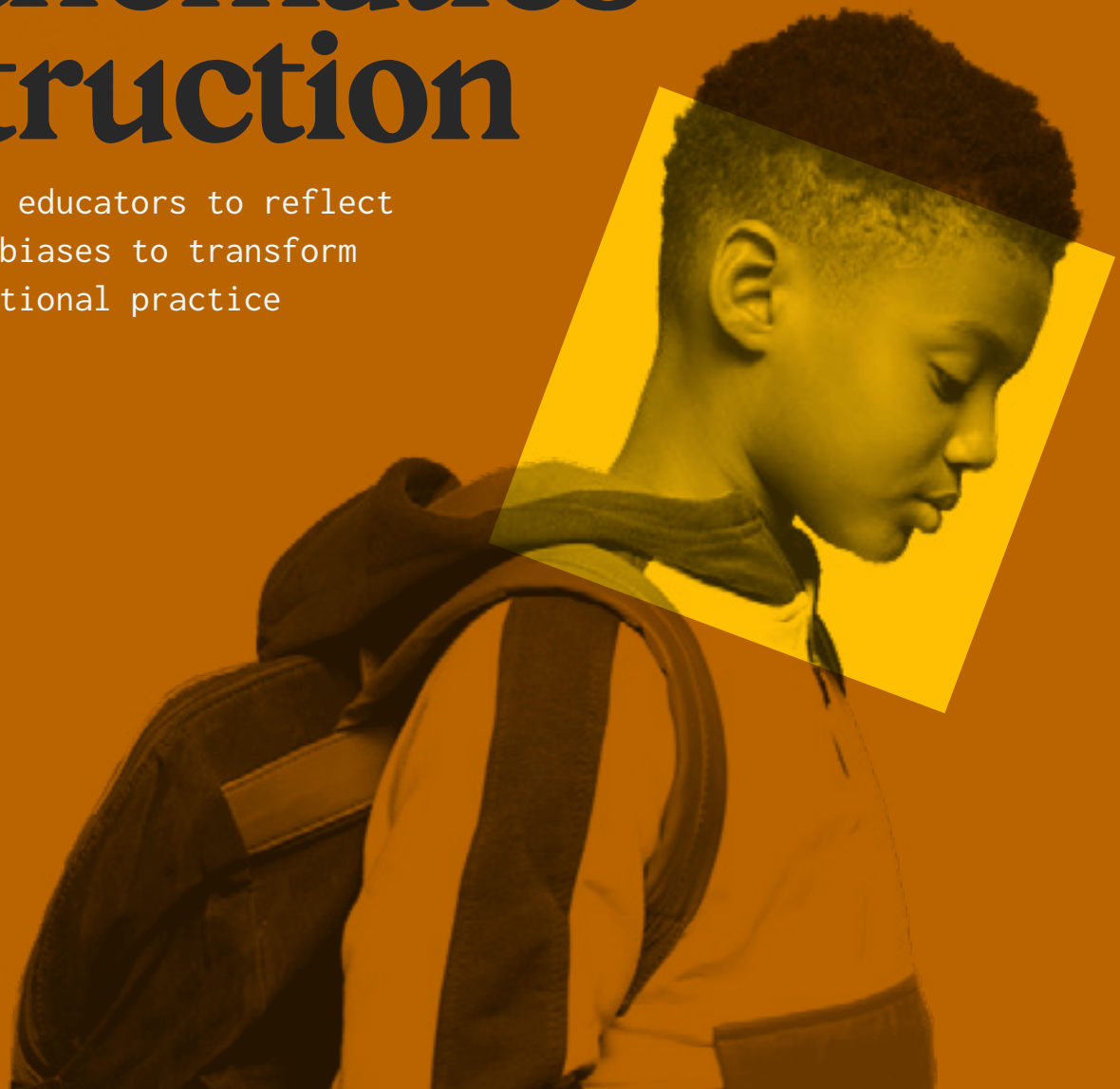
MAY 2021

A Pathway to Equitable Math Instruction

Dismantling Racism in Mathematics Instruction

Exercises for educators to reflect on their own biases to transform their instructional practice



STRIDE

1

Dismantling Racism in Mathematics Instruction

This tool provides teachers an opportunity to examine their actions, beliefs, and values around teaching mathematics. The framework for deconstructing racism in mathematics offers essential characteristics of antiracist math educators and critical approaches to dismantling white supremacy in math classrooms by making visible the toxic characteristics of white supremacy culture (Jones and Okun 2001; dismantling Racism 2016) with respect to math. Building on the framework, teachers engage with critical praxis in order to shift their instructional beliefs and practices towards antiracist math education. By centering antiracism, we model how to be antiracist math educators with accountability.

HOW TO USE THIS TOOL

While primarily for math educators, this text advocates for **a collective approach to dismantling white supremacy**. This schoolwide approach ensures that antiracist work is not left alone to one individual (i.e., math teacher or the director of equity), but to enlist the support and voice of all stakeholders in the school ecosystem.

- **Teachers** should use this workbook to self-reflect on individual practices in the classroom and identify next steps in their antiracist journey as a math educator.
- **Leaders and coaches** should use the framework during observations and walkthroughs, annotating the behaviors and providing targeted feedback.
- **Administrators** should examine programs and policies and how white supremacy impacts student outcomes (e.g., tracking, course selection, intervention rosters). In addition, they can hold teachers accountable for completing the activities in this workbook.

THEMES

Teacher Beliefs

GUIDING PRINCIPLES

Culturally relevant curricula and practices designed to increase access for students of color.

Promoting antiracist mathematics instruction.

CONTENT DEVELOPERS

Sonia Michelle Cintron
Math Content Specialist
UnboundEd

Dani Wadlington
Director of Mathematics Education
Quetzal Education Consulting

Andre ChenFeng
Ph.D. Student
Education at Claremont Graduate University

FEEDBACK ADVISORS

Kyndall Brown
Executive Director
California Mathematics Project

Denise Green
Educational Administrator, Mathematics
Monterey County Office of Education

Manuel Buenrostro
Policy Associate
Californians Together

Ana Benderas
Director of Humanities Education
Quetzal Education Consulting

Table of Contents

Letter to Reader

This workbook provides teachers an opportunity to examine their actions, beliefs, and values around teaching mathematics. The framework for deconstructing racism in mathematics offers essential characteristics of antiracist math educators and critical approaches to dismantling white supremacy in math classrooms by making visible the toxic characteristics of white supremacy culture (Jones and Okun 2001; dismantlingRacism 2016) with respect to math. Building on the framework, teachers engage with critical praxis[1] in order to shift their instructional beliefs and practices toward antiracist math education. By centering antiracism, we model how to be antiracist math educators with accountability.

CONSIDERATIONS FOR USE

While primarily for math educators, this text advocates for a collective approach to dismantling white supremacy. This school-wide approach ensures that antiracist work is not left alone to one individual (i.e., math teacher or the director of equity), but to enlist the support and voice of all stakeholders in the school ecosystem.

- Teachers should use this workbook to self-reflect on individual practices in the classroom and identify next steps in their antiracist journey as a math educator.
- Leaders and coaches should use the framework during observations and walkthroughs, annotating the behaviors and providing targeted feedback.
- Administrators should examine programs and policies and how white supremacy impacts student outcomes (e.g., tracking, course selection, intervention rosters). In addition, they can hold teachers accountable for completing the activities in this workbook.

[1] Critical praxis: "Ernest Morrell and Jeff Duncan-Andrade acknowledge that critical praxis in the classroom involves a continuous, self-reflective cycle between theory and action as follows: (a) identifying a problem, (b) researching the problem, (c) developing a collective plan of action to address that problem, (d) implementing the collective plan of action, and (e) evaluating the action and assessing its efficacy in reexamining the state of the problem. Thus, critical praxis involves a constant path of evaluating thought with action, theory with practice, in the effort to gain a higher consciousness for positive change upon the world." (McLaren, Ryoo, Crawford, & Moreno, 2010, p. 151).

White supremacy culture is the idea (ideology) that White people and the ideas, thoughts, beliefs, and actions of white people are superior to People of Color and their ideas, thoughts, beliefs, and actions.

[from Sharon Martinas and the Challenging White Supremacy Workshop]

Culture is powerful precisely because it is so present and at the same time so very difficult to name or identify. The characteristics of white supremacy culture are damaging because they are used as norms and standards without being pro-actively named or chosen by the group. They are damaging to both people of color and to white people. Organizations that are people of color-led or a majority people of color can also demonstrate many damaging characteristics of white supremacy culture. (Jones and Okun 2001)

NOTES ON TERMS

The terms used in the engagement section of this resource are ideas presented in the dismantlingRacism workbook (2016) notebook, grounded on the work of Jones and Okun (2001). **It is important to read this article first to fully understand the terms that are identified as characteristics of white supremacy culture in organizations.** We contextualize these ideas into the math classroom to make visible how white supremacy culture plays out in these spaces.

As a visual indicator, we italicize the terms used to identify white supremacy characteristics as defined by Jones and Okun (2001). They are as follows:

- *Perfectionism*
- *Sense of Urgency*
- *Defensiveness*
- *Quantity Over Quality*
- *Worship of the Written Word*
- *Paternalism*
- *Either/Or Thinking*
- *Power Hoarding*
- *Fear of Open Conflict*
- *Individualism*
- *Only One Right Way*
- *Progress is Bigger, More*
- *Objectivity*
- *Right to Comfort*

“We live in a toxic culture that affects us all; one dynamic of the culture is that we are discouraged from seeing it. One of our tasks is to learn to see our culture and how it teaches us to make normal that which is not and should never be normal.”

(dismantlingRacism 2016)

Deconstructing Racism in Mathematics Instruction

White supremacy culture infiltrates math classrooms in everyday teacher actions. Coupled with the beliefs that underlie these actions, they perpetuate educational harm on Black, Latinx, and multilingual students, denying them full access to the world of mathematics.The table below identifies the ways in which white supremacy shows up in math classrooms.

DISMANTLING WHITE SUPREMACY CULTURE IN MATH CLASSROOMS

We see white supremacy culture show up in the mathematics classroom even as we carry out our professional responsibilities outlined in the California Standards for the Teaching Profession (CSTP). Using CSTPas a framework, we see white supremacy culture in the mathematics classroom can show up when:

ENGAGING AND SUPPORTING ALL STUDENTS IN LEARNING (CSTP 1)	• There is a greater focus on getting the "right" answer than understanding concepts and reasoning. • Independent practice is valued over teamwork or collaboration. • Contrived word problems are valued over the math in students' lived experiences. • Students are tracked (into courses/pathways and within the classroom). • Participation structures reinforce dominant ways of being.
CREATING AND MAINTAINING EFFECTIVE ENVIRONMENTS FOR STUDENT LEARNING (CSTP 2)	• Curriculum developers and teachers enculturated in the USA teach mathematics the way they learned it without critical reflection. • Preconceived expectations are steeped in the dominant culture. • Mistakes are addressed as failure rather than as opportunities to learn. • Control of classrooms is valued over student's agnecy over their learning.
UNDERSTANDING AND ORGANIZING SUBJECT MATTER FOR STUDENT LEARNING (CSTP 3)	• Math is taught in a linear fashion and skills are taught sequentially, without consideration of prerequisite knowledge. • Superficial curriculum changes are offered in place of culturally relevant pedagogy and practice. • Only content standards guide learning in the classroom. • Procedural fluency is preferred over conceptual knowledge.
PLANNING INSTRUCTION AND DESIGNING LEARNING EXPERIENCES FOR ALL STUDENTS (CSTP 4)	• “Good” math teaching is considered an antidote for mathematical inequity for Black, Latinx, and multilingual students. • Rigor is expressed only in difficulty. • “I do, we do, you do” is the primary format of the class.
ASSESSING STUDENTS FOR LEARNING (CSTP 5)	• Students are required to “show their work” in standardized, prescribed ways. • Grading practices that center what sutdents don't understand rather than what they do. • Language acquisition is equated with mathematical proficiency.

These common practices that perpetuate white supremacy culture create and sustain institutional and systemic barriers to equity for Black, Latinx, and Multilingual students. In order to dismantle these barriers, **we must identify what it means to be an antiracist math educator.**

In order to embody antiracist math education, teachers must engage in critical praxis that interrogates the ways in which they perpetuate white supremacy culture in their own classrooms, and develop a plan toward antiracist math education to address issues of equity for Black, Latinx, and multilingual students.

"The only way to undo racism is to consistently identify and describe it—and then dismantle it." (Kendi 2019)

CHARACTERISTICS OF ANTIRACIST MATH EDUCATORS

Antiracist math educators deconstruct the ways they have been taught math to learn and teach math differently.

Design a Culturally Sustaining[2] Math Space

Center Ethnomathematics[3]

Make Rigor Accessible Through Strong and Thoughtful Scaffolding

Prepare Students of Color to Close The Gap in Access to STEM Fields

Embrace and Encourage Multiple and Varying Ways of Sharing, Showing, and Communicating Knowledge

Support Students to Reclaim their Mathematical Ancestry

DESIGN A CULTURALLY SUSTAINING MATH SPACE

- Use culturally relevant, antiracist pedagogy, practices, and curriculum.
- Cultivate mathematical identity so that everyone can see themselves as mathematicians.
- Design homework policies that are responsive to the lives of students of color in order to support their learning needs.
- Recognize and name the mathematical strengths of students of color, and teach them to recognize these strengths in themselves and others.
- Intentionally integrate physical movement in math classes.

CENTER ETHNOMATHEMATICS

- Recognize the ways that communities of color engage in mathematics and problem solving in their everyday lives.
- Teach that mathematics can help solve problems affecting students' communities. Model the use of math as a solution to their immediate problems, needs, or desires.
- Identify and challenge the ways that math is used to uphold capitalist, imperialist, and racist views.
- Teach the value of math as both an abstract concept and as a useful everyday tool.
- Expose students to examples of people who have used math as resistance. Provide learning opportunities that use math as resistance.

[2] "Culturally Sustaining Pedagogy views schools as places where the cultural ways of being in communities of color are sustained, rather than eradicated.… Culturally Sustaining Pedagogy promotes equality across racial and ethnic communities and seeks to ensure access and opportunity. Culturally Sustaining Pedagogy also supports students to critique and question dominant power structures in societies." (https://www.cde.ca.gov/pd/ee/culturallysustainingped.asp)

[3] "The term ethnomathematics is used to express the relationship between culture and mathematics. The term requires a dynamic interpretation because it describes concepts that are themselves neither rigid nor singular—namely, ethno and mathematics(D'Ambrosio 1987)." (D'Ambrosio 2001)

CHARACTERISTICS OF ANTIRACIST MATH EDUCATORS (continued)

MAKE RIGOR ACCESSIBLE THROUGH STRONG AND THOUGHTFUL SCAFFOLDING

- Teach rich, thoughtful, complex mathematics.
- Teach rigorous mathematics, understanding that rigor is characterized as thorough, exhaustive, and interdisciplinary.
- Use mistakes as opportunities for learning.
- Recognize mistakes as miscommunicated knowledge.
- Allow for engagement in productive struggle.[4]

PREPARE STUDENTS OF COLOR TO CLOSE THE GAP IN ACCESS TO STEM FIELDS

- Teach students of color about the career and financial opportunities in math and STEM fields.
- Encourage them to disrupt the disproportionate push-out of people of color in those fields.
- Invite leaders and innovators of color working in STEAM fields to meet your students.

