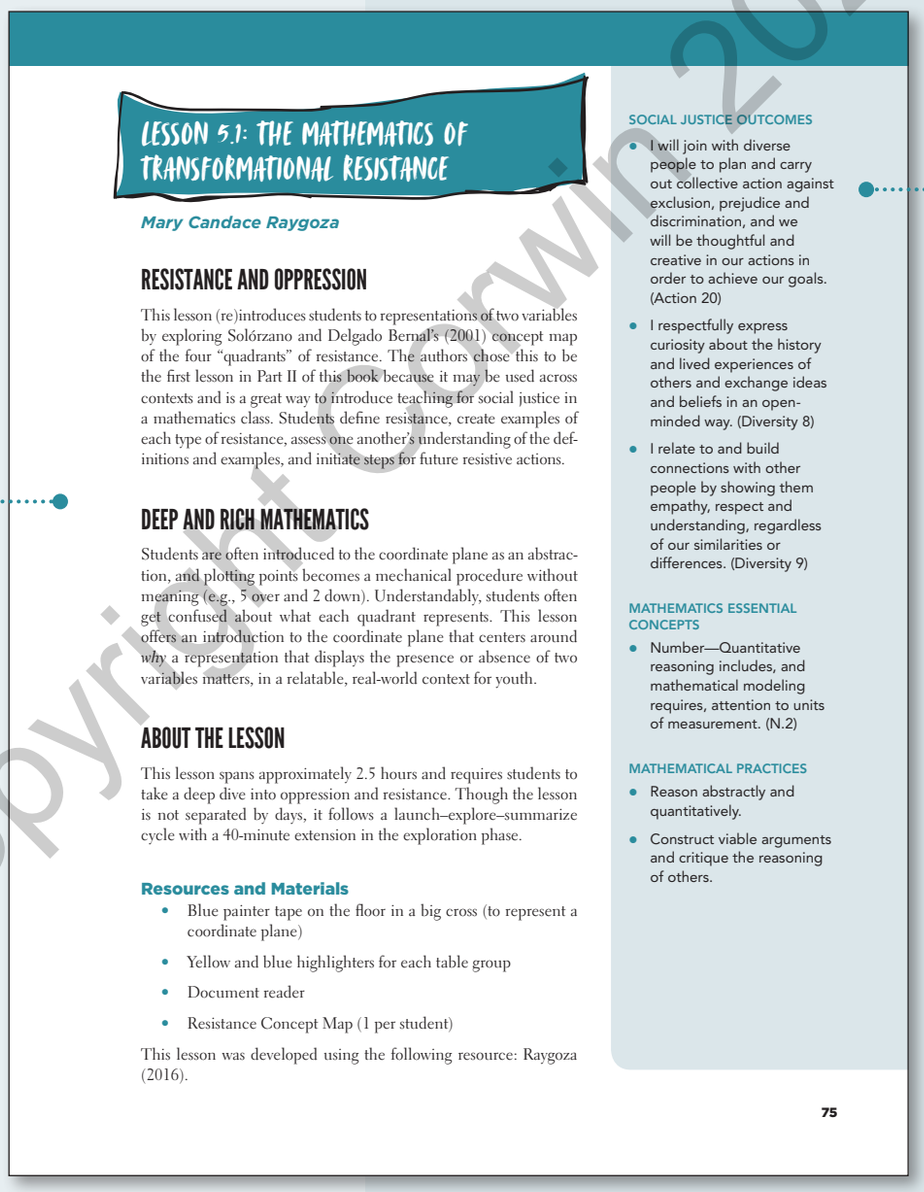
High School Mathematics Lessons to Explore, Understand, and Respond to Social Injustice

at a Glance

In addition to pedagogical tools, additional resources, and voices from the field, this book delivers over 20 lessons with extensive additional resources.

Notes tying each lesson back to Social Justice Outcomes, Mathematics Essential Concepts, and Mathematical Practices.

General overview of the lesson describing the background, learning goals, and needed materials and resources to complete the lesson



LESSON 5.1: THE MATHEMATICS OF TRANSFORMATIONAL RESISTANCE

Mary Candace Raygoza

RESISTANCE AND OPPRESSION

This lesson (re)introduces students to representations of two variables by exploring Solórzano and Delgado Bernal's (2001) concept map of the four "quadrants" of resistance. The authors chose this to be the first lesson in Part II of this book because it may be used across contexts and is a great way to introduce teaching for social justice in a mathematics class. Students define resistance, create examples of each type of resistance, assess one another's understanding of the definitions and examples, and initiate steps for future resistive actions.

DEEP AND RICH MATHEMATICS

Students are often introduced to the coordinate plane as an abstraction, and plotting points becomes a mechanical procedure without meaning (e.g., 5 over and 2 down). Understandably, students often get confused about what each quadrant represents. This lesson offers an introduction to the coordinate plane that centers around *why* a representation that displays the presence or absence of two variables matters, in a relatable, real-world context for youth.

ABOUT THE LESSON

This lesson spans approximately 2.5 hours and requires students to take a deep dive into oppression and resistance. Though the lesson is not separated by days, it follows a launch–explore–summarize cycle with a 40-minute extension in the exploration phase.

Resources and Materials

- Blue painter tape on the floor in a big cross (to represent a coordinate plane)
- Yellow and blue highlighters for each table group
- Document reader
- Resistance Concept Map (1 per student)

This lesson was developed using the following resource: Raygoza (2016).

SOCIAL JUSTICE OUTCOMES

- I will join with diverse people to plan and carry out collective action against exclusion, prejudice and discrimination, and we will be thoughtful and creative in our actions in order to achieve our goals. (Action 20)
- I respectfully express curiosity about the history and lived experiences of others and exchange ideas and beliefs in an open-minded way. (Diversity 8)
- I relate to and build connections with other people by showing them empathy, respect and understanding, regardless of our similarities or differences. (Diversity 9)

MATHEMATICS ESSENTIAL CONCEPTS

- Number—Quantitative reasoning includes, and mathematical modeling requires, attention to units of measurement. (N.2)

MATHEMATICAL PRACTICES

- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.

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LESSON FACILITATION

This lesson is intended to support students in examining the ways in which they resist, not by discouraging resistance, but by understanding how resistance can be fueled by a motivation for social justice and by a critique of social oppression. It is also intended to show students how mathematics can map resistance—and, extending from that, be a useful tool for communicating concepts (or data) on important, real-world topics.

Opening Circle: Resistance (20 minutes)

- Seat students in groups of four, resembling a small circle to promote group collaboration.
- Assign roles to students in groups: equity manager (encourages group members to take space and make space, makes sure no one is left out); resource manager (gathers and organizes resources, including classroom materials); reader (reads the tasks, makes sure everyone understands what is asked of them); and facilitator (makes sure the group gets going and stays on track with time).
- Have students complete a quick-write (7 minutes):
  - *What do resistance and oppression mean to you?*
  - *Do you think resistance is good, bad, neither, or both? Why?*
  - *Think of a time you resisted at school. Who or what did you resist? Why did you resist?*
- Have students complete pair-and-share (5 minutes).
- Call on four pairs to share about what each person learned from the other in the pair (8 minutes).

Introduction to the Resistance Concept Map (20 minutes)

- Have students examine a "concept map" from an article about resistance written by Solórzano and Delgado Bernal (2001).
- Pass out copies of the resistance concept map.
- Share the essential question for the lesson: *How can mathematics inform our resistance?*
- Explain each of the four types of resistance to students by drawing on definitions from the descriptions from Solórzano and Delgado Bernal (2001, pp. 317–319, bit.ly/30jGWR8) (9 minutes):
  - Reactionary behavior
  - Self-defeating resistance
  - Conformist resistance
  - Transformational resistance

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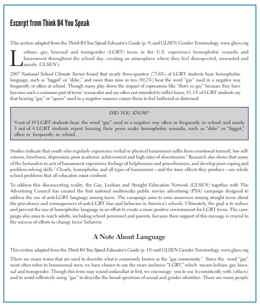
Extensive facilitation notes help educators run through the lesson with their class in a thoughtful manner.

Each lesson has numerous online resources for students and teