Social Justice Mathematics and Science Curricular Resources for K-12 Teachers https://bit.ly/SJMathScienceResources

Compiled by Dr. Kari Kokka | Please share with others and cite me please:)

[Posted June 5, 2020 https://twitter.com/karikokka/status/1269067013042982912 and I continue to add to this list.]

It would be great if you let me know (via email or Twitter) with whom/where you share it.

I figure I can add it to my dossier for when I go up for tenure thank you!

@karikokka | kokka@pitt.edu | www.karikokka.com

Welcome Note: Thank you for visiting! These resources are a starting point and not a thorough/complete list. This is a living document, and I continue to add resources. Please feel free to reach out to me via email or Twitter to add resources. I will credit your suggestions when I add them, thank you! Also, this work requires our commitment to our ongoing learning about and dismantling systems of oppression, true love and partnership with our students, and constant growth and reflection. There is no "magic pill" or easy way to engage in this work, and we must be mindful of students' well-being. (See Dr. Shawn Ginwright's work on Radical Healing and Healing Centered Engagement.) I look forward to our journey to collectively learn about social justice mathematics and science teaching. [PS. I am a mathematics educator and therefore there are more math ed resources here. I have been learning the science ed literature because I have been teaching math and science methods courses at Pitt. Apologies that the science ed resources are not as robust. Feel free to reach out to add more! I am not super tech savvy, but I hope this is clear and useful, thank you!]

Social Justice Mathematics and Science Online Resources

Racial Justice in Early Math | Erikson Institute Early Math Collaborative

https://earlymath.erikson.edu/promisingmath/racial-justice/

Black History Month and Mathematics

https://francesharper.com/2021/02/15/black-history-month-mathematics/?fbclid=IwAR3jGANCyogbH7x l60gn95Hx0MQczr4xjM9jXf]13sl-4vmDlND-3CqVjmk

A Pathway to Equitable Math Instruction | Dismantling Racism in Mathematics Instruction | Exercises for educators to reflect on their own biases to transform instructional practice https://equitablemath.org/ https://educators.org/ https://educators.org/</

NYT Teach Inequality with these 28 NYT Graphs (thank you Isabel Crain)

https://www.nytimes.com/2021/05/11/learning/lesson-plans/teach-about-inequality-with-these-28-new-yor k-times-graphs.html

NYT What's going on in this graph? https://www.nytimes.com/column/whats-going-on-in-this-graph Over 60 NYT Graphs for students to analyze

https://www.nytimes.com/2020/06/10/learning/over-60-new-york-times-graphs-for-students-to-analyze.html
YouCubed Data Science Lessons https://www.youcubed.org/data-science-lessons/ [Thank you Mandy Decker]

Dr. Robert Berry's Social Justice Mathematics Resource Padlet https://padlet.com/rqb3e/sjmathresources
The Underrepresentation Curriculum https://underrep.com/

American Statistical Association Resources for K-12 educators https://www.amstat.org/asa/education/K-12-Educators.aspx
Electoral College social justice math lesson by Charles Snyder

 $\frac{https://teacher.desmos.com/activitybuilder/custom/5fa02d0bdb77d70bfeb1fc0b?fbclid=IwAR0zpWqEQXigIf9QgoL5MboMcx\ wwIjENpcH7paC3gdwo\ wqKMWni-aA\ XA$

Algebra 2 units from @benjamindickman as informed by (e.g.) the Teaching Tolerance Social Justice Standards:

https://docs.google.com/document/d/1Mldcf56b21KZ4Odug9V4CELrpjXbKGcatcP--mq_8L0/edit OpenSciEd COVID Health Equity Units https://www.openscied.org/covid-19-health-equity/ UCLA Ethnic Studies Math and Science Resources https://bit.ly/ESMath_Science NCTM Social Justice and Equity Resources https://www.nctm.org/socialjustice/

Syllabus: A History of Anti-Black Racism in Medicine

https://www.aaihs.org/syllabus-a-history-of-anti-black-racism-in-medicine/?fbclid=IwAR3n5a23qey5e38wCgfHikXQ8PNqcl7bXyGuNaAXn5uKQLiJGeHRFDhjxVQ

Nepantla Teachers Community Cohorts https://nepantlateachers.wixsite.com/website/2020-summer-cohort

Black Lives Matter at School https://blacklivesmatteratschool.com/ [Curated by Chris Rogers. Click on lesson plans.

There are math and science lessons here. I have some here, but I need /would love to improve them.]

Creating Balance in an Unjust World Conference on STEAMM Education and Social Justice curricular resources http://www.creatingbalanceconference.org/resources/

Antiracist Mathematics Education Resource List

https://docs.google.com/document/d/1vD3p3oX8xszq9ShrjfIbyFoZkEUUIc WxutFINEgHK8/edit?usp=sharing http://bit.ly/antiracistmath

Social Justice Math lessons from Frances Harper's site https://francesharper.com/social-justice-math/

Algebra for Equity and Justice by Dr. Nathan Alexander

Radical Math http://radicalmath.org/

Data for Black Lives http://d4bl.org/

Math and Social Justice: A Collaborative MTBoS Site

https://sites.google.com/site/mathandsocialjustice/curriculum-resources

The Underrepresentation Curriculum Project https://underrep.com/ [Thank you @danny_doucette]

Algebra Project https://algebra.org/wp/

Young People's Project http://www.typp.org/

Access, Agency, and Allies in Mathematical Systems Antiracist Tool

https://sites.google.com/go.olemiss.edu/a3ims/antiracist-tool

Teachers Empowered to Advance Change in Mathematics (Teach Math) https://teachmath.info/

Mathematical Modeling with Cultural and Community Contexts

https://sites.google.com/a/uw.edu/dr-julia-aguirre/research/mathematical-modeling-with-cultural-and-community-contexts-m2c3

Pi Before Dinner Resources for Teachers and Parents https://www.pibeforedinner.com/ [Thank you Drs. Lou Matthews and Natalie Holliman]

Inspire Math Changing the Face of Mathematics https://www.inspiremath.org/ [Thank you Dr. Lou Matthews]
Science Educators for Equity Diversity and Social Justice http://seedsweb.org/ [Thank you Dr. Sarah Tolbert and Renée Agatsuma]

Bioneers Revolution from the Heart of Nature https://bioneers.org/

<u>Investigating Environmental Racism in the High School Biology Classroom NSTA</u> [Thank you Dr. Andy Weatherhead]

Teaching STEM In Ways that Respect and Build Upon Indigenous Peoples' Rights [Thank you Dr. Andy Weatherhead]

TODOS webinars https://vimeo.com/user56336191 and podcasts https://todosmath.podomatic.com/

Science Educators for Equity Diversity and Social Justice

Teaching, Learning, and Loving Mathematics blog by Dr. Maria Zavala

Woke Math Ethnic Studies Math blog by Shraddha Shirude

Liberatory Design Cards https://dschool.stanford.edu/resources/liberatory-design-cards

STEM to the Future https://www.stemtothefuture.org/

Math Anywhere https://www.mathanywhere.org/

Mathematical Modeling with Cultural and Community Contexts

https://sites.google.com/qc.cunv.edu/m2c3/home

Ethnomathematics Lessons https://sites.google.com/site/ethnomathematics/lesson-plans

Ethnomathematics: Mathematics de TODOS

https://www.todos-math.org/index.php?option=com_dailyplanetblog&view=entry&year=2019&month=05 &day=22&id=11:ethnomathematics-mathematics-de-todos

School Diversity 6th grade math lesson by Kevin Nguyen

https://drive.google.com/drive/folders/1crp541eHFU8YxteQbCKX81El8Mm7iBkP

Civic Laboratory for Environmental Action Research (CLEAR) is a feminist, anti-colonial, marine science laboratory. They have projects on plastic pollution and wild food as well as methodological projects.

https://civiclaboratory.nl/ [Thank you Dr. Nicole Fletcher]

National Alliance for Partnerships in Equity STEM equity page

https://napequity.org/stem/#:~:text=Specifically%2C%20its%20STEM%20Equity%20Pipeline,completion %20of%20students%20in%20STEM [Thank you Dr. Nicole Fletcher]

Benjamin Dickman recently posted a preprint of an article he recently submitted on his social justice algebra 2 work. The article can be found here:

https://www.researchgate.net/publication/353270334 What's in a name Absolute Value Algebraic Identi ty [Thank you Dr. Nicole Fletcher]

Science Education Partnership Fred Hutchinson Cancer Research Center

https://www.fredhutch.org/en/about/education-outreach/science-education-partnership/sep-curriculum.html [Thank you Renée Agatsuma]

Culturally Responsive Education STEM High School Toolkit https://sites.google.com/view/crestemtoolkit [Thank you Dr. Glenn Waddell]

Social Justice Education Resources

Harvard Graduate School of Eductaion (HGSE) Solidarity Collective for Black Lives Action Committee email Parastoo Massoumi for the Google Spreadsheet of Black, Anti-racist, & Critical Scholarship Recommendations parastoo.massoumi@g.harvard.edu

UCLA Ethnic Studies Teacher Resources http://www.teachethnicstudies.org/

So You're Thinking About Becoming an Abolitionist by Miriame Kaba

https://level.medium.com/so-voure-thinking-about-becoming-an-abolitionist-a436f8e31894

Abolitionist Teaching Network https://abolitionistteachingnetwork.org/

If You're New to Abolition: Study Group Guide https://abolitionjournal.org/studyguide

Teachers 4 Social Justice Virtual Resources Fair

https://t4sj.org/events/2020-conference-virtual-edition/virtual-resource-fair/

Center for Urban Education University of Pittsburgh https://www.cue.pitt.edu/

4 I's of Oppression Resources by UCLA Teacher Education Program Ethnic Studies Pathway https://bit.ly/4IsofOppression

Antiracist Teaching Resources curated by Dr. Edwin Mayorga

Education and Criminalization Do #Black Lives Matter in Schools compiled by Dr. Subini Annamma

People's Ed LA Teaching Resources

Resources for Supporting Black Lives Matter and Being an Antiracist. There is no in between periodt.

<u>Curated by Dr. Tia Madkins @ProfTiaMadkins</u>

Six Elements of Social Justice Pedagogy by Dr. Bree Picower http://www.usingtheirwords.org/6elements/

Teaching Tolerance https://www.tolerance.org/

Civil Rights Teaching https://www.civilrightsteaching.org/

Rethinking Schools https://www.rethinkingschools.org/

Teaching for Change https://www.teachingforchange.org/

Social Justice Books https://socialjusticebooks.org/store/

Zinn Education Project https://www.zinnedproject.org/

Facing History https://www.facinghistory.org/

Equity Literacy Institute https://www.equityliteracy.org/equity-literacy [Thank you @ZingerLearns]

Leading Equity Center https://www.leadingequitycenter.com/ [Thank you @ZingerLearns]

Southern Poverty Law Center https://www.splcenter.org/teaching-tolerance [Thank you Laura McCracken]

Culturally Responsive Teaching and the Brain with Zaretta Hammond https://crtandthebrain.com/

Podcast Episodes Related to Education curated by Dr. Molade Osibodu https://bit.ly/37ryrrA

Critical Resistance http://criticalresistance.org/

#HipHopEd https://hiphoped.com/

Educating for Black Lives Routledge

Becoming an anti-racist educator Wheaton College

 $\frac{\text{https://wheatoncollege.edu/academics/special-projects-initiatives/center-for-collaborative-teaching-and-learning/anti-racist-educator}{\angle}$

Racial Equity Tools https://www.racialequitytools.org/home

Dismantling Racism Works https://www.dismantlingracism.org/

Being Antiracist Smithsonian https://nmaahc.si.edu/learn/talking-about-race/topics/being-antiracist

Pledge to Act https://www.pledgetoact.org/

A Guide to Equity and Antiracism for Educators by Hedreich Nichols Edutopia

https://www.edutopia.org/article/guide-equity-and-antiracism-educators

Sylvia Duckworth's infographics re: CRT and more https://www.flickr.com/photos/sylviaduckworth/

The Scholar Strike youtube page has a lot of great videos. Most are not directly related to STEM but there are a couple that are: https://www.youtube.com/channel/UCu76Immw5Fuj2bajTDCXwKQ/videos [Thank you Dr. Nicole Fletcher]

Grassroots Teacher Activist Organizations and Conferences

Creating Balance in an Unjust World Conference on STEAMM Education and Social Justice www.cbuw.org www.cbuw.org <a href="https://doi.org/doi.org/doi.org/10.1007/justice-www.cbuw.org/doi.org/10.1007/justice-www.org/doi.org/10.1007/justice-www.org/doi.org/10.1007/justice-www.org/doi.org/10.1007/justice-www.org/doi.org/doi.org/10.1007/justice-www.org/doi.org/doi.org/10.1007/justice-www.org/doi

Radical STEMM Educators of the Bay Area https://www.facebook.com/groups/TM4SJ/

@RadicalSTEMMEd

Abolition Science Radio https://www.abolitionscience.org/ @abolition_sci

New York Collective of Radical Educators NYCORE http://nycore.org/@NYCORE3000

People's Education Movement Bay Area https://peoplesedbayarea.wordpress.com/ IG: @peoplesbayarea

People's Education Movement LA https://peoplesed.weebly.com/ @peoples_ed

Nepantla Teachers Community https://nepantlateachers.wixsite.com/website

Washington State Ethnic Studies Now https://waethnicstudies.com/

Education for Liberation Network https://www.edliberation.org/

Free Minds Free People https://fmfp.org/

Teachers 4 Social Justice https://t4sj.org/ Bay Area

Teachers for Social Justice http://www.teachersforjustice.org/ Chicago

Abolitionist Teaching Network https://abolitionistteachingnetwork.org/

National Network of Teacher Activist Groups https://teacheractivists.org/

Black Teacher Project https://www.blackteacherproject.org/

Northwest Conference on Teaching for Social Justice https://nwtsj.org/wp/ [thank you Renée Agatsuma]

Scholar Organizer Collectives

Critical Educators for Social Justice SIG http://www.cesjsig.org/about-cesj.html

CARE-ED in California: https://www.care-ed.org
CReATE in Chicago: https://createchicago.weebly.com/
HSESJ in Hawai'i: https://hawaiischolars.wordpress.com/

EDJE, the nationwide deans network: https://www.educationdeans.org

Kevin Kumashiro's work https://www.kevinkumashiro.com/

Just Mathematics Collective https://www.justmathematicscollective.net/

Books

Rehumanizing mathematics for Black, Indigenous, and Latinx students edited by Drs. Imani Goffney, Rochelle Gutiérrez

A People's Curriculum for the Earth: Teaching Climate Change and the Environmental Crisis

https://www.rethinkingschools.org/books/title/a-people-s-curriculum-for-the-earth

Teaching for Black Lives https://www.rethinkingschools.org/books/title/teaching-for-black-lives Rethinking Mathematics

https://www.rethinkingschools.org/books/title/rethinking-mathematics-second-edition

High School Mathematics and Science Lessons to Explore, Understand, and Respond to Social Injustice

by Drs. Robert Q. Berry III, Basil M. Conway IV, Brian R. Lawler and John W. Staley

https://resources.corwin.com/TMSJ-highschool

Radical Equations by Bob Moses and Charles Cobb

https://www.penguinrandomhouse.com/books/206027/radical-equations-by-robert-p-moses/9780807031278/

Impact of Identity in K-8 Mathematics: Rethinking Equity Based Practices by Drs. Julia Aguirre, Karen Mayfield-Ingram, and Danny Martin

https://www.nctm.org/Store/Products/The-Impact-of-Identity-in-K-8-Mathematics--Rethinking--Equity-Based-Practices/

Science in the City by Dr. Bryan Brown https://scienceinthecity.stanford.edu/

Rethinking Ethnic Studies https://www.rethinkingschools.org/books/title/rethinking-ethnic-studies

Race After Technology Abolitionist Tools for The New Jim Code by Dr. Ruha Benjamin

https://www.ruhabenjamin.com/race-after-technology

Captivating Technology Race, Carceral Technoscience, and Liberatory Imagination in Everyday Life edited by Dr. Ruha Benjamin https://www.dukeupress.edu/captivating-technology

Peoples Science by Dr. Ruha Benjamin https://www.ruhabenjamin.com/peoples-science

Teaching Mathematics for Social Justice Conversations with Educators Edited by Drs. Anita A. Wager and David W. Stinson

We Want To Do More Than Survive by Dr. Bettina Love https://bettinalove.com/

Beyond Banneker: Black Mathematicians and the Paths to Excellence [thank you Dr. Jamylle Carter]

Martin, D.B. (Ed.) (2009). Mathematics teaching, learning, and liberation in the lives of Black children.

London: Routledge. [thank you Dr. Jamylle Carter]

Teaching Science for Social Justice by Angela Calabrese Barton [thank you Dr. Rabiah Harris]

STEM Rich Maker Learning: Designing for Equity with Youth of Color by Drs. Angela Calabrese Barton and Edna Tan

Mathematics for Social Justice: Resources for the College Classroom Edited by Drs. Gizem Karaali and Lily S. Khadjavi [thank you Dr. Gizem Karaali and Dr. Lily Khadjavi]

Reflecting the World: A Guide to Incorporating Equity in Mathematics Teacher Education by Felton-Koestler,

Simic-Muller, & Menéndez [thank you Dr. Matt Felton-Koestler]

Reading and Writing the World in Mathematics: Toward a Pedagogy for Social Justice by Dr. Eric (Rico) Gutstein

Bank Street Occasional Paper Series Critical Mathematical Inquiry [thank you Dr. Steven Greenstein]

Weapons of Math Destruction by Dr. Cathy O'Neill https://weaponsofmathdestructionbook.com/

Multiplication is for White People by Dr. Lisa Delpit

Erica Walker's books Beyond Banneker: Black mathematicians and the paths to excellence

https://www.maa.org/press/maa-reviews/beyond-banneker-black-mathematicians-and-the-paths-to-excellence [Thank you Dr. Nicole Fletcher]

Building Mathematics Learning Communities: Improving Outcomes in Urban High Schools

https://www.tcpress.com/building-mathematics-learning-communities-9780807753286 [Thank you Dr. Nicole Fletcher]

Math Ed and Science Ed Literature [I do not include the critical math and science education research literature. I humbly encourage you to create your own list of the research literature!]

Pedagogical resources [I do not include these either, e.g, Complex Instruction, reform-oriented, standards based instruction, but I encourage you to look to those resources also, e.g., www.YouCubed.org]

Mathematics and Mathematics Education Organizations

[I am not including mainstream/dominant math ed orgs here, but they do good work too.]

TODOS Mathematics for All https://www.todos-math.org/

Benjamin Banneker Association http://bbamath.org/ [thank you Dr. Shelley Jones]

Lathisms Latinxs and Hispanics in Mathematics and Science http://lathisms.org/[thank you Dr. Mandy Ruiz] Mathematically Gifted and Black https://mathematicallygiftedandblack.com/[thank you Dr. Mandy Ruiz] National Association of Mathematicians [thank you Dr. Jamylle Carter]

Selected Readings and Videos

Six reasons why I want my white child to take ethnic studies by Ion Greenberg

Dr. Ibram Kendi on Democracy Now standardized testing and the eugenics movement

Eugenics movement

Race the Power of an Illusion https://www.racepowerofanillusion.org/

Pushout: The Criminalization of Black Girls in School Dr. Monique Morris

Silenced Dialogue: Power and Pedagogy in Educating Other People's Children by Dr. Lisa Delpit

Future of Healing by Dr. Shawn Ginwright

13th by Ava DeVurney

The New Jim Crow by Michelle Alexander

James Baldwin A Talk to Teachers

Subversive Teaching to Rehumanize Mathematics by Dr. Rochelle Gutierrez

Abolitionist Teaching Resources

[from the Repurposing Our Pedagogies: Abolitionist Teaching in a Global Pandemic webinar with Dr. Bettina Love, Dr. Steph Cariaga, Dr. Carla Shalaby, Marylin Zuñiga, Sagnicthe Salazar, moderated by Dr. Farima Pour-Khorshid, and Dr. Chrissy Hernandez, organized by the Education for Liberation Network, Critical Resistance Education, and Abolition Collective]

Resources Shared by Panelists:

adrienne maree brown, Emergent Strategy: Shaping Change, Changing Worlds

Akiea Gross, Woke Kindergarten: Teaching Protest Resource

Akiea Gross, Woke Kindergarten: Wings Read Aloud

Angela Davis, Are Prisons' Obsolete?

Angela Davis & Dylan Rodriguez, The Challenge of Prison Abolition: A Conversation

Audre Lorde, A Burst of Light: And Other Essays

Audre Lorde, "The Uses of Anger: Women Responding to Racism" (also printed in Sister Outsider)

Black and Emotional and Mental Health Collective (wellness check-ins, trainings, and other resources),

https://www.beam.community/events

Critical Resistance's site that offers a lot of tools for thinking, learning and practicing abolition

Harper Keenan, Unscripting Curriculum: Toward a Critical Trans Pedagogy

Chrissy Anderson-Zavala, Patricia Krueger-Henney, Erica Meiners & Farima

Pour-Khorshid, "Fierce Urgency of Now: Building Movements to End the Prison Industrial Complex in Our Schools"

Jay Gillen, Educating for Insurgency: The Roles of Young People in Schools of Poverty

Jay Gillen, Power In The Room: Radical Education Through Youth Organizing and Employment

Lama Rod Owens, Love and Rage, forthcoming book (and other resources)

Leah Lakshmi Piepzna-Samarasinha, Care Work: Dreaming Disability Justice

Bettina Love, We Want to Do More Than Survive: Abolitionist Teaching and the Pursuit of Educational Freedom Mariame Kaba & Shira Hassan, Fumbling Towards Repair: A Workbook for Community Accountability Facilitators

MDP 150 graphics around building a police free future

Prentis Hemphill, Healing Justice is How We Can Sustain Black Lives

Quetzal Education, Culturally Sustaining Consulting Firm www.quetzalec.com

Rachel Kushner, Is Prison Necessary? Ruth Wilson Gilmore Might Change Your Mind

Resmaa Menakem, My Grandmother's Hands: Racialized Trauma and Mending Our Hearts and Bodies

Sol Development, The Sol of Black Folk

Staci Haines, The Politics of Trauma: Somatics, Healing, and Social Justice

Subini Annamma, The Pedagogy of Pathologization: Dis/abled Girls of Color in the School-Prison Nexus

Tawana Petty, Towards Humanity: Shifting the Culture of Antiracism Organizing

Zinn Education Project's teaching the history of policing to elementary and HS students

About me: I, Dr. Kari Kokka (she/her), am an Assistant Professor of Mathematics Education in the School of Education at the University of Pittsburgh. I study student and teacher perspectives of Social Justice Mathematics and STEM teacher activism. I am from the Bay Area, CA and have been an educator for the past 23 years. My most influential teaching experiences were learned during my ten years as a mathematics teacher, mathematics coach, and organizer at Vanguard High School, a Title I public New York City high school and part of the Coalition of Essential Schools and New York Performance Standards Consortium. I am co-founder of the Creating Balance in an Unjust World Conference on STEAMM Education and Social Justice (founded in 2007), former co-chair (2017-2019) of the Critical Educators for Social Justice SIG, and have been involved with the Radical STEMM Educators of the Bay Area, People's Education Movement, and the New York Collective of Radical Educators. I completed my Ed.D. at the Harvard Graduate School of Education (2017), my M.A. with the Stanford Teacher Education Program (2001), and my B.S. in Mechanical Engineering at Stanford University (1999). I've had the opportunity to share about my work with the Abolition Science podcast, the Leading Equity podcast, and University of Pittsburgh faculty profile or at www.karikokka.com. I can be reached at kokkka@pitt.edu or via Twitter @karikokka.