We know from experience the hard work teachers face every day as they strive to help their students meet the challenges set by higher standards.

We are a team of current and former classroom teachers, curriculum writers, school leaders, and education experts who have worked in the public, private, and nonprofit sectors.

We are dedicated to empowering teachers by providing free, high-quality, standards-aligned resources for the classroom, the opportunity for immersive training through our institutes, and the option of support through our website offerings.
Rolanda Baldwin
Math Content Specialist

Product of North Carolina

- K-12: Greensboro City Schools
- Post-Secondary: NC A&T State University
- Educator: Guilford County Schools 13 years (Teacher, Coach, District Coordinator)
Our Approach to Equity

Our learning is grounded in the intersection of the standards, content, aligned curriculum, and the equitable instructional practices that are essential for closing the opportunity gap caused by systemic bias and racism.
Who is in the room?
Learning Outcomes

• Build a sense of urgency around the education of African-American males in mathematics
• Raise awareness of the intersection of equity and high quality instruction
• Share resources to aid in adaptive change
What mathematics are you teaching, and to whom?
2017 NAEP % of Black Males At or Above Proficient

- 4th Grade Math: 19%
- 8th Grade Math: 12%
2018 EOG Math 3-8 Grade-Level Proficiency
By Race-Ethnicity & Gender

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>63.1</td>
<td>64.4</td>
</tr>
<tr>
<td>Black</td>
<td>34.9</td>
<td>29.7</td>
</tr>
<tr>
<td>Hispanic</td>
<td>43.0</td>
<td>41.6</td>
</tr>
<tr>
<td>White</td>
<td>70.2</td>
<td>68.5</td>
</tr>
<tr>
<td>All Others</td>
<td>50.5</td>
<td>45.7</td>
</tr>
</tbody>
</table>
African American males are significantly underrepresented in science, technology, engineering, and math (STEM) fields, and few school systems are graduating large numbers of students with the skills needed to pursue post-secondary education and careers in this field.

Source: National Center for Education Statistics, 2016
Five Charges

**Adopt** aligned curriculum.

**Attend** to the language of the standards.

**Talk** about race systematically.

**Examine** bias and its role in our work and learning.

**Commit** to adaptive change within the shifts.
The Toolkit

● Builds capacity for instructional leaders to support teachers in the intersection by:
  ○ Having courageous conversations
  ○ Providing professional development
  ○ Providing feedback on lesson plans and implementation

● Bridges the gap between research and the front lines

● Used in conjunction with high quality materials
Five Equity-Based Practices in Mathematics Classroom

- Going deep with mathematics
- Leveraging multiple mathematical competencies
- Affirming mathematics learners’ identities
- Challenging spaces of marginality
- Drawing on multiple resources of knowledge
Going Deep with Mathematics

Equity-Based Practice
Going deep means...

- Supporting students in analyzing, comparing, justifying, and proving their solutions
- Engaging students in frequent debates
- High cognitive demand tasks with multiple solution strategies and representations
Going Deep with Mathematics

NC.7.RP.2

Recognize and represent proportional relationships between quantities.

b Identify the unit rate (constant of proportionality) within two quantities in a proportional relationship using tables, graphs, equations, and verbal descriptions.
Task A

**Identifying Constant of Proportionality (Tables)**

Determine the constant of proportionality for each table. Express your answer as \( y = kx \)

### Concrete Blocks (\( x \))

<table>
<thead>
<tr>
<th>Concrete Blocks (( x ))</th>
<th>3</th>
<th>8</th>
<th>10</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>weight in kilograms (( y ))</td>
<td>30</td>
<td>80</td>
<td>100</td>
<td>60</td>
<td>70</td>
</tr>
</tbody>
</table>

Every concrete block weighs 10 kilograms.

### Cans of Paint (\( x \))

<table>
<thead>
<tr>
<th>Cans of Paint (( x ))</th>
<th>5</th>
<th>10</th>
<th>6</th>
<th>9</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bird Houses Painted (( y ))</td>
<td>15</td>
<td>30</td>
<td>18</td>
<td>27</td>
<td>6</td>
</tr>
</tbody>
</table>

For every can of paint you could paint ____ bird houses.

### Votes for Faye (\( x \))

<table>
<thead>
<tr>
<th>Votes for Faye (( x ))</th>
<th>9</th>
<th>7</th>
<th>6</th>
<th>8</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Votes for Victor (( y ))</td>
<td>342</td>
<td>266</td>
<td>228</td>
<td>304</td>
<td>114</td>
</tr>
</tbody>
</table>

For Every vote for Faye there were ____ votes for Victor.
Task B

Lesson 7: Unit Rate as the Constant of Proportionality

Classwork

Example 1: National Forest Deer Population in Danger?

Wildlife conservationists are concerned that the deer population might not be constant across the National Forest. The scientists found that there were 144 deer in a 16-square-mile area of the forest. In another part of the forest, conservationists counted 117 deer in a 13-square-mile area. Yet a third conservationist counted 216 deer in a 24-square-mile plot of the forest. Do conservationists need to be worried?

Source: Engage New York, Grade 7, Module 1, Topic B, Lesson 7
Leveraging Multiple Math Competencies
Equity-Based Practice
Leveraging means...

- Structuring student collaboration to use varying math knowledge and skill
- Presenting tasks that offer multiple entry points, contributions.
Leveraging Multiple Math Competencies

NC.4.NF.3

Understand and justify decompositions of fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100.

• Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

• Decompose a fraction into a sum of unit fractions and a sum of fractions with the same denominator in more than one way using area models, length models, and equations.

• Add and subtract fractions, including mixed numbers with like denominators, by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.

• Solve word problems involving addition and subtraction of fractions, including mixed numbers by writing equations from a visual representation of the problem.
Multiple Representations

\[ \frac{2}{3} + \frac{3}{6} = \frac{5}{6} \]

\[ \frac{3}{6} + \frac{2}{6} = \frac{5}{6} \]

\[ \frac{5}{6} - \frac{3}{6} = \frac{2}{6} \]

\[ \frac{5}{6} - \frac{2}{6} = \frac{3}{6} \]

Source: Engage New York, Grade 4, Module 5, Topic D, Lessons 16, 17
Affirming Mathematics Learning Identities

Equity-Based Practice
Math identities…

● Are strongly connected with the other identities such as their racial, gender, language, cultural, ethnic, family, faith, and academic identities.

● Are more than demographic data
Math Identity Defined

“Dispositions and deeply held beliefs that students develop about their ability to participate and perform effectively in the mathematical contexts to use mathematics in a powerful ways across the context of their lives”
What’s Your ID?

Your math learning experiences shaped your math identity.

You math identity shapes your identity as a teacher of math.

Your identity as a teacher of math influences the hundreds of daily decisions.

Influences student math identity.
Affirming Mathematics Learners’ Identities

Promote student persistence and reasoning during problem solving.

Help students to see themselves as confident problem solvers who can make valuable mathematical contributions.

Assumes that mistakes/incorrect answers are sources of learning.

Explicitly validates students’ knowledge and experiences as math learners.

Recognizes various ways of illustrating competence.
Challenging Spaces of Marginality

Equity-Based Practice
Challenging marginality...

- Legitimizing student intellectual spaces
- Distributing math authority
- Positioning students as sources of expertise
- Making room for student-to-student interaction and broad-based participation.
There are 24 students in your Math I class. Six (4 african-american males) of the students are struggling in your class. You decide to put them on the computer doing multiplication and division drills while the remainder of the class is engaging in a whole group instruction of interpreting functions. After instruction, you pull the 6 students and work with them to solve problems, such as, $x + 10 = 15$.  

Source: National Center for Education Statistics, 2016
This graphic was shared by NASA prior to the Mars Curiosity Rover landing on August 6, 2012. It depicts the landing sequence for the Curiosity Rover’s descent to the surface of the planet.

Source: Engage New York, Algebra 1, Module 3, Topic B, Lesson 13
Drawing on Multiple Resources of Knowledge (math, culture, language, family, community)
Equity-Based Practice
Multiple Resources…

- Previous mathematics knowledge as a bridge to new mathematics understanding.
- Mathematical knowledge and experiences related to students’ culture, community, family, and history as resources.
- Affirmation and support of multilingualism.
Families Want Success!

Source: Eureka Great Minds Parent Resources
HELLO
my name is
CHANGE
Disrupting Inequity: Having Brave Conversations About Bias

The toolkit contains a high-level overview of the facilitated conversation, with individual PowerPoint presentations and materials containing detailed notes, resources, and activities that will help you move through each part of the conversation. Educators are encouraged to modify these presentations so they work for your school community.
Registration is open

February 11-15, 2019 | Los Angeles
Five Charges

**Adopt** aligned curriculum.

**Attend** to the language of the standards.

**Talk** about race systematically.

**Examine** bias and its role in our work and learning.

**Commit** to adaptive change within the shifts.
QUESTIONS?

Rolanda Baldwin
rolanda.baldwin@unbounded.org
@RoKnowsMath