



# Culturally Responsive Instruction

The Context of Mathematics

April 28, 2016

# Objectives

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- Establish context for necessity of culturally responsive practice
- Learn key components of educational equity
- Recognize culturally responsive/relevant practice
- Learn successfully incorporated strategies leading to student success

# Region X

## Equity Assistance Center

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The land and water area in Region X covers 16.1 million square miles or approximately 10% of the earth's total surface including:

- 9 time zones
- 5 U.S. states
- 2 U.S. territories
- 1 commonwealth
- 2 republics
- 4 federated states



# Presenters

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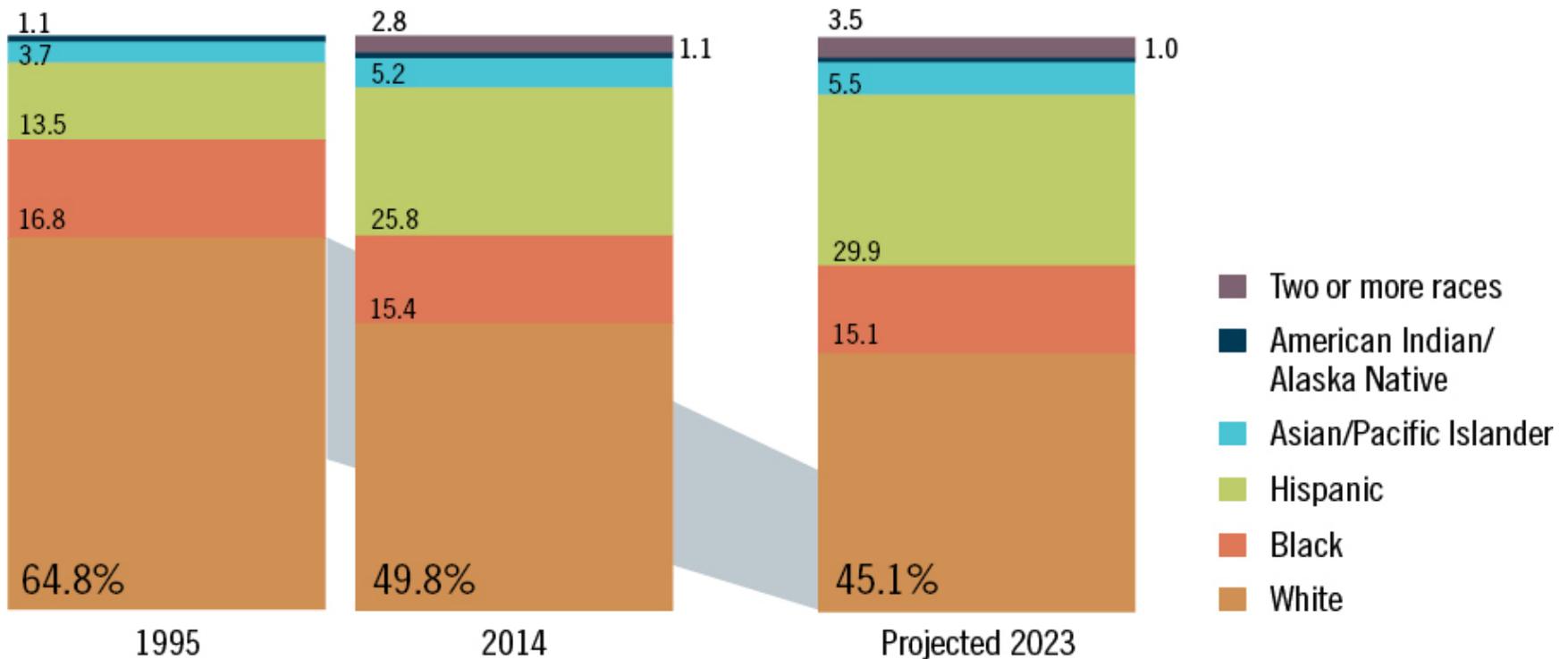
Patrice Woods  
Region X EAC  
Education Northwest



Adam Christopulos  
Rainier Beach High School



# Changing US Student Population



EDUCATION WEEK



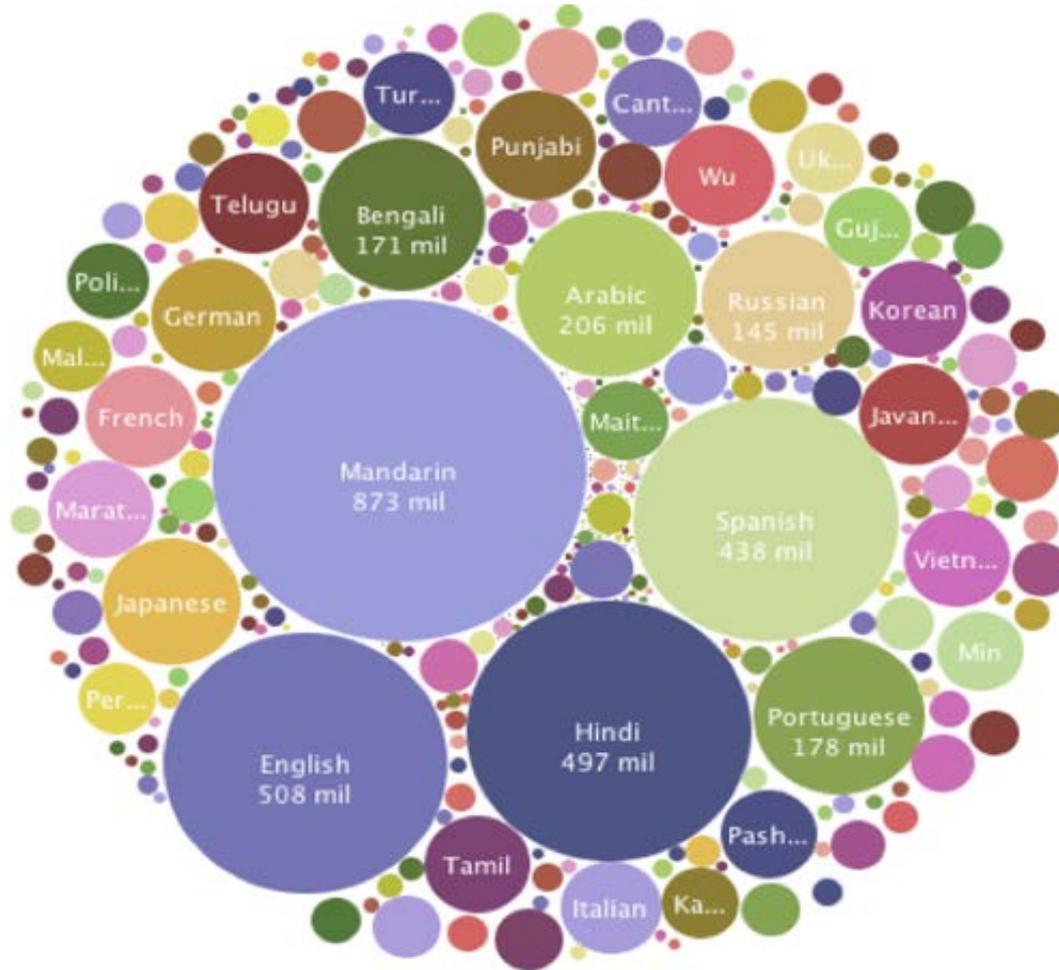
# Increasingly Diverse Schools

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- There is a rapidly rising non-White child population (Polleck & Shabdin, 2013)
- Almost two-thirds of all American children are projected to be students of color by 2050
- In 63 of the 100 largest U.S. school districts, over half of the student population identify as students of color

# Languages Spoken

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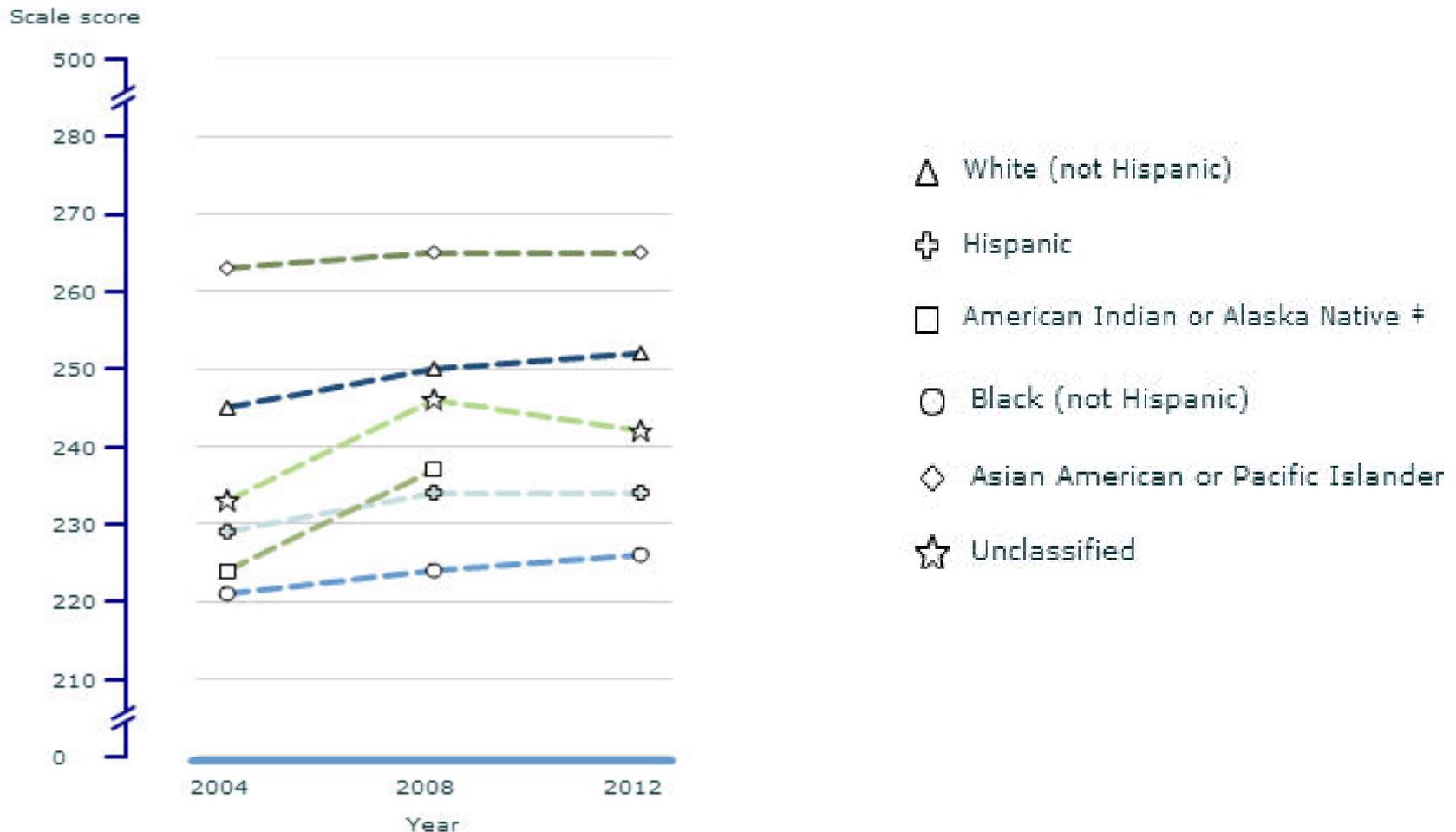
# Supply and Demand

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## The need for culturally responsive instruction

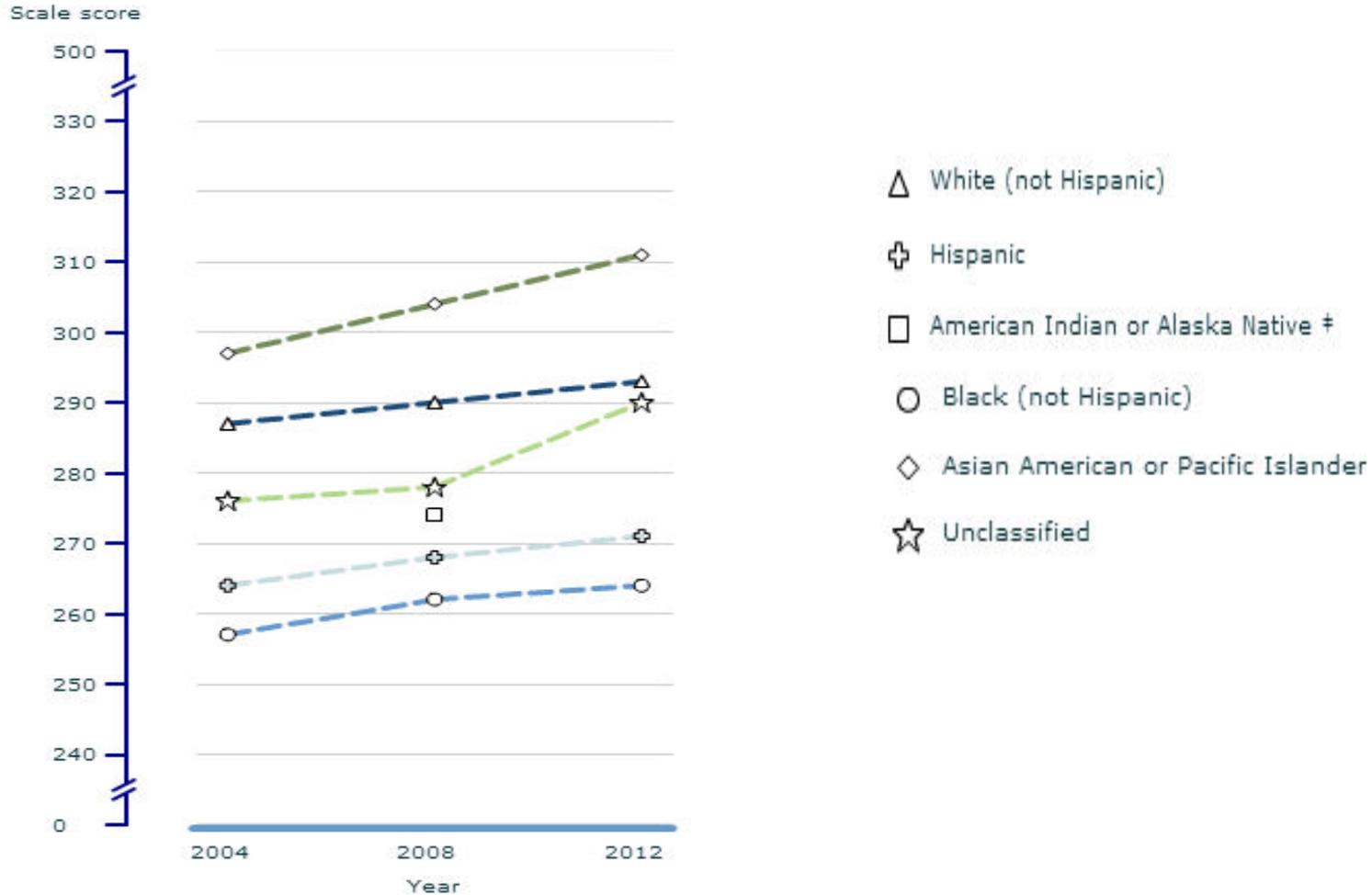
- To positively impact student learning and close achievement gap
- Change the trajectory for student post-secondary options
- Mathematics to *become* a GATEWAY rather than the Gatekeeper

# Grade 4 NAEP Achievement

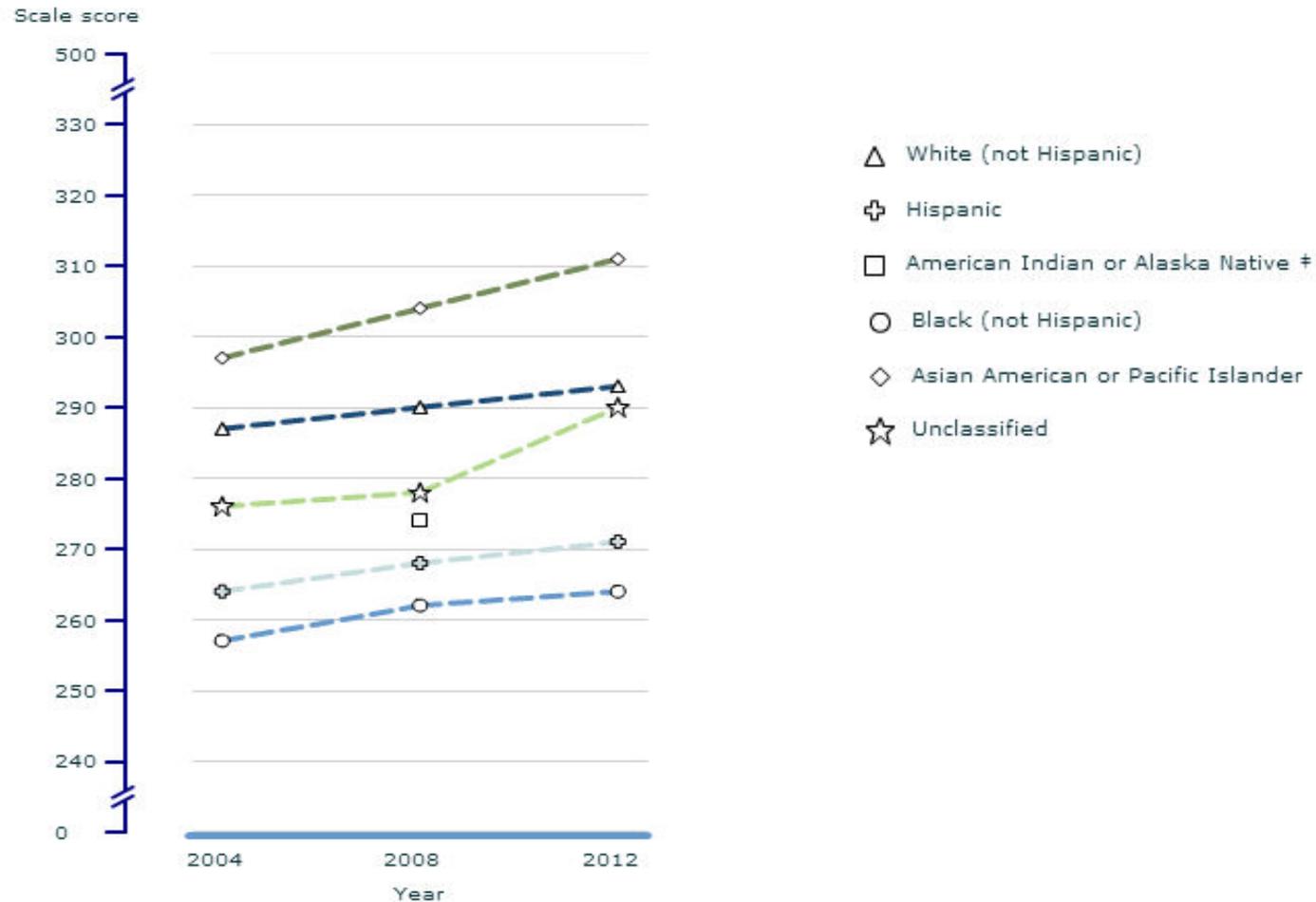




# Grade 8 NAEP Achievement



# Grade 11 NAEP Achievement



# Mathematics

## **GATEWAY OR GATEKEEPER**



# Gateway or Gatekeeper?

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## Course-related context

- Access to advanced courses
- College entrance
- Access to math-dependent career fields

## Life-related context

- Sense making in everyday life
- Critical thinking
- Problem solving
- Competency judgements

# Key Components of Educational Equity

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- Access
- Instruction
- Materials
- Attitudes
- Interactions
- Language
- Assessment





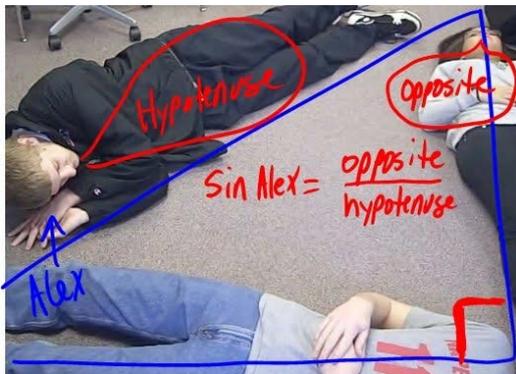
# Culturally Responsive Instruction

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“... a pedagogy that empowers students intellectually, socially, emotionally, and politically by using cultural referents to impart knowledge, skills, and attitudes” (Ladson-Billings, 1994, p. 382).

# Culturally Responsive Instruction (CRI)

- Not specific to one content area
- Some strategies more effective than others, depending on context
- Attend to identity and competence through mathematics



# Considerations for CRI

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## Examples

- Student relevant
  - Content
  - Context
  - Process/Product



## Non-examples

- Different lesson specific to “culture”
  - Ethnic
  - Socioeconomic
  - Religious
  - Gender (ID)



# Key Features of CRI

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- Communicate high expectations
- Actively engage students in learning
- *Facilitate* student learning
- Understand the assets and capabilities students bring
  - Build relationships



# Key Features (cont'd)

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- Anchor curriculum in everyday lives of students
- Select participation structures for learning that reflect students' ways of knowing and doing
- Share control of the classroom with your students
- Engage in reflective thinking and writing



# Five Equity-based Instructional Practices

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1. Focus on conceptual mathematics development
2. Leverage multiple mathematics competencies
3. Affirm students mathematics identities
4. Challenge spaces of marginality
5. Draw on multiple resources of knowledge

From Julia Aguirre's *The Impact of Identity in K-8 Mathematics* (2013)

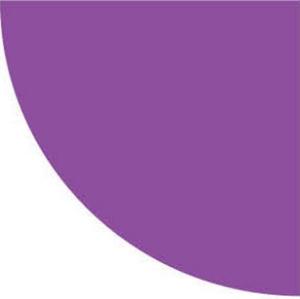


# The Number One Thing

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“Quality instruction, therefore, is the most valuable weapon in the teacher's arsenal and the most significant factor that influences achievement gains—an influence many times greater than poverty or per-pupil expenditures (Sanders & Horn, 1994; Wright, Horn, & Sanders, 1997).”

From Kadhir Rajagopal's *Create Success!* (2011)



# Practitioner's Perspective in Action

## **RAINIER BEACH HIGH SCHOOL**

# Rainier Beach High School

- Student population: 549 (650)
  - Male 49.3%, Female 50.7%
  - Hispanic/Latino(a) 13.0%
  - American Indian/Alaskan Native 0.8%
  - Asian 24.8%
  - Black 51.7%
  - Native Hawaiian/Other Pacific Islander 2.7%
  - White 3.0%
  - Two or More Races 4.0%
- Free/Reduced Lunch 76.3%
- Special Education 21.3%
- Transitional Bilingual 26.6%
- Section 504 0.2%
- Foster Care 0.4%



# Brief History

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2011-12

New Leadership/Staff

Math proficiency: EOC Y1  
33.3%; EOC Y2 28.

2012-13

Math proficiency: EOCY 1  
52.0%; EOC Y2 48.9%

IB Implementation

2013-14

Math Proficiency: EOC Y1  
72.8%; EOC Y2 67.1%

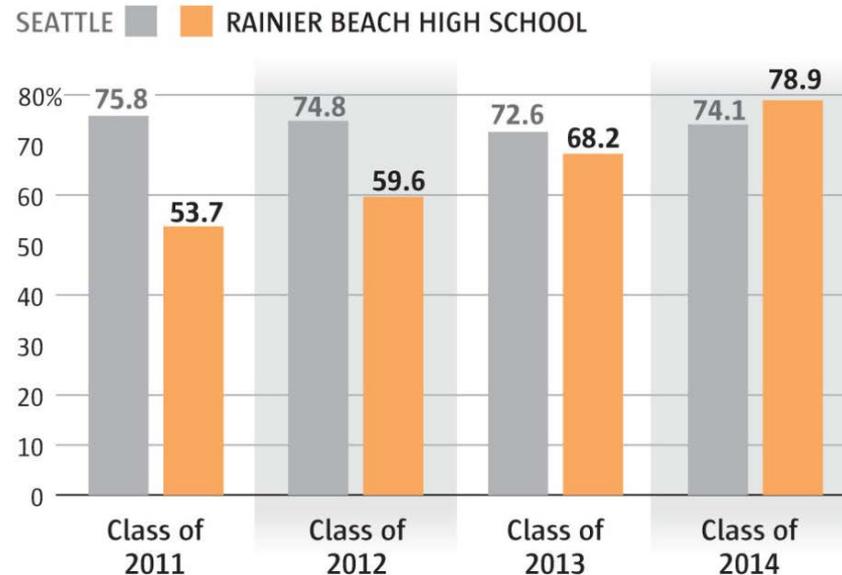
[http://www.pbs.org/newshour/extra/daily\\_videos/ib-program-turns-around-struggling-high-school/](http://www.pbs.org/newshour/extra/daily_videos/ib-program-turns-around-struggling-high-school/)

# Graduation

## More students graduating

Rainier Beach, once considered the worst high school in Seattle, now has graduation rates that top the district's. The rates have climbed by 25 percentage points since 2011.

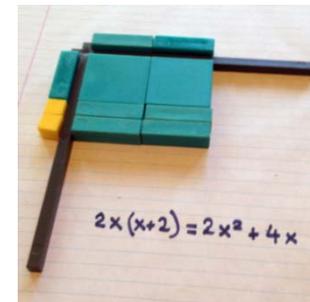
*Graduation rates*



Source: OSPI/Center for Educational Effectiveness

KELLY SHEA / THE SEATTLE TIMES

# Systemic Practice





# Strategies in Practice: Access

- Scaffolding
  - Multiple approaches
    - Build confidence
  - Differentiated instruction
  - Collaborative processes
  - Open access to higher level (IB) courses
- How do these strategies impact student learning?



CLEARING A PATH  
FOR PEOPLE WITH SPECIAL NEEDS  
CLEARS THE PATH FOR EVERYONE!

# Instruction

- Algebra tiles
- Scavenger hunt
  - Visuals
- Vote by feet
- “Plicker”
  - Technology
- White board activities



# Interaction



- High expectations
  - Build confidence
- Know more about students to “tweak” and make lessons relevant to their lives
- Be authentic with context, content, and praise
- Put more focus on student interactions than small changes to instruction or grading

# Assessment

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- Moving toward standards-based
- Multiple opportunities to demonstrate mastery
- Timely



# Questions?

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# Thank You!

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# Resources

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- Aguirre, J., Mayfield-Ingram, K., & Martin, D.B. (2013). *The Impact of Identity in K-8 Mathematics*. Reston, VA: National Council of Teachers of Mathematics.
- Klump, J., & McNeir, G. (2005). Culturally responsive practices for student success: A regional sampler. Portland, OR: NWREL. Retrieved from <http://educationnorthwest.org/sites/default/files/culturally-responsive-practices.pdf>
- Stinson, D.W. (2004). Mathematics as “gate-keeper” (?): Three theoretical perspectives that aim toward empowering all children with a key to the gate. *Mathematics Educator*, 14(1), 8–18.