Breakout Session

Deborah Loewenberg Ball 🔰 @deborah_ball

Ontario Association for Mathematics Education Annual Conference April 28, 2023 • Toronto, Ontario

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Map of today's session



MARSAL EDUCATION **Z** TeachingWorks

- How is teaching powerful? 1.
- What are "continuities of 2. racial injustice"?
- What does it mean to talk 3 about "normalized" practice?
- 4. What are some specific inclusive practices to disrupt common patterns that marginalize?

UNIVERSITY OF MICHIGAN MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



How is 1. teaching powerful?



UNIVERSITY OF MICHIGAN MARSAL FAMILY SCHOOL OF EDUCATION **TEACHINGWORKS**



This work is licensed under a Creative Commons Attribution-Noncommercial-NoDerivatives 4.0 International License: https://creativecommons.org/licenses/by-nc-nd/4.0/ CC BY-NC-ND © 2023 Deborah Loewenberg Ball • School of Education • University of Michigan • Ann Arbor, MI 48109 • dball@umich.edu 3

Video: Is there a teacher who had a significant impact on you?





Teaching is powerful for individuals.

- Teaching can lift individuals up and support them to ٦. thrive and flourish.
- It can cause individual and lasting harm. 2.

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Teaching is powerful for individuals.

- Teaching can lift individuals up and support them to ٦. thrive and flourish.
- It can cause individual and lasting harm. 2.

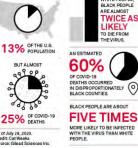
It is also powerful systemically.

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS









COVID-19 inequity in the US, by the numbers

BLACK PEOPLE REPRESEN

2. What are "continuities of racial injustice"?









UNIVERSITY OF MICHIGAN MARSAL FAMILY SCHOOL OF EDUCATION **TEACHINGWORKS**













 International License: https://creativecommons.org/licenses/by-nc-nd/4.0/

 © 2023 Deborah Loewenberg Ball • School of Education • University of Michigan • Ann Arbor, MI 48109 • dball@umich.edu

CC BY-NC-ND









This work is licensed under a Creative Commons Attribution-Noncommercial-NoDerivatives 4.0 International License: https://creativecommons.org/licenses/by-nc-nd/4.0/ © 2023 Deborah Loewenberg Ball • School of Education • University of Michigan • Ann Arbor, MI 48109 • dball@umich.edu 9

POLICE

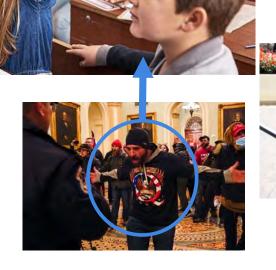












10



This work is licensed under a Creative Commons Attribution-Noncommercial-NoDerivatives 4.0 International License: https://creativecommons.org/licenses/by-nc-nd/4.0/ CC BY-NC-ND © 2023 Deborah Loewenberg Ball • School of Education • University of Michigan • Ann Arbor, MI 48109 • dball@umich.edu

POLICE

Racial injustice is systemic.

- Social systems are structured with patterns of racism and ٦. injustice.
- The people who work in these systems are educated in our 2. nations' schools.
- The teachers and curricula dominant in our education systems 3. comprise a curriculum of white supremacy.

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Racial injustice is systemic.

- Social systems are structured with patterns of racism and ٦. injustice.
- The people who work in these systems are educated in our 2. nations' schools.
- The teachers and curricula dominant in our education systems 3. comprise a curriculum of white supremacy.

It is also systemically embedded in normal teaching practice.

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



MARSAL EDUCATION

3. What does it mean to talk about "normalized practice"?

UNIVERSITY OF MICHIGAN MARSAL FAMILY SCHOOL OF EDUCATION TEACHINGWORKS







13

Everyday normalized practice

CLASSROOM RULES

Do as you're asked when you are asked.

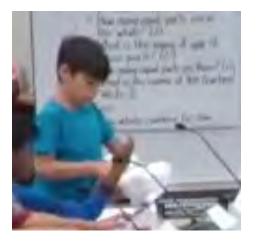
Listen in silence.

Put up your hand to speak.

Arrive on time to lessons with the correct equipment.

Keep hands, feet, objects and comments to yourself.



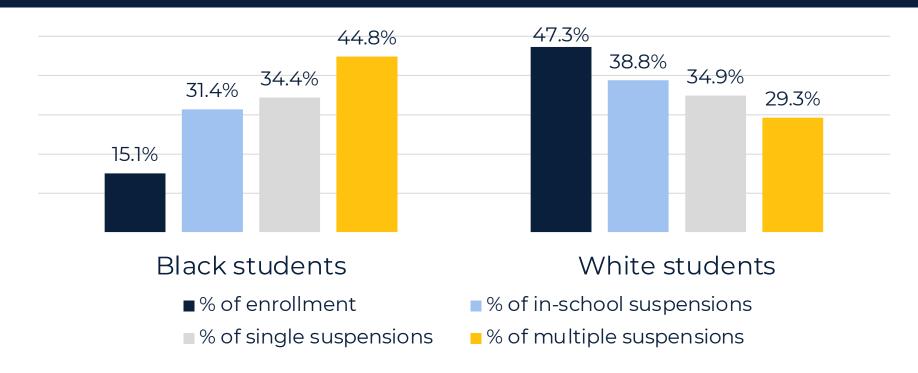






This work is licensed under a Creative Commons Attribution-Noncommercial-NoDerivatives 4.0 International License: https://creativecommons.org/licenses/by-nc-nd/4.0/ © 2023 Deborah Loewenberg Ball • School of Education • University of Michigan • Ann Arbor, MI 48109 • dball@umich.edu 14

Patterns of discipline and punishment



15

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS

Normalized practice is familiar

		Add,	Subtr	act a	nd Mu	utiply	(A)		
		Fin	d each s	um, diffe	erence o	r produ	т.		
5	12	7	4	1	. 4	9	9	3	1
* 0	- 4	= 6	+9	+ B	-3	- 7	- 0	- 3	- 5
9	7	9	5	5	2	з	2	12	
- 9	× 1	*3	-5	× 3	+ 0	+1	*б	- 7	-1
6	11	7	4	1	б	8	9	12	18
- 0	- 9	~1	× 0	* 5	+7	× 2	* 0	- 6	+
3	2	8	6	в	2	6	4	4	
×0	+ 5	+3	× 0	×7	*1	*4	*6	×7	+3
13	2	3	ī	13	б	3	9	0	10
-4	-1	+ 8	× 6	~9	×6	+2	1	+ 5	-2
0	8	9	11	5	7	11	6	8	
+3	*1	- 8	- 2	*1	_×0	-2	×1	*9	3.4
9	3	z	4	2	7	7	4	7	4
×5	+ 0	*2	×B	×ô	*6	- 2	*3	* 5	-1
s	8	8	6	в	8	5	3	10	
×3	× 3	*1	*6	×1	+5	-1	+ 0	- 2	×
13	6	12	9	11	5	9	1	4	3
-5	- 5	- 5	-1	- 9	+ 0	+ 8	+9	*6	*
5	8	10	5	9	10	1	D	8	12
-1	+7	- 6	×7	× 4	-1	+1	+1	1	-8

Math-Drills Com

But we can also be fooled into not seeing normalized practice even in "reform."

Norms are often invisible, precisely because they are "normal."

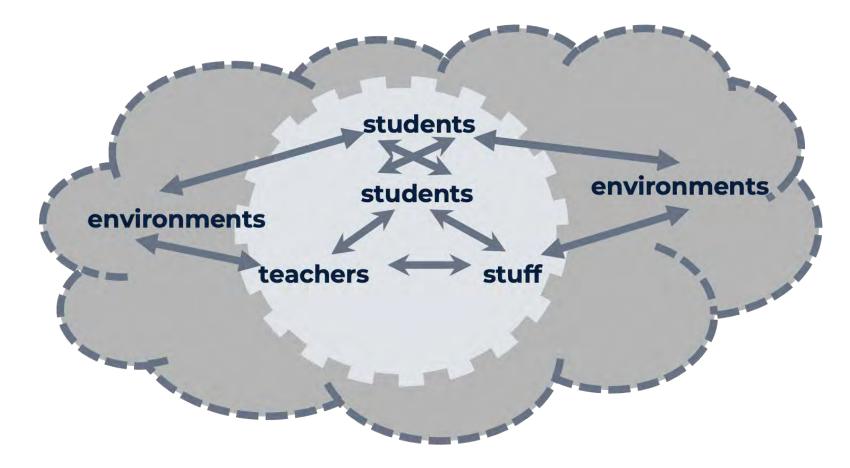
Their harms, and how they contribute to harm, are often not noticed.

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



This work is licensed under a Creative Commons Attribution-Noncommercial-NoDerivatives 4.0 International License: https://creativecommons.org/licenses/by-nc-nd/4.0/ © 2023 Deborah Loewenberg Ball • School of Education • University of Michigan • Ann Arbor, MI 48109 • dball@umich.edu 16





UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS

CC BY-NC-ND

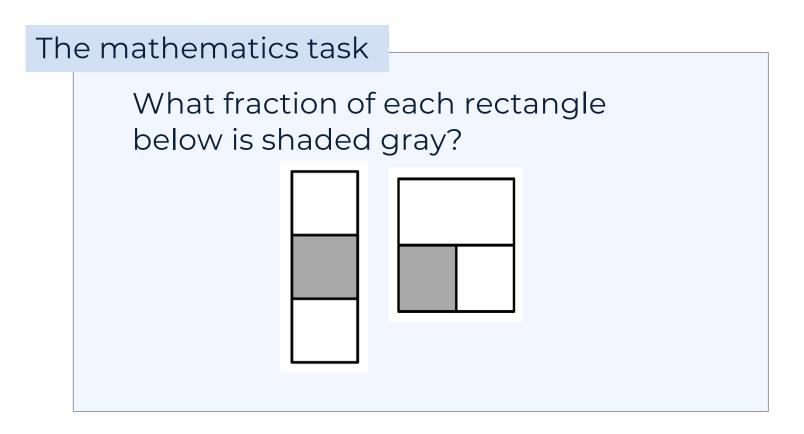
Specific inclusive practices to disrupt common patterns that marginalize

- Broadening what it means to "participate" ٦.
- 2. Acknowledging competence
- 3. Reframing "error"

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



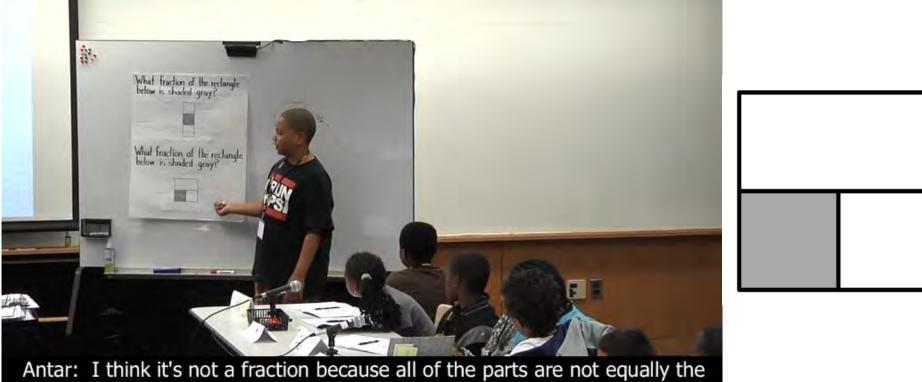




UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Video: Antar, Gabrielle, Gabi, Virshawn, Marquis, Kassie



Antar: I think it's not a fraction because all of the parts are not equally the same shape.

MARSAL EDUCATION **Z** TeachingWorks

Broadening what it means to "participate"

- What are the different forms of "participating" you see in ٦. this video?
- 2. How are these typical or different from common ways of participating?
- 3. What is valued and afforded by specific different forms of participating?

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Acknowledge mathematical competence

A set of practices that deliberately deploy the power of teaching to:

- Broaden and label what being competent in mathematics 1. means
- 2. Intervene on status hierarchies to position who (and what) is seen as competent in math class
- 3. Support individual students to develop their mathematical and academic identities and competence

Sources: E. Cohen and R. Lotan, complex instruction; J. Boaler's work; Smarter Together: Collaboration and Equity in the Elementary Mathematics Classroom (Featherstone, Crespo, et al., 2011);

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



What does "acknowledging competence" require in teaching?

- Broaden and label what being competent in mathematics means
- Intervene to position who ٠ (and what) is seen as competent in math class
- Support individual children to develop their mathematical and academic identities and competence

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



What does "acknowledging competence" require in teaching?

- Broaden and label what being competent in mathematics means
- Intervene to position who (and what) is seen as competent in math class
- Support individual children to develop their mathematical and academic identities and competence

- Be able to see what is "mathematical" and what is "competent"
- Have techniques for making these moves to intervene
- Strategically using these techniques with particular students in authentic and well-timed ways

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



M | MARSAL EDUCATION Ξ Teaching Works

Using techniques and strategies for acknowledging competence

- Identify the competence to be highlighted. Consider how to disrupt hierarchies of status in class by which student is to be "called out" as competent.
- Call out an individual student's competent move or contribution publicly ("____just shared a very important idea")
- Ask a student to explain another student's contribution that the teacher highlights
- Ask the class to identify things that were part of an important contribution by one of the students
- Write something publicly that a student came up with or contributed that is important
- Accord expertise to students through assigning roles explicitly in a group

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS

25



Distinguishing acknowledging competence from praise

Praise

- "Good job!" •
- "You're working so well today."
- "Nice work!"
- "I am proud of you." ٠
- "You're working like such good mathematicians." ٠
- "You made so much progress on the problems today." ٠

Praise – verbal feedback with the purpose of evaluating what a student says or does Acknowledging competence – intentional identifying, naming, and highlighting specific mathematical or learning competencies of what a student says or does

Acknowledging competence

- ★ "It was particularly clear how you used your drawing to explain your thinking."
- ★ "Belin gave a clear and specific mathematical explanation."
- ★ "You solved that in a really interesting way. Can you tell us more about your thinking?"
- ★ "Ibn used a very interesting method to show that there are no more solutions. Who can say what Ibn did?
- ★ "It is clear how closely you are following other people's thinking and connecting it to the idea you had."
- ★ "One thing that was really important about what Laken did was to use the definition we developed."

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS

What (not) to say?

- Be authentic
- Be sensitive to context and student
- Name specific and valuable • aspects of a student's contribution or way of doing/learning
- Say things designed to make ۲ the student feel affirmed and seen, and that other students will notice and value

Some frames:

"I want to highlight something valuable that ____ just did.

"What was especially important about what ____ just contributed to our discussion?"

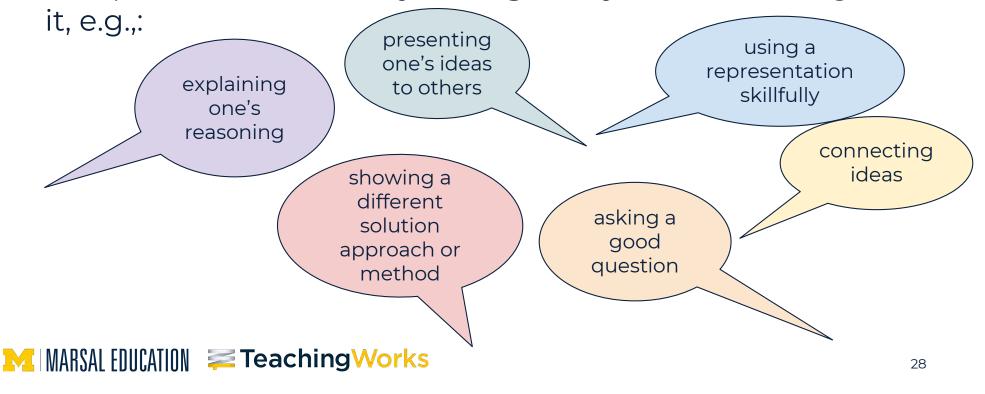
"Could you say/show that again? That is very important to our discussion '

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Practicing acknowledging competence

Identify **specific examples** of mathematics learning competence and **what you might say** to acknowledge



Acknowledging competence

Antar, Gabrielle, Gabi, Virshawn, Marquis, Kassie

- What competences do you notice?
- What might you **say** to acknowledge this competence and how could it affect the positioning of this student and what is seen as competent in this class?

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Foregrounding and using "errors"

Deliberately inviting or featuring "stuck" or "wrong" solutions

- Asking students to share and analyze "wrong" • interpretations, answers, methods
- Posing incorrectly solved problems and asking students to explain what is wrong and why someone might do this
- Designing problems that entail appraisal of a solution •

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



How we talk about "error" matters

- Making the environment "safe" is not all there is ullet
- "Errors" are a necessary part of mathematical work ٠
- Being "meta" about mathematical work is an important mathematical competence
 - Dwelling on things that go wrong or make you stuck
 - Analyzing solutions or methods that do not work, are not right

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



What is involved for the teacher in seeing and building on students' strengths?

- Listening carefully to what they say, reading attentively what they write
- Making deliberate choices about how to see and interpret students
- Both of these involve using what you know, but also • suspending what you assume

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Reconsidering error: Antar and Kassie

Antar "It's not a fraction." Kassie: "The answer is one and a half."

What can you hear in their statements that you can reframe away from "error"?

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Practice with scenarios



- A. You are leading a class discussion of a mathematics problem in your sixth-grade class. You want to distribute turns to all of your students equally and so you are using "equity sticks" to pull names at random. You ask the class to share their ideas about how they arrived at the solution. When you pull the name of Roberto, a Latino boy in your class, he says, "pass," and declines to respond to your question.
- B. Your class is coming in in the morning. You hear noise in the hallway. When you go out into the hall, you see two of your fifth-grade students—Lisa, a white girl, and Aliyah, a Black girl—tugging on a scarf. Lisa is crying. Aliyah pulls the scarf away and puts it in her locker.
- C. Your fourth-grade students are working with Cuisenaire Rods in groups around the room. A few times you remind them that the rods are not toys. Kendall, one of the Black boys, keeps building stacks of rods and knocking them down. After three reminders, you tell him he should go back to his seat. He gets up and stomps back to his desk, lifts up his desktop, and takes out a piece of paper and some markers.
- D. Adele, a white girl in your class, comes to school wearing short shorts. This is against the dress code. When you remind her that this is against the rules, she starts to get very teary. She says that her mother told her it would be okay because they are not really very short and she was going to a birthday party after school and they are going swimming.
- E. During independent journal time, Antonio, one of your Latino boys, has his head down on his desk and his hood up over his head. Melissa, the white girl sitting next to him, whispers loudy, "You're supposed to be writing." Antonio pushes her hand away. Melissa raises her hand for your attention. "He's not writing," she tells you.
- F. During your sixth-period class, your principal enters your class and interrupts the discussion to tell you that two of your Black girls were fighting at lunch and they need to come with him. One of them, Delia, is in the middle of explaining her thinking about one of the problems the class is discussing today. Other students go "Ooooh, Delia, you are in trouble now!" Lynette, the other girl whom he named, closes her book loudly and throws her pen down on her desk.
- G. You are setting your class up in small groups to discuss a mathematics proof. Two of your students complain about their group, saying that they don't want to work with Carla and Jeana because they are "too dumb and slow and they don't even speak English."

Structured work in three parts

- What are your reactions? How does the scenario make you feel? How does that relate to your identities and experiences?
- 2. What patterns of normalized practice and the curriculum of white supremacy does it make visible or imply?
- 3. What are possible responses or actions that avert or disrupt patterns of harm?

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS

34



- What are your reactions? How does the scenario make you feel? How does that relate to your identities and experiences?
- 2. What patterns of normalized practice and the curriculum of white supremacy does it make visible or imply?
- 3. What are possible responses or actions that avert or disrupt patterns of harm?

Scenario D

Adele, a white girl in your class, comes to school wearing short shorts. This is against the dress code. When you remind her that this is against the rules, she starts to get very teary. She says that her mother told her it would be okay because they are not really very short and she was going to a birthday party after school and they are going swimming.

Scenario F

During your sixth-period class, your principal enters your class and interrupts the discussion to tell you that two of your Black girls were fighting at lunch and they need to come with him. One of them, Delia, is in the middle of explaining her thinking about one of the problems the class is discussing today. Other students go "Ooooh, Delia, you are in trouble now!" Lynette, the other girl whom he named, closes her book loudly and throws her pen down on her desk.

UNIVERSITY OF MICHIGAN MARSAL FAMILY SCHOOL OF EDUCATION **TEACHINGWORKS**

Looking back across this session

Map of today's session



MARSAL EDUCATION 差 Teaching Works

- How is teaching powerful?
- 2. What are "continuities of racial injustice"?
- 3. What does it mean to talk about "normalized" practice?
- 4. What are some specific inclusive practices to disrupt common patterns that marginalize?

UNIVERSITY OF MICHIGAN MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



Z Teaching Works

Upcoming programs at TeachingWorks **Registration available now** Learn more at teachingworks.org



June 5-9, 2023 in Ann Arbor, MI Virtual Participation Available

Content Methods Laboratory Classes

Examine the teacher education content methods courses under a microscope, while honing your skills at designing practice-based teacher education.

teachingworks.org/methodslabclasses



July 24-28, 2023 in Detroit

Elementary Mathematics Laboratory

Explore the complexity of teaching and investigate and challenge what it means to use skillful teaching to disrupt patterns of injustice.

teachingworks.org/eml



Join the TeachingWorks Email List

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS



THANK YOU!



dball@umich.edu

https://deborahloewenbergball.com/

@deborah_ball

UNIVERSITY OF MICHIGAN | MARSAL FAMILY SCHOOL OF EDUCATION | TEACHINGWORKS





Image on slide 7: Photo from "Mass Incarceration Is Declining — But Not For Women" by Robert P. Alvarez, Institute for Policy Studies. Retrieved from https://ips-dc.org/mass-incarceration-is-declining-but-not-for-women/



Image on slide 7:

Photo from "Housing cuts would exacerbate inequality" by Laura Mascuch, Kristin Miller, Jolie Milstein, and Barika Williams, New York Daily News. Retrieved from https://www.nydailynews.com/opinion/ny-oped-housing-cuts-wouldexacerbate-inequality-20200623-k2qxn6btrvh6bos6sqwlijokby-story.html

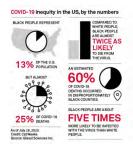


Image on slide 7:

Graphic from "Enough is enough': Gilead-Morehouse study racial, ethnic disparity in COVID-19," by Michael Gibney, S&P Global Market Intelligence. Retrieved from https://www.spglobal.com/marketintelligence/en/news-insights/latestnews-headlines/enough-is-enough-gilead-morehouse-study-racial-ethnic-disparity-incovid-19-60035253

MARSAL EDUCATION Z TeachingWorks





Image on slide 7: Graphic from "Six policies to reduce economic inequality" by john a. powell, Othering & Belonging Institute. Retrieved from https://belonging.berkeley.edu/six-policies-reduce-economic-inequality



Image on 7: Photo from "On International Day, UN spotlights indigenous peoples' right to education," United Nations. Retrieved from https://news.un.org/en/story/2016/08/536292-international-day-unspotlights-indigenous-peoples-right-education



Image on slide 7: Photo from "UN agrees to urgent debate on racism and police violence," Deutsche Welle (DW). Retrieved from https://www.dw.com/en/un-agrees-to-urgent-debate-on-racism-and- police-violence/a-53807879

MARSAL EDUCATION Z TeachingWorks





Image on slide 7: Photo from "Black and Hispanic women, less educated workers among those hardest hit by COVID-19 job losses" by Sara Savat, The Source, Washington University in St. Louis. Retrieved from https://source.wustl.edu/2021/04/black-and-hispanic-women-lesseducated-workers-among-those-hardest-hit-by-covid-19-job-losses/



Image on slides 8–10: Photo from "Why You Need an Experienced Real Estate Agent" by Elizabeth Weintraub, the balance. Retrieved from https://www.thebalance.com/experienced-real-estate-agents-1798883



Image on slides 8–10: Photo from "Black doctors earn less than white peers, study reveals" by Stacy M. Brown, The Philadelphia Tribune. Retrieved from https://www.phillytrib.com/lifestyle/health/black-doctors-earn-less-thanwhite-peers-study-reveals/article_2d359910-85c8-524b-b6d2-15d1705ad762.html

MARSAL EDUCATION Z TeachingWorks





Image on slides 8–10: "Police." by Flickr user G20 Voice Licensed under a Creative Commons Attribution 2.0 Generic License <u>https://creativecommons.org/licenses/by/2.0/</u>



Image on slides 8–10: Photo from "Want to be a poll worker? Philly says it's responding to 'unprecedented' number of applicants" by Ximena Conde, WHYY Retrieved from <u>https://whyy.org/articles/want-to-be-a-poll-worker-philly-says-its-</u> responding-to-unprecedented-number-of-applicants/



Image on slides 8–10: Photo from "Trump Rioters Storm U.S. Capitol (photos)," Variety Retrieved from <u>https://variety.com/gallery/trump-rioters-storm-us-capitol-photos/congress-electoral-college-8/</u>

MARSAL EDUCATION 🚝 Teaching Works



Image on slides 9–10: Photo from "20 Classroom Interventions for Children with Anxiety Disorders" by Jerry Kennard, Ph.D., HealthCentral. Retrieved from <u>https://www.healthcentral.com/article/20-classroom-interventions-for-</u> <u>children-with-anxiety-disorders</u>



Image on slide 10: Photo from "10 Ways Well-Meaning White Teachers Bring Racism Into Our Schools" by Jamie Utt, *everyday feminism*. Retrieved from <u>https://everydayfeminism.com/2015/08/10-ways-well-meaning-white-</u> teachers-bring-racism-into-our-schools/



Image on slide 13: Photo from "Cause for Alarm: Addressing North Carolina Early Childhood Suspension and Expulsion Rates," by Ebonyse Mead, MA, MS, CFLE and Kara Lehnhardt, MBA Retrieved from <u>https://www.smartstart.org/cause-for-alarm-addressing-north-carolina-</u> <u>early-childhood-suspension-and-expulsion-rates/</u>

MARSAL EDUCATION 🚝 Teaching Works



Image on slide 13: Image from "Rug Rules. Carpet Time," by elaulaconbotas Retrieved from https://elaulaconbotas.wordpress.com/2015/12/21/rug-rules-carpet-time/



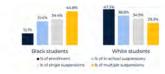
Image on slide 13: Photo from "Great classrooms have 6 things in common: What to look for" by Nancy Kaffer, Detroit Free Press. Retrieved from https://www.freep.com/story/opinion/columnists/nancy- kaffer/2019/09/03/signs-successful-classroom/2162878001/



Image on slide 14: Photo from "When can my school discipline me? What is corporal punishment," by Judge Tom, AskTheJudge.info Retrieved from http://askthejudge.info/what-is-corporal-punishment/

MARSAL EDUCATION Z TeachingWorks





Data on slide 15: U.S. Department of Education Office for Civil Rights. (2021). 2017–18 State and National Estimations. [Data spreadhseets]. Retrieved from <u>https://ocrdata.ed.gov/estimations/2017-2018</u>

		Fit	ed ends a	aes, 625	entone o	e produ	10		
5	12	7	.1	1	1	.7		3	11
	12	.9	5	5	2	3	2	12	- 5
-9	×1	+3	-5	<u>_×3</u>	+0	+1	×6.	- 7	?
6	11	7	.4	1	6	. 6	. 4	12	1.13
- 6	- 19	~1	- 10	+5	+2		-0	6	- 1
3	- 2	. 8	6.	8	2	. 6		. 4	
că	+5	+2	+0	×7	×1	*4	_×6	<u>×7</u>	+3
13	2	. 8	1	13	6	×	. 9.	υ	10
-4	-1	+8	- 16	9	×6	+2	-4		-3
۰.		9	31	5	7	11	. 6.		. 4
+3	*1	- 0	-2	*1	*0	-2	+1	+9	- 14
	3	2	4	2	7	7	. 4	7	
<.5	+0	+2	+8	_×6	*6	-2	*3	*5	-1
5	a		. 6		0	5	3	10	. 7
• 3	+3	-*1	+6	->1	+5	-1		-2	- 14
13	6	12	9.	11	-5			4	. 3
-5	-5	-5	-1	- 9	+0	+1	+9	×6	*5
5	8	10	5		10	2		8	12
-1	+7	- 6	4.7	<u>×4</u>	-1	-+1	+1	_1	-1

Image on slide 16: "The Adding, Subtracting and Multiplying with Facts From 0 to 9 (A) Math Worksheet Page 1" Retrieved from <u>https://www.math-</u> drills.com/multiop/mixed_operations_asm_vertical_100_0009_0009_001.php

