: 2003-2011

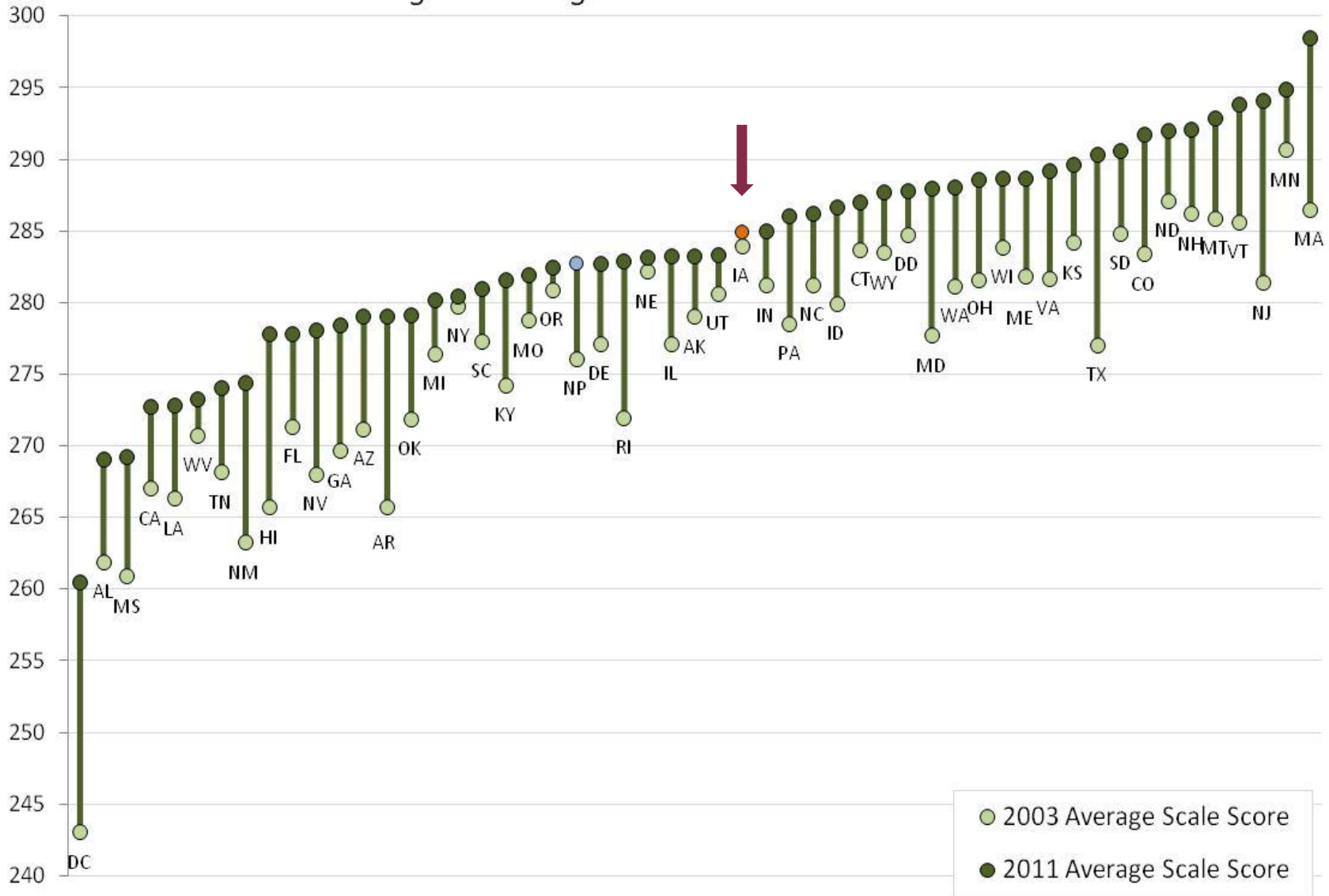
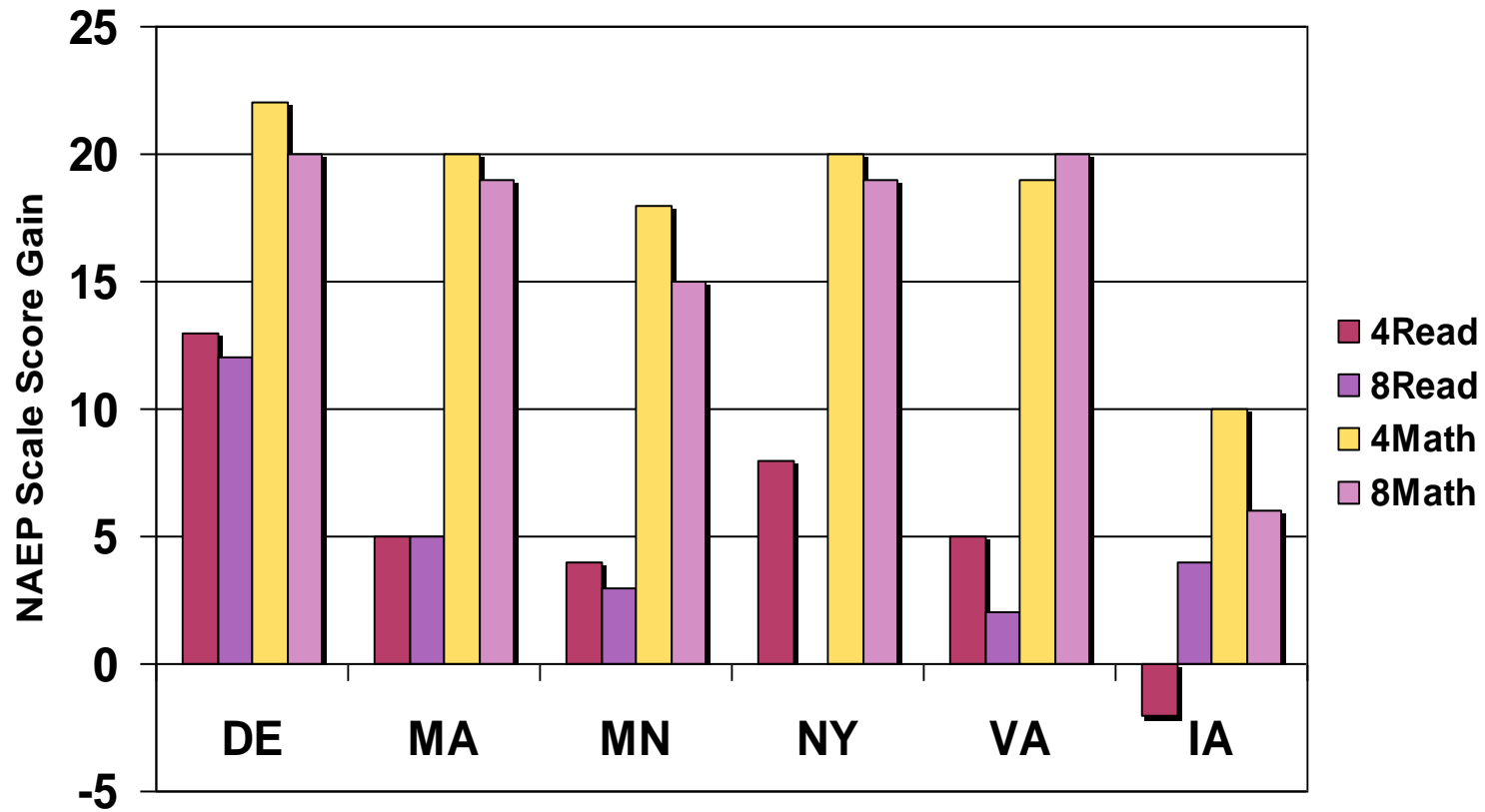


Figure 2. NAEP C



NAEP ACHIEVEMENT GAINS



IOWA SCHOOL BOARD FOUNDATION STUDIES ON CONTENT STANDARDS

2006-07 Findings:

- ◉ Variation is large, in both content and rigor, among district standards in Iowa.
- ◉ Less than 1/3rd of districts' standards are comprehensive and rigorous like the model national standards

2008 Findings when comparing the five high performing states to Iowa:

- ◉ All five have significantly more rigorous standards
- ◉ Four of the five have significantly more rigorous assessments
- ◉ All five have more accountability policies and practices in place

IOWA TEST

4TH GRADE MATH EXAMPLE

Which whole number is one less than 7?

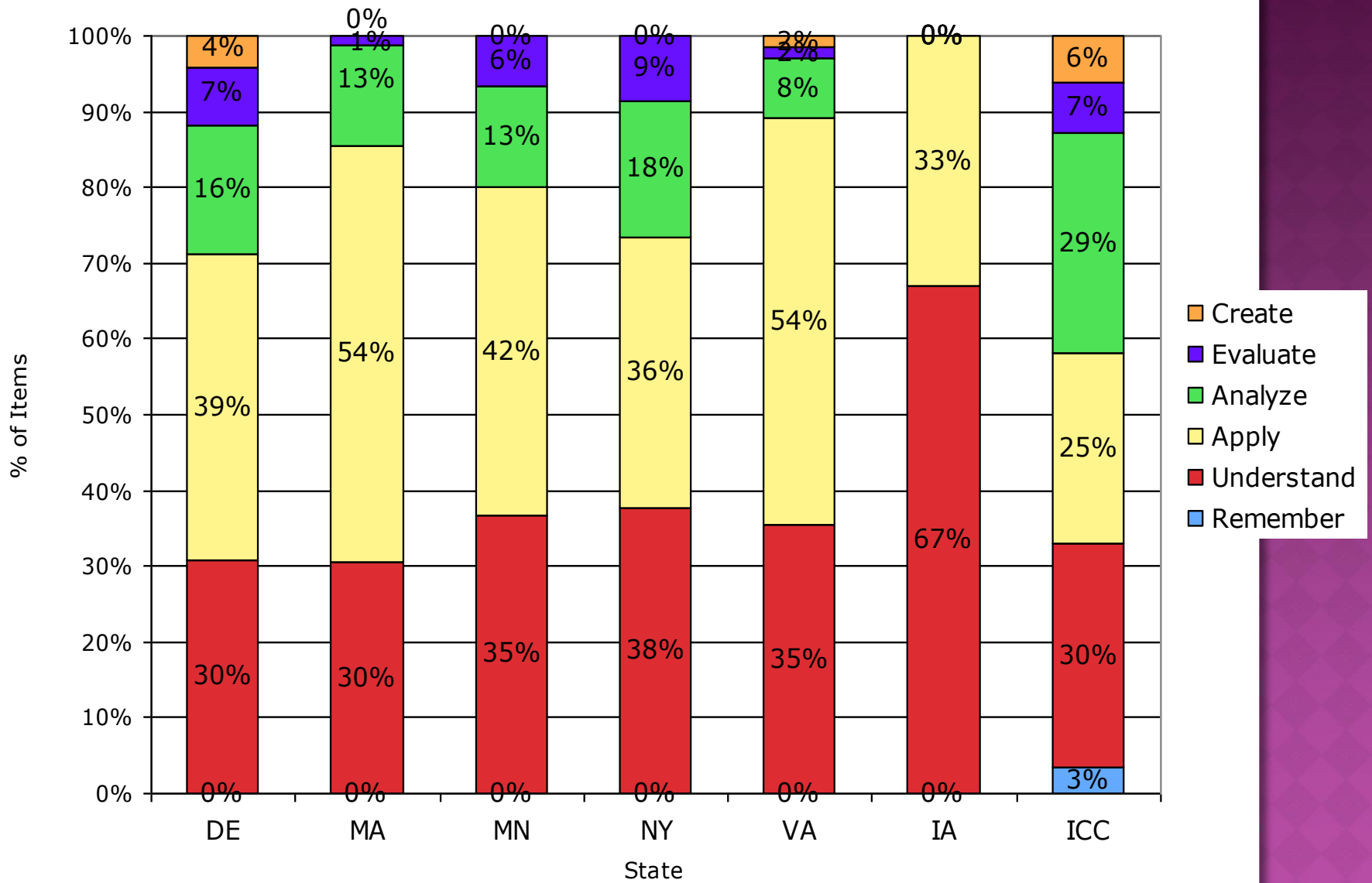
- A. 5
- B. 6
- C. 8
- D. 17

MASSACHUSETTS 4TH GRADE MATH EXAMPLE

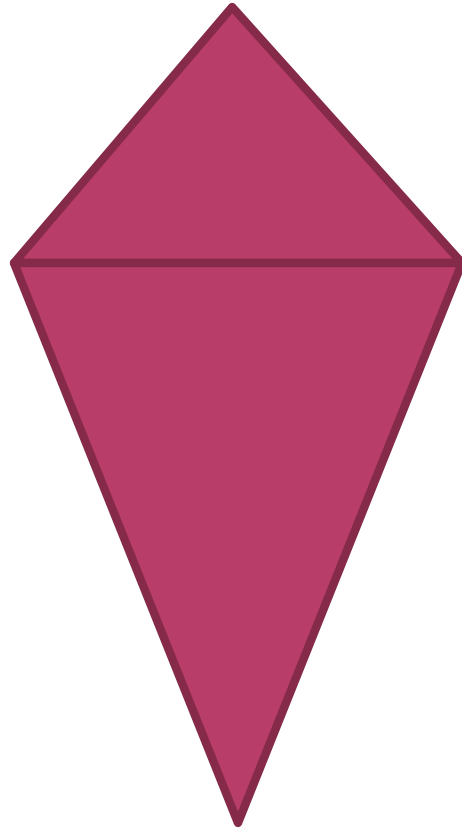
Hudson's Bakery sells cakes in three different sizes: small \$10, medium \$15, and large \$25 each.

Sheila bought a group of cakes that cost a total of \$70.00. At least 2 of the cakes she bought were different sizes. List a group of cakes that Sheila could have bought. Show your work or explain how you got your answer.

Math Standards Rigor by State (Bloom's Taxonomy)



REASONING & UNDERSTANDING
VS. CORRECT ANSWER
UNDERSTAND AND PROBLEM SOLVE
VS. GOOGLE IT



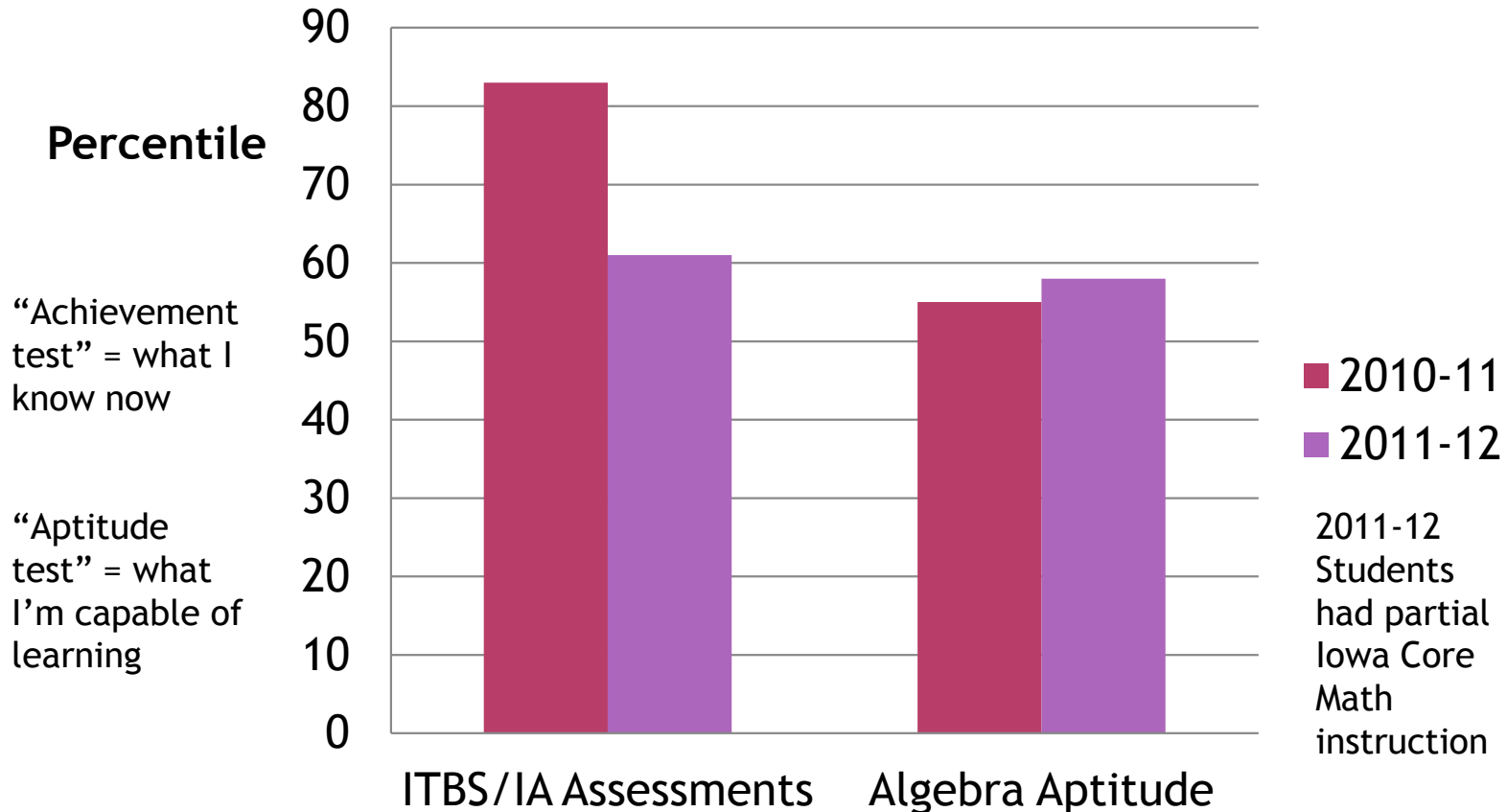
PATTERN OF IMPLEMENTATION

- 6th - 8th
 - Transition began with select topics, not all at once
 - Ex: Ratios/Fractions
- 3rd - 5th
- K - 2nd

- Why start in the middle grades?
- Reach more students
 - If started in Kindergarten, it would take 12 years to move it through the system
- Make Algebra more accessible to more students
 - Algebra is the fundamental higher level math class needed for all “Career and College Readiness”
 - Make this a reality as soon as possible

ITBS/IA ASSESSMENTS (ACHIEVEMENT) VS. ALGEBRA APTITUDE TEST TAKEN IN SPRING 7TH GRADE

Iowa Core Math Yielded Greater Algebra Aptitude Even When Students Started Lower



K-2

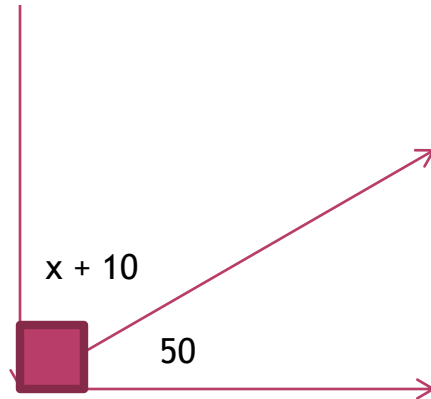
- ◉ Math manipulatives
- ◉ Concrete
- ◉ “Number talk” and begin mental math
- ◉ Video example of “number talk”

GRADES 3-5

- ◉ Division Problem
- ◉ Why different strategies?
- ◉ Why not just the “fastest” strategy?
- ◉ Why not “do exactly as I do?”
- ◉ Deeper understanding of the algorithm and even deeper understanding of the math facts and of the fastest or “most efficient” strategy

6TH - 8TH GRADE OPENING PROBLEM

Solve for x .



GRADES 6-8

- ◉ Problem based - opener example
- ◉ Yes, need fluency in computation. Students still need to know math facts.
- ◉ Yes, need to be able to do some of those fast or “efficient” strategies that they UNDERSTOOD earlier
- ◉ Much more based upon prior knowledge and what we know about how math works
- ◉ Apply then to new problems
- ◉ Again, the right answer is not as important as the reasoning and math thinking to get to the right answer
- ◉ Understand and problem solve vs. Google
- ◉ Continuation of math practice standards that flow K-12

MATH PRACTICE STANDARDS

- ⦿ Make sense of the problem and persevere
- ⦿ Reason abstractly and quantitatively
- ⦿ Construct viable arguments and critique the reasoning of others
- ⦿ Model with mathematics
- ⦿ Use appropriate tools
- ⦿ Attend to precision
- ⦿ Make use of structure
- ⦿ Look for and express regularity in repeated reasoning

WHAT CAN PARENTS DO?

- Talk positively about math and emphasize its importance.
 - Change the culture so it's not socially acceptable to laugh about not being good at math
- Point out all the times when we actually do use math in real life:
 - Answers the age old question, “When are we ever going to use this?”
 - Have this type of conversation especially when the math is more difficult than just computation.
 - Ex:
 - Will we get to school faster if we go 35 mph or 25 mph? Why?
 - Go through the mental calculations you use to determine if you can afford to take the family to dinner tonight, and at what restaurant.
 - How many pizzas are needed for the birthday party, and how much will it cost for various types/toppings from different restaurants?
 - How long will it take to get to the X tournament, how much gas will be used, and how much will it cost to drive?

WHAT CAN PARENTS DO?

- ◉ Encourage participation, effort, and risk-taking/attacking of math problems.
 - Use statements like, “I know it’s hard, and I can sense your frustration. I really admire the effort that you are utilizing to complete the work.”
 - Encourage the “Growth Mindset” rather than a “Fixed Mindset”
 - Growth Mindset: Yes, learning is challenging to us, and it should be. Our hard work and effort will help us meet the challenge.
 - Fixed Mindset: I’m smart or not smart. If I’m not smart, and I don’t get it, why bother; I’m just not smart. If I’m smart, and I don’t get it, then maybe I’m really not smart; I better not test my perception of myself with anything too challenging.
 - Praise for the Growth Mindset (which one is it?):
 - Good job! You’re so smart!
 - Good job! Your hard work really paid off.

WHAT CAN PARENTS DO?

- ◉ **Check your students' grades regularly in JMC**, with the understanding that grades are not entered every day, and check that corrections are turned in.
 - JMC can be accessed from our website, www.olvjfk.com, under the “For Parents” heading.
 - Click on “JMC Student Information System.” There are then separate login buttons for parents and students.
 - If you need your user name and password again, please contact Laversa in the office. (JMC access allows you to not only check on grades, but you can also check on your child's/family's lunch balance.)

- ◉ **Utilize the resources available:**
 - Our math textbooks and many online materials are available under the “For Parents” tab
 - For 6th-8th graders, they have their own log ins to use
 - Other online resources:
 - www.learnzillion.com
 - www.khanacademy.org
 - www.youtube.com
 - Google it

WHAT CAN PARENTS DO?

- If your child has questions or is stumped, have your child utilize the notes, the online resources, and help your child by asking the following types of questions:
 - What is the problem asking for?
 - What do you think the answer or result will be? What might a right answer look like?
 - What type of information is needed to answer the above question?
 - What information is given in the problem?
 - How does the problem relate to prior problems?
 - What can I pull from my prior math knowledge in general that will help?
 - Is there anything in my notes that might help?
 - When finished
 - Does my result answer the question?
 - Does my result make sense?
 - Can I explain how I arrived at the result?
 - To extend the thinking: Is there a more efficient/faster strategy that you could have used?

WHAT CAN PARENTS DO?

- Make arrangements for your child to attend tutoring sessions or receive additional help outside of the regular classroom.
- Consider utilizing Leaps & Bounds and/or other summer instructional programs.
- Try to make sure your child attends school unless absolutely necessary to be absent.
- Practice math facts.
- Communicate with the teacher, especially with as much detail as you can. If a student doesn't "get" something, the more specific we can all be about what part of it he/she isn't getting or even what parts he/she is getting, the more helpful everyone can be.

WE WILL WORK TOGETHER FOR STUDENTS' SUCCESS

John F. Kennedy Catholic School, as the Roman Catholic School of Our Lady of Victory Parish, **partners with families** in accepting and loving children as unique gifts of God. Through our caring and nurturing parish community, we will help all children identify and share their gifts and talents and develop a Christ-centered character, live their Catholic faith, and achieve academic excellence as they become disciples of Christ.