EMBRACE AND ENCOURAGE MULTIPLE AND VARYING WAYS OF SHARING, SHOWING, AND COMMUNICATING KNOWLEDGE

- Rely on teamwork and collaboration as much as possible.
- Teach mathematics through project-based learning and other engaging approaches.
- Provide multiple opportunities for students to learn from and teach each other.

SUPPORT STUDENTS TO RECLAIM THEIR MATHEMATICAL ANCESTRY

- Intentionally include mathematicians of color.
- Expose students to mathematicians of color, particularly women of color and queer mathematicians of color, both through historical examples and by inviting community guest speakers.
- Teach students of color about their mathematical legacy and ancestral connection and mastery of math.
- Honor and acknowledge the mathematical knowledge of students of color, even if it shows up unconventionally.
- Give rightful credit to the discovery of math concepts by mathematicians of color. Reclaim concepts attributed to white mathematicians that should be attributed to mathematicians of color.

[4] Some struggle in learning is good, but there is a key distinction to be made between productive struggle and destructive struggle. Productive struggle allows students the space to grapple with information and come up with the solution for themselves. It develops resilience and persistence, and helps students refine their own strategies for learning. In productive struggle, there is a light at the end of the tunnel; learning goals not only are clear but also seem achievable. Although students face difficulty, they grasp the point of the obstacles they face and believe that they will overcome these obstacles in the end. Destructive struggle is different. Students cannot see how the difficulty or confusion they're experiencing will lead to any beneficial outcome. Learning goals seem unclear, even impossible. These students feel like their efforts are in vain, and they get frustrated and give up." (Robyn R. Jackson and Claire Lambert 2010)

Critical Praxis: Shifting toward Antiracist Math Education

Teachers, in order to shift your practice toward antiracist math education, it is necessary to critically examine the ways in which white supremacy culture permeates your own math classrooms. These exercises are designed as a year-long process of reflection and planning in order to identify the ways in which your practice may perpetuate white supremacy culture, and create a plan for dismantling it using antiracist approaches.

THIS CONNECTS TO

CSTP 6: DEVELOPING AS A PROFESSIONAL EDUCATION

6.1 ~ 6.2 ~ 6.3

Each month, you will complete a set of exercises as outlined in the calendar.
You will complete a five-step cycle as follows:

1. **Engage** with the ways that white supremacy culture shows up in math classrooms.
2. **Reflect** on your current classroom practices to identify the ways in which they perpetuate white supremacy culture.
3. **Plan** to dismantle white supremacy culture by creating a goal that incorporates specific antiracist practices
4. **Act** with accountability by carrying out the plan.
5. **Reflect** on the ways in which your practices align with antiracist math education.

The terms used in the engagement section are ideas presented in the dismantlingRacism workbook (2016) notebook, grounded on the work of Jones and Okun (2001). It is important to read this article first to fully understand some of the terms and how white supremacy culture shows up in organizations. We contextualize these ideas into the math classroom to visibilize how white supremacy culture plays out in these spaces.

CALENDAR

BEFORE THE SCHOOL YEAR	What are my expectations for the year?
SEPTEMBER	Who are my students?
OCTOBER	What am I teaching?
NOVEMBER	How am I authentically including Black, Latinx, and multilingual students?
DECEMBER	How did I learn math?
JANUARY	How do I teach math?
FEBRUARY	How do I track what students know?
MARCH	How do I engage students in learning?
APRIL	How can I facilitate deeper understanding?
MAY	How do I dismantle power structures in the classroom?
END OF SCHOOL YEAR	What are my expectations for next year?

PROCESS

1. Engage
2. Reflect
3. Plan
4. Act (with Accountability)
5. Reflect

Before the School Year
What are my expectations for the year?

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Preconceived expectations are steeped in the dominant culture.

This is a classic example of *either/or thinking*. If parents don't show the characteristics of what I think a good parent is, then that parent is bad. If students don't show the characteristics of what I think is a good student, then that student is bad. This thinking creates meritocracy in the classroom: Students have to pull themselves up by their bootstraps, and if they fail it is their fault. It does not give room for the systemic reasons students fail, which often lie in problematic expectations.

Instead...

Provide students and parents with opportunities to give feedback to teachers about the classroom and instruction.

- **Identify expectations,** unpack why you have them, and reframe if necessary.
- **Professional Development**: As a department, identify expectations both within and across classrooms, and interrogate them for ways in which they uphold white supremacy culture and other dominant ways of being. (Re)align them with antiracist, social justice, transformative justice, and restorative justice practices.

Before the School Year : What are my expectations for the year? Preconceived expectations are steeped in the dominant culture. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What are my first thoughts when a **student** does not meet my expectations?	
What are my first thoughts when a **parent** does not meet my expectations?	
How can I reframe my thinking and judgement and incorporate more unbiased information to the situation?	
How does structural racism impact the families and community connected to my school?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this year are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

Before the School Year : What are my expectations for the year? Preconceived expectations are steeped in the dominant culture. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

September
Who are my students?

"[A critical centering on dynamic community languages, valued practices, and knowledges] means that educators don't see students' languages (e.g., Navajo, African-American Language, Spanish, 'standard' English), literacies (e.g., Hip Hop, poetry, social media, street art) or ways of being (e.g., spiritual beliefs, ways of relating to adults and elders) as somehow marginal or to simply be added to the existing curriculum. Rather, these facets of students' selves and communities must be centered meaningfully in classroom learning, across units and projects." (Paris and Alim, in conversation with Larry Ferlazzo)

- **Students are Tracked**
  (Into Courses/Pathways and Within the Classroom)
- **Language Acquisition is Equated with Mathematical Proficiency**

September
Who are my students?
Students are tracked.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Students are tracked (into courses/pathways and within the classroom).

Too often students are tracked based on the notion that adults know what the right thing is for them, which does not allow room for student agency, reinforcing *paternalism* and *powerhoarding*. Often, placement into different tracks reflect subjective metrics of innate ability without acknowledging prior opportunities or experiences. Following the same vein, leadership often decides which teacher is right for which course without allowing input from the teachers, students, or parents.

Instead...

Provide students with opportunities to give feedback to teachers about the classroom and instruction.

- **Verbal Example**: *Fist to five, How well do you understand what we talked about today? Fist to five, How well did I teach this today?*
- **Classroom Activity**: Exit tickets or surveys that ask students to identify how well teachers taught, what helped them learn, what got in the way of their learning, etc.
- **Professional Development**: Conduct regular surveys and disaggregate data on teacher practices.

Consider how students are tracked even within your own classroom.

- **Professional Development:** Identify ways of tracking inside the classroom (seating charts, pairings/groupings, etc), and conduct walkthroughs to assess the extent to which tracking is occurring—and offer alternatives.
- **Professional Development**: Learn the ways that tracking can have a negative impact on student identity and mathematical achievement.

Incorporate a more robust course selection process that allows for multiple perspectives, including student, parent, current and previous teachers, advisors, and others who might also have relevant information.

- **Professional Development**: Challenge the notion that if a student did not pass one course they will not be "successful" in the next course. See math is taught in a linear fashion and skills are taught sequentially, without consideration of prerequisite knowledge
- **Administrators and Leaders**: Create a process to ensure that you are intentional about meeting the criteria of Senate Bill 359 (Chapter 508, Statutes of 2015), known as the California Mathematics Placement Act of 2015.

September : Who are my students? Students are tracked. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
How do I group my students for collaborations and small-group work (ability, homogenous or heterogenous according to _____)?	
Who is not present in the gifted and honors courses?	
How do stakeholders (e.g., students, parents, teachers, and counselors) come together to share what they think the placement should be for intervention/honors/AP courses?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to Characteristics of Antiracist Math Educators)	
...because...	

September : Who are my students? Students are tracked. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

September
Who are my students?
Language acquisition is equated with mathematical proficiency.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Language acquisition is equated with mathematical proficiency.

A common misconception is that students who are negotiating language are unable to communicate their mathematical knowledge. This reinforces *quantity over quality* when teachers reduce math teaching to things that are more easily measurable, like literal math. This not only denies opportunities for more engagement with more rigorous math, but it also creates a dynamic of *paternalism* where teachers are deciding for students what math they should interact with, without true consideration of the student's experience. The idea that mathematics instruction has to happen separately from language reinforces *either/or thinking* rather than considering how they interact with and build upon each other.

Instead...

Treat mathematics as a language that everyone is learning while authentically centering students home languages.

- **Classroom Strategies:** Color-coding ideas, learning vocabulary in student languages, visual and kinesthetic learning, representations of learning without words.
- **Classroom Activity:** Multilingual Frayer Models for definitions or concepts.
- **Professional Development**: As a department, engage with language acquisition professional development that is contextualized in mathematical understanding.

September : Who are my students? Language acquisition is equated with mathematical proficiency . (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
How do I work with students who are navigating language?	
In what ways do I communicate mathematics noverbally?	
In what ways do I honor students' native tongues and incorporate them into my classroom?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

September : Who are my students? Language acquisition is equated with mathematical proficiency . (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

October
What am I teaching?

Universal access to the content standards requires that educators apply a strong equity lens as they plan their instruction. This requires intentional focus on crafting teaching methods that are not only aligned to the standards, but that are designed with students – their identities, cultures, assets, and needs – at the center.“Equity has been the focus of more NCTM presidents’ messages and any other topic (Gojak, 2012), yet there is no mention of equity in the Common Core State Standards, and accommodations for ‘English/Language learners’ are in an appendix, something only the tenacious teacher would find. (Gutierrez 2017)

Only Content Standards Guide Learning in the Classroom

Procedural Fluency is Preferred over Conceptual Knowledge

October
What am I teaching?
Only State standards dictate learning in the classroom.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Only content standards guide learning in the classroom.

While access to grade-level content for every student is the responsibility of schools and essential for equity, a focus on content alone is insufficient for achieving meaningful mathematical power for all students. When only focusing on content without applying a culturally responsive lens or strategic scaffolding, there is a risk of perpetuating white supremacy culture and inequities. A hyperfocus on individual standards requires teachers to function under a system of *urgency* to "cover" all the material that will be on the test and not focus on actual learning of the big ideas. This approach is not only disengaging, it also limits opportunities for teachers to connect the content to students' lives in meaningful, relevant ways.

Instead...

Frame mathematics learning within the context of students' lives, and link them to the standards (see Contrived word problems are valued over the math in students' lived experiences and Procedural fluency is preferred over conceptual knowledge).

October : What am I teaching? Only content standards guide learning in the classroom. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
How do I manage the conflicting demands of the time I have to teach all the grade-level standards and knowing my students need time to learn math at a deeper level?	
How do I negotiate what learning should happen in the classroom?	
What is the danger of teaching only content-based instruction?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

October : What am I teaching? Only content standards guide learning in the classroom. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

October
What am I teaching?
Procedural fluency is preferred over conceptual knowledge.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Procedural fluency is preferred over conceptual knowledge.

Though many educators value conceptual knowledge, we often assess and test skills rather than concepts, solidifying the notion that skills are more important. Too often this occurs because our systems expect math teachers to prepare students for what is more easily measurable, reinforcing both *quantity over quality* and *sense of urgency*. Also, many teachers prefer to teach procedural fluency so students engage with more complex problem solving because they believe that they have to do the basic, or computation, skills before they can apply the mathematics. But that idea also reinforces *objectivity* by requiring a singular path for learning, which is oftentimes not necessary. This is related to sequential thinking, without interrogating the need for that particular sequence of learning. In addition, many teachers are more comfortable teaching skills-based work, and if they do that more often, they are reinforcing their own *right to comfort*.

Instead...

Begin with conceptual knowledge, and build the skills along the way.

- **Verbal Example:** *At the end of the unit, we are going to have a carnival celebration where we determine whether the games are fair or not using probability. Let's think about some games that we play. Are you likely to win?*
- **Classroom Activity**: Let the standards guide whether you are teaching procedural or conceptual knowledge according to the aspect of rigor embedded in it.
- **Professional Development**: As an educator, consider whether you know mathematics deeply: Is your own lack of conceptual knowledge the reason why you are uncomfortable teaching conceptual knowledge?
- **Professional Development**: As a department, select one topic or unit and unpack all the math in that topic. What are the underlying concepts? What skills are needed? How does this connect to other topics?

October : What am I teaching? Procedural fluency is preferred over conceptual knowledge. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
Do I value my students gaining conceptual knowledge over procedural fluency? Is it of equal importance to me? How about the ability to apply their learning to new situations—do I value that ability?	
How do the values in the question show up in the classroom? What do they look like, sound like, feel like, etc?	
What shifts do I need to make in my planning to fully incorporate conceptual knowledge into the lessons?	
What is the relationship between procedural fluency and conceptual understanding? What does the research say about this?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

October : What am I teaching? Procedural fluency is preferred over conceptual knowledge. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

November
How am I authentically including Black, Latinx, and multilingual students?

"By continuing to privilege data analysis and probability over other kinds of spatial patterning, even if that data analysis concerns itself with issues such as climate change, we run the risk of limiting new ways of doing mathematics and our relationships to the practice." (Gutierrez 2017)

"Good" Math Teaching is Considered an Antidote for Mathematical Inequity for Black, Latinx, Multilingual Students

Superficial Curriculum Changes are Offered in Place of Culturally Relevant Pedagogy and Practice

November

How am I authentically including Black, Latinx, and multilingual students?

"Good" math teaching is considered an antidote for mathematical inequity for Black, Latinx, multilingual students.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

"Good" math teaching is considered an antidote for mathematical inequity for Black, Latinx, multilingual students.

"Best practices" for math pedagogy often exclude the unique needs of Black, Latinx and multilingual or migrant students. This reinforces *either/or thinking* by reinforcing stereotypes about the type of mathematical education that certain groups of students receive. It allows the *defensiveness* of Western mathematics to prevail, without addressing underlying causes of why certain groups of students are "underperforming," a characterization that should also be interrogated. It also presupposes that "good" math teaching is about a Eurocentric type of mathematics, devoid of cultural ways of being.

Instead...

Learn about authentic and cultural ways of teaching and learning that represent the students in your classroom.

- **Professional Development**: As a department, study ethnomathematics and incorporate into all classrooms.

November : How am I authentically including Black, Latinx, and multilingual students? "Good" math teaching is considered an antidote for mathematical inequity for Black, Latinx, multilingual students. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What do I consider is good math teaching?	
What have I learned about the system I work in and how it affects the academic success of students of color?	
Who considers "good math teaching" is an antidote for math inequity?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

November : How am I authentically including Black, Latinx, and multilingual students? "Good" math teaching is considered an antidote for mathematical inequity for Black, Latinx, multilingual students. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

November

How am I authentically including Black, Latinx, and multilingual students?

Superficial curriculum changes are offered in place of culturally relevant pedagogy and practice.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Superficial curriculum changes are offered in place of culturally relevant pedagogy and practice.

Instead of delving into the deep and critical work of culturally relevant pedagogy and practice, math teachers often reinforce the *right to comfort* by making superficial changes—such as converting the names in word problems to more ethnic sounding names. Even for teachers who engage with more rigorous practices often limit the incorporation of culture to easier math topics like data, highlighting inequity between groups of people without deeper analysis, often telling only one story about people, which can perpetuate deficit narratives and be dangerous (Adichie, 2009).

Instead...

Incorporate true culturally relevant pedagogy, practice, and curriculum.

- **Verbal Example:** *What are some of your family traditions that you are proud of? Would you be okay if we brought some of those into the classroom?*
- **Classroom Activity:** Use Ankara fabric to teach mathematical concepts such as tessellations, fractions, area, percentages, etc.
- **Professional Development:** Get training on culturally relevant pedagogy specific to math content, as well as teaching math content.

November : How am I authentically including Black, Latinx, and multilingual students? Superficial curriculum changes are offered in place of culturally relevant pedagogy and practice. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What is my understanding of culturally relevant pedagogy?	
What steps am I taking to incorporate culturally relevant pedagogy deeper into my classroom and instruction?	
What does it mean to be an antiracist math educator with culturally relevant pedagogy?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

November : How am I authentically including Black, Latinx, and multilingual students? Superficial curriculum changes are offered in place of culturally relevant pedagogy and practice. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

December
How did I learn math?

"Elsewhere, I have argued that the practice of school mathematics in the US regulates the child by privileging: algebra/calculus over geometry/topology/spatial reasoning; rule following over rule breaking; Western mathematics (culture free) over ethnomathematics (recognizing that even academic mathematicians are a culture); the 'standard algorithm' over invented or international algorithms; abstraction over context ('just pretend this is real world'); mind over body; logic over intuition; and encouraging students to "critique the reasoning of others" over appreciating their reasoning. Not only can these repeated practices over a lifetime serve to dehumanize students and teachers in classrooms, the narrative about mathematics being a pure discipline, reflective of the natural world around us, universal, with an almost unilaterally positive relationship to society's advancement, leaves many humans unable to challenge this narrative to consider other ways of doing mathematics." (Gutierrez 2017)

Curriculum Developers and Teachers Enculturated in the USA Present Mathematics the Way They Learned It, without Critical Reflection.

"I Do, We Do, You Do" is the Primary Format of the Class

December
How did I learn math?
Curriculum developers and teachers enculturated in the USA present mathematics the way they learned it, without critical reflection.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Curriculum developers and teachers enculturated in the USA present mathematics the way they learned it, without critical reflection.

This reinforces the idea that there is *only one right way* to do math, which may not serve all students. The history of mathematics, its colonization, and what is deemed as "acceptable" knowledge is rich and complex, therefore, the way that mathematics is taught in the United States needs to be interrogated because it currently centers Western, Eurocentric ways of processing and knowing information. When students who were taught differently are required to learn in this way, they either have to unlearn their learned native traditions to meet teacher expectations, or they are deprived of learning math in their ancestral history. For curriculum developers and teachers, presenting math the way they learned also reinforces the *right to comfort* because to conform is easier than to challenge themselves and the field to teach math differently.

Instead...

Incorporate the history of mathematics into lessons.

- **Verbal Example:** *Why do you think we call it Pythagorean's theorem, when it was used before he was even born? What should we call it instead?*
- **Classroom Activity:** Learn about different bases and numerical ideas: Base 2, binary and connections to computer programming, how the Yoruba of Nigeria used base 20, and how the Mayans conceptualized the number 0 before the first recording of it.
- **Professional Development**: Learn the history of mathematics. Take a course, go to a conference, read historically and culturally accurate books, and use the resources in this workbook. Focus on different approaches to learning concepts.

December : How did I learn math? Curriculum developers and teachers enculturated in the USA teach mathematics the way they learned it, without critical reflection. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
How were you taught math when growing up? Was the focus procedural, application, or conceptual?	
Who were you taught was responsible for the development of the field of mathematics?	
How do you mostly teach mathematics? Is the focus mostly procedural, application, or conceptual?	
How have you developed your understanding of the content standards and the best approaches to teaching them?	
In what ways can you continue to develop your own understanding of mathematics, now and in the future?	
What teaching practices were **helpful** in your own learning experience?	
What teaching practices were **harmful** in your own learning experience?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

December : How did I learn math? Curriculum developers and teachers enculturated in the USA teach mathematics the way they learned it, without critical reflection. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

December
How did I learn math?
"I do, we do, you do" is the primary format of the class.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

"I do, we do, you do" is the primary format of the class.

This structure of direct instruction doesn't always allow for the full range of ways of thinking—reinforcing objectivity and the idea that there is *only one right way*—because it potentially dismisses students' own ways of processing, and it also stifles creativity. It also reinforces *paternalism* because the way that teachers model becomes the standard for student learning.

Instead...

Solicit student ways of thinking and processing.

- **Verbal Example**: *How might you all go about this? What do you notice?*
- **Classroom Activity**: Incorporate explorations, where students interact with mathematics in a way that allows them to "discover" or experience mathematics.
- **Professional Development**: Interrogate the ways that you were taught, and break the cycles of teaching that way by learning different ways to approach the concepts. In addition, learn how to develop project-based learning, experiential learning, and explorational learning.

December : How did I learn math? "I do, we do, you do" is the primary format of the class. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
How often do I use this format in class?	
In what ways do I allow my students to show their way of thinking, even if it is different from how I am thinking?	
What resources can or do I use to incorporate the suggested instructional strategies, according to aspects of rigor embedded in the standard I am teaching?	
When is this a useful format? When is it not? Why?	
What does this strategy imply about the students' abilities?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

December : How did I learn math? "I do, we do, you do" is the primary format of the class. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

January
How do I teach math?

- Math is Taught in a Linear Fashion and Skills are Taught Sequentially Without True Understanding of Prerequisite Knowledge
- Rigor is Expressed Only in Difficulty

January
How do I teach math?
Math is taught in a linear fashion and skills are taught sequentially without true understanding of prerequisite knowledge.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Math is taught in a linear fashion and skills are taught sequentially without true understanding of prerequisite knowledge.

While some mathematical skills and concepts build off each other, the forced construct of linear teaching reinforces *objectivity*. A prime example is how matrices is considered a precalculus standard, even though the only math skill needed as a prerequisite is arithmetic. This is highly detrimental to students because they are systematically deprived of knowledge they could access due to false constructs. Math teachers have internalized the sequences that have been predetermined by standards and textbooks, rather than sequencing learning based on (pre)requisite knowledge. In general, teachers teach math like a ladder rather than a web.

NOTE: *This is particularly harmful to students in the era of COVID-19 and distance learning. While it is concerning that students may have "gaps in knowledge," the idea that they cannot access grade-level material presupposes and reinforces that the cumulative way that math is taught in the United States is the only right way of teaching and learning. While some things do in fact build upon each other, sometimes it is also a false construct of knowledge. It is important that teachers don't fall into this trap of linear teaching.*

Instead...

Reorganize your classroom teaching around concepts, and teach them more like a web rather than discrete sets of knowledge.

- **Verbal Example**: *How does this connect to what you've learned in the past? How can you use that knowledge today?*
- **Classroom Activity**: Learning webs that connect content.
- **Professional Development**: As a department, consider vertical alignment of high school courses outside the traditional courses. Currently, Common Core State Standards allows for this, though schools do not often do it.

January : How do I teach math? Math is taught in a linear fashion and skills are taught sequentially without true understanding of prerequisite knowledge. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
How deep is my understanding of mathematics content across grade levels, and how are standards connected?	
How do I distinguish between prerequisite knowledge for mastery and "prerequisite" defined in terms of traditional sequences?	
What resources did I use to critically analyze my content?	
How do I decide what content is on the summative assessments?	
How do I plan backward with the key content?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

January : How do I teach math? Math is taught in a linear fashion and skills are taught sequentially without true understanding of prerequisite knowledge. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

January
How do I teach math?
Rigor is expressed only in difficulty.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Rigor is expressed only in difficulty.

Too often in math, we limit the definition of rigor to difficulty, rather than its full complexity including thoroughness; exhaustiveness; interdisciplinary; and balancing conceptual understanding, procedural skills and fluency, and application. This allows math teachers to shy away from complex problems and tasks and instead streamline teaching like we are spoon-feeding, in fear that students can't do the work—and reinforcing *right to comfort* and *quantity over quality*. This discomfort with emotion and feelings *(quantity over quality)* leads to the sentiment "Math makes people feel stupid and it hurts to feel stupid," and rather than addressing the implications behind that statement, we instead make the content easier so that students are more likely to understand. This is highly problematic because it assumes that students *can't* rather than giving them the opportunity to engage with rigorous mathematics.

Instead...

Start with more complex math problems and scaffold as necessary.

- **Verbal Example**: *If we wanted to build a rocket, what are all the things we might need to know before we get started? Along the way, we decided that we want the rocket to reach the moon. What do we need to consider now?*
- **Classroom Activity**: When solving equations, start with the most complex problem, generate ideas for how to solve it, and use the simpler equations as examples to support those ideas.
- **Professional Development**: As a department, engage with different ways to scaffold starting with the most complex task.
- Also, see Math is taught in a linear fashion and skills are taught sequentially without true understanding of prerequisite knowledge.

January : How do I teach math? Rigor is expressed only in difficulty. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What is my understanding of rigor in mathematics?	
How do I ensure a balance in my instruction between other aspects of rigor and Common Core three aspects of rigor (conceptual understanding, procedural skills and fluency, and application)?	
When is rigor a catchall for equity?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

January : How do I teach math? Rigor is expressed only in difficulty. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

February
How do I track what students know?

- Grading Practices Center What Students Don't Understand Rather than What They Do Understand
- Students are Required to “Show Their Work” in Standardized, Prescribed Ways

February
How do I track what students know?
Grading practices center what students don't understand rather than what they do understand.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Grading practices center what students don't understand rather than what they do understand.

Grades are traditionally indicative of what students can't do rather than what they can do, reinforcing *perfectionism*. In addition, math teachers also focus grades on what is more easily measurable, rather than the knowledge that we want students to have, reinforcing *quantity over quality* and often evaluating procedural or skills-based knowledge rather than conceptual knowledge.

Instead...

Consider what grades really mean to you, and articulate a plan that is consistent with those values.

- **Professional Development**: As a department, consider how you would proceed with teaching if no letter grades were to be given. Review alternative ways of grading (standards based, mastery based, A/B no pass, etc.).

Emphasize formative assessment.

- **Professional Development:** As a department, review current assessment and grading practices to determine what values are reinforced for the purpose of making grades more purposeful.
- **Professional Development**: Develop formative assessments that highlight student knowledge rather than deficit knowledge. Consider bringing in experts to help design this.

February : How do I track what students know? Grading practices center what students don't understand rather than what they do understand. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
How do my grading policies reflect what I value in my instruction?	
Do my grading policies reflect what students know and are able to do, or what they haven't demonstrated?	
Why do I grade how I grade? Is it mathematically fair to grade students on a traditional scale (e.g., 69.5% or below is not passing)?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to Characteristics of Antiracist Math Educators)	
...because...	

February : How do I track what students know? Grading practices center what students don't understand rather than what they do understand. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

February
How do I track what students know?
Students are required to "show their work" in standardized, prescribed ways.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Students are required to "show their work" in standardized, prescribed ways.

Math teachers ask students to show work so that teachers know what students are thinking, but that can center the teacher's need to understand rather than student learning. Teachers should seek to understand individual student perspectives and focus on students showing their work in ways that help students learn how to process information.

Instead...

Ask other questions that will demonstrate learning when it is not clear to you how students know the answer.

- **Verbal Example**: *If you were working with a fellow mathematician who was absent this day, what might you tell them to help them learn it?*
- **Classroom Activity:** Number talks, where students have to engage with mental mathematics not limited to computations.
- **Professional Development**: As a department, solve complex problems without writing and share with each other about that process.

Offer a variety of ways to demonstrate thinking and knowledge.

- **Verbal Example**: *Show your thinking with words, pictures, symbols.*
- **Classroom Activity:** Have students create TikTok videos, silent films, or cartoons about mathematical concepts or procedures.
- **Professional Development**: Practice with math colleagues how to answer mathematical problems without using words or numbers.

Ask yourself: *How and why am I asking students to show their work?*

The point should be to have a dialogue about their process and their learning, not require every student to follow the exact same path to the right answer.

The child of immigrants might have learned a different way to solve a problem because that's how their parents were taught where they grew up. If we just tell that student their way is the wrong way, we risk turning them off to math for life. If we take the opportunity to explore why there are different ways to approach the same problem, it can be a learning moment for the entire class.

February : How do I track what students know? Students are required to "show their work" in standardized, prescribed ways. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
When asking students to show their work, what are the reasons for this?	
What are the myriad ways students can demonstrate their knowledge or understanding?	
What type of "work" is valued? What type of "work" is not valued?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

February : How do I track what students know? Students are required to "show their work" in standardized, prescribed ways. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

March
How do I engage students in learning?

- **Contrived word problems are valued over the math in students' lived experiences.**
- **Independent Practice is Valued Over Teamwork or Collaboration**

March

How do I engage students in learning?

Contrived word problems are valued over the math in students' lived experiences.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Contrived word problems are valued over the math in students' lived experiences.

Often the emphasis is placed on learning math in the "real world," as if our classrooms are not a part of the real world. This reinforces notions of *either/or thinking* because math is only seen as useful when it is in a particular context. However, this can result in using mathematics to uphold capitalist and imperialist ways of being and understandings of the world.

Instead...

Consider the daily ways that students interact with mathematics in their communities, and use those to provide context for mathematical problems.

- **Verbal Example**: *If I'm walking forward, how might I represent that with numbers or symbols? What if I'm walking backwards?*
- **Classroom Activity:** Use transit systems to teach concepts like positive and negative numbers, or the coordinate plane.
- **Professional Development**: Review all the ways that word problems and context show up in the curriculum. Limit or eliminate references to money, especially when transactional.

Learn about, engage with, and incorporate ethnomathematics.

- **Verbal Example**: *Reflect on your day so far. What math have you already used today?*
- **Classroom Activity:** Community walks to engage with slope.
- **Professional Development**: Study more about ethnomathematics and how to authentically incorporate ethnomathematics or living mathematx (Gutierrez 2017) into the curriculum.

March : How do I engage students in learning? Contrived word problems are valued over the math in students' lived experiences. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
How can I study the community in which I teach and incorporate issues that affect my students into my instruction?	
What strengths and values can I highlight from the community in which I teach?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to Characteristics of Antiracist Math Educators)	
...because...	

March : How do I engage students in learning? Contrived word problems are valued over the math in students' lived experiences. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

March
How do I engage students in learning?
Independent practice is valued over teamwork or collaboration.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Independent practice is valued over teamwork or collaboration.

While there is some value in students being able to complete work independently, when this is the only or most common avenue for learning or practicing, it reinforces *individualism* and the notion that *I'm the only one*. This does not give value to collectivism and community understanding, and fosters conditions for competition and individual success, which perpetuates the idea that if a student is failing it is because they are not trying hard enough or that they don't care.

Instead...

Co-construct knowledge in the classroom.

- **Verbal Example**: *Let's get into partners and do a think-pair-share. We will incorporate everyone's ideas and try to synthesize them.*
- **Classroom Activity:** Have students create mathematical definitions in their own words in groups, and bring the groups together to co-construct mathematical definitions as a class.
- **Professional Development**: As a department, learn about collaborative group structures and practice mathematics using these structures.

Incorporate collective activities including, but not limited to, group work.

- **Classroom Activity:** Give each student a number and have them group with other students and explain how they grouped themselves. Then, have the entire class regroup in a different way to highlight a new set of characteristics.
- **Professional Development**: As a department, research and practice group-worthy tasks, as well as ways of interacting collectively with each other.

March : How do I engage students in learning? Independent practice is valued over teamwork or collaboration. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
How is learning mostly arranged in your classroom? Is it individual practice, whole-group instruction, collaborative work, exploration? Why or how do you choose these approaches for practice?	
What other strategies and structures can you use in the classroom?	
How do you frame how learning happens in the classroom?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

March : How do I engage students in learning? Independent practice is valued over teamwork or collaboration. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

April
How can I facilitate deeper understanding?

- There is a Greater Focus on Getting the "Right" Answer than Understanding Concepts and Reasoning
- Mistakes are Addressed as Failure Rather than Opportunities to Learn.

April

How can I facilitate deeper understanding?

There is a greater focus on getting the "right" answer than understanding concepts and reasoning.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

There is a greater focus on getting the "right" answer than understanding concepts and reasoning.

Upholding the idea that there are always right and wrong answers perpetuate *objectivity* as well as *fear of open conflict*. Some math problems may have more than one right answer and some may not have a solution at all, depending on the content and the context. And when the focus is only on getting the right answer, the complexity of the mathematical concepts and reasoning may be underdeveloped, missing opportunities for deep learning.

Instead...

Choose problems that have complex, competing, or multiple answers.

- **Verbal Example**: *Come up with at least two answers that might solve this problem.*
- **Classroom Activity**: Challenge standardized test questions by getting the “right” answer, but justify other answers by unpacking the assumptions that are made in the problem.
- **Classroom Activity**: Deconstructed Multiple Choice - given a set of multiple choice answers, students discuss why these answers may have been included (can also be used to highlight common mistakes).
- **Professional Development**: Study the purpose of math education, and re-envision it. Schooling as we know it began during the industrial revolution, when precision and accuracy were highly valued. What are the myriad ways we can conceptualize mathematics in today’s world and beyond?

Engage with true problem solving.

- **Verbal Example**: *What are some strategies we can use to engage with this problem?*
- **Classroom Activity**: Using a set of data, analyze it in multiple ways to draw different conclusions.
- **Professional Development**: Study the art of problem solving by engaging in rich, complex mathematical problems. Consider whether your own content knowledge is sufficient to allow you to problem solve through math without the strategies you typically use.

When Wrong Goes Right

Of course, most math problems have correct answers, but sometimes there can be more than one way to interpret a problem, especially word problems, leading to more than one possible right answer.

And teaching math isn't just about solving specific problems. It's about helping students understand the deeper mathematical concepts so that they can apply them throughout their lives. Students can arrive at the right answer without grasping the bigger concept; or they can have an “aha” moment when they see why they got an answer wrong. Sometimes a wrong answer sheds more light than a right answer.

April : How can I facilitate deeper understanding? There is a greater focus on getting the "right" answer than understanding concepts and reasoning. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
In your own schooling, what was the purpose of doing math?	
What is your purpose for teaching mathematics to students?	
Do you value precision and speed in mathematics achievement? Where do you think that belief comes from? When would efficiency be harmful for students?	
How do you engage with competing, conflicting, or multiple answers to problems?	
What is the value of exploring math concepts as opposed to seeking the “right” answer?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

April : How can I facilitate deeper understanding? There is a greater focus on getting the "right" answer than understanding concepts and reasoning. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

April
How can I facilitate deeper understanding?
Mistakes are addressed as failure rather than opportunities to learn.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Mistakes are addressed as failure rather than opportunities to learn.

Though math teachers often tout the phrase "mistakes are expected, respected, inspected, and corrected," their practices don't always align. Teachers often treat mistakes as problems by equating them with wrongness, rather than treating them as opportunities for learning—which reinforces the ideas of *perfectionism* (that students shouldn't make mistakes) and *paternalism* (teachers or other experts can and should correct mistakes).

Instead...

Identify what is right about the thinking, and highlight the mistake in what is factually or procedurally accepted.

- **Verbal Example**: *You recognized that you had to combine the constants 27 and 9, could you explain your thinking?*
- **Classroom Activity**: Error Analysis worksheets that highlight what is the right idea behind the mistake.
- **Professional Development**: Learn to distinguish between a mistake and a misunderstanding. A mistake typically happens when knowledge is secure, and a misunderstanding or misconception occurs when knowledge is not yet solidified or solidified incorrectly.
- **Professional Development**: In teams, craft questions that you practice on colleagues so they can be refined to better identify ideas.

April : How can I facilitate deeper understanding? Mistakes are addressed as failure rather than opportunities to learn. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What is my reaction when a student makes a mistake in my class?	
How do I try to show the student how to get to the correct answer?	
What do I look for to see what my student understands and where my student needs guidance?	
How can I use student mistakes as an opportunity for learning?	
What do I believe about the purpose of mistakes in mathematics?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

April : How can I facilitate deeper understanding? Mistakes are addressed as failure rather than opportunities to learn. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

May
How do I dismantle power structures in the classroom?

- Control of Classrooms is Valued Over Students' Agency over their Learning
- Participation Structures Reinforce Dominant Ways of Being

May

How do I dismantle power structures in the classroom?

Control of classrooms is valued over students' agency over their learning.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Control of classrooms is valued over students' agency over their learning.

Unique to mathematics is the idea that new learning comes from the teacher. Even when learning is connected to previous knowledge and experiences, the idea is often that teachers provide the learning and are in charge of disseminating new information. This reinforces the ideas of *paternalism* and *powerhoarding*. When students bring a different approach to doing math, teachers often get *defensive* and see it as a challenge to the power structures in the classroom.

Instead...

Learn from students.

- **Verbal Example**: *I thought that we were supposed to add right here, but I can't figure it out? Can you help me out?*
- **Classroom Activity**: Flipped learning, where students teach concepts to other students.
- **Professional Development**: Learn to shift your position to a facilitator, rather than a knowledge giver, by having someone observe your classroom specifically to identify the way that power is distributed.

Using thoughtful questioning to solicit mathematical thoughts rather than telling.

- **Verbal Example**: *What would a mathematician who is confused ask about this question?*
- **Classroom Activity**: After students demonstrate knowledge of a topic, have them play a game where they have to explain their topic to a fellow mathematician and a skeptic. Develop their own reflective questioning/explaining in all three roles.
- **Professional Development**: Do a lesson plan review, and write out all the possible questions that can be asked based on the plan. Then, look at only the questions and evaluate whether they are good, thought-provoking questions. Determine whether better questions should be asked, or if the lesson should be planned differently.

May : How do I dismantle power structures in the classroom? Control of classrooms is valued over students' agency over their learning. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
Do I see myself as the holder of authority in my classroom? In what ways can this power imbalance affect students' ability to learn math?	
How do I or can I share the classroom's authority and autonomy with students?	
What would it look like to include more student voice and student choice in the classroom?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

May : How do I dismantle power structures in the classroom? Control of classrooms is valued over students' agency over their learning. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

May
How do I dismantle power structures in the classroom?
Participation structures reinforce dominant ways of being.

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Participation structures reinforce dominant ways of being.

Classrooms are often microcosms of the world around us and reinforce dominant (or white) ways of being. For example, small groups of students receive the teacher's attention throughout instruction and a few students are typically called on to participate in class discussions, reinforcing notions of *perfectionism*. The patterns of students who fall into those categories often mirror societal norms. Another common participation structure is pairing students as helper and helpee. This reinforces *paternalism* and other power structures that identify students as either being good or bad at math (also *either/or thinking*). Also, requiring students to raise their hand before speaking can reinforce *paternalism* and *powerhoarding*, in addition to breaking the process of thinking, learning, and communicating.

Instead...

Create multiple ways of participating that honor myriad ways of thinking and being.

- **Verbal Example:** *For this section, feel free to work alone, in pairs, trios, or quads (let them choose).*
- **Classroom Activity:** Community circles or storytelling circles, incorporating dance, music, song, call and response, and other cultural ways of communicating.
- **Professional Development**: As a department, practice math using different participation structures, and employ them in the classroom as appropriate. Implement the "5 Practices for Orchestrating Productive Mathematics Discussions," where teachers learn how to select students for sharing their answers according to different methods and solution pathways, instead of randomly calling on students.

May : How do I dismantle power structures in the classroom?
Participation structures reinforce dominant ways of being. (continued)

2. REFLECT

What am I currently doing in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
Which student(s) do I typically call on to participate in class discussions?	
Which student(s) do I assign as the classroom helper?	
Why do I make these choices?	
How can I ensure that all my students get the same opportunities to collaborate in classroom discussions?	

3. PLAN

How can I incorporate antiracist practices into my classroom?

My goal(s) for this academic school year is (are)...	
The antiracist characteristics I want to work on this month are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

May : How do I dismantle power structures in the classroom?
Participation structures reinforce dominant ways of being. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

End of the School Year
What are my expectations for next year?

1. ENGAGE

White supremacy culture shows up in math classrooms when...

Preconceived expectations are steeped in the dominant culture.

This is a classic example of *either/or thinking*. If parents don't show the characteristics of what I think a good parent is, then that parent is bad. If students don't show the characteristics of what I think is a good student, then that student is bad. This thinking creates meritocracy in the classroom: Students have to pull themselves up by their bootstraps and if they fail it is their fault. It does not give room for the systemic reasons students fail, which often lie in problematic expectation.

Instead...

Provide students and parents with opportunities to give feedback to teachers about the classroom and instruction.

- **Identify expectations,** unpack why you have them, and reframe if necessary.
- **Professional Development**: As a department, identify expectations both within and across classrooms, and interrogate them for ways in which they uphold white supremacy culture and other dominant ways of being. (Re)align them with antiracist, social justice, transformative justice, and restorative justice practices.

End of the School Year : What are my expectations for next year? Preconceived expectations are steeped in the dominant culture. (continued)

2. REFLECT

What did I do in my classroom?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
Looking back at my questions from the beginning of the year, how have my beliefs shifted about students and parents who don't meet expectations? What beliefs do I still hold? What areas of growth do I need to consider for next year?	
How have I grown in my ability to reframe my thinking and judgment, and incorporate more unbiased information when something does not meet my expectations? Do I unpack whether my expectation is appropriate?	
How has structural racism impacted the families and community connected to my school?	
In what ways have I incorporated antiracist practices into my classroom?	

3. PLAN

How can I incorporate more antiracist practices into my classroom?

My goal(s) for next academic school year is (are)...	
The antiracist characteristics I want to work on this year are… (refer to **Characteristics of Antiracist Math Educators**)	
...because...	

End of the School Year : What are my expectations for next year? Preconceived expectations are steeped in the dominant culture. (continued)

4. ACT WITH ACCOUNTABILITY

How will I carry out my plan?

These are the steps I will take to enact my plan:	1. 2. 3.
_____ will hold me accountable for this plan in the following ways:	

5. REFLECT

Did I critically engage in antiracist work?

QUESTIONS FOR CONSIDERATION	REFLECTION NOTES
What helped or hindered me in carrying out my plan?	
In what ways can I continue this work next month, even as I shift my antiracist praxis to a new focus?	
How did engaging in antiracist work help my students succeed?	

References

Adichie, Chimamanda, "Danger of a Single Story: Chimamanda Adichie's Danger of a Single STory, TEDGlobal, 2009, *https://www.ted.com/talks/chimamanda_ngozi_adichie_the_danger_of_a_single_story?language=en*"

"Culturally Sustaining Pedagogy," California Department of Education, January 16, 2020, *https://www.cde.ca.gov/pd/ee/culturallysustainingped.asp*.

D'Ambrosio, Ubiratan. "What is ethnomathematics, and how can it help children in schools?" *Teaching Children Mathematics*, vol 7, issue 6 (February 2001) 308.

"dismantlingRacism 2016 Workbook," dismantlingRacism.org, 2016, https://resourcegeneration.org/wp-content/uploads/2018/01/2016-dRworks-workbook.pdf.

Ferlazzo, Larry. "Author Interview: 'Culturally Sustaining Pedagogies'," Education Week (blog), July 6, 2017, *https://blogs.edweek.org/teachers/classroom_qa_with_larry_ferlazzo/2017/07/author_interview_culturally_sustaining_pedagogies.html*.

Gutierrez, Rochelle. "Political Conocimiento for Teaching Mathematics: Why Teachers Need It and How to Develop It." In *Building Support for Scholarly Practices in Mathematics Methods*, edited by Signe E. Kastberg, et al., 11-38. North Carolina: Information Age Publishing, 2017.

Gutierrez, Rochelle. "*Living Mathematx: Towards a Vision for the Future.*" In *Proceedings of the 39th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, eds. Enrique Galindo and Jill Newton, 2–26 Indiana: Hoosier Association of Mathematics Teacher Educators, 2017.

Jackson, Robyn R. and Claire Lambert. *How to Support Struggling Students (Mastering the Principles of Great Teaching Series)*, Alexandra, VA: ASCD Publications, 2010.

Jones, Kenneth and Tema Okun. *"White Supremacy Culture," Dismantling Racism: A Workbook for Social Change Groups*, 2001, https://www.thc.texas.gov/public/upload/preserve/museums/files/White_Supremacy_Culture.pdf.

McLaren, Peter L. and Jean Jinsun Ryoo, Jenifer Crawford, Dianna Moreno. "Critical Praxis," in *Encyclopedia of Curriculum Studies*, ed. Craig Kridel, 51. Thousand Oaks, CA: Sage Publications, 2010.

Smith, Margaret Schwan and Mary Kay Stein. *5 Practices for Orchestrating Productive Mathematics Discussions*, Reston, VA: National Council of Teachers of Mathematics, 2011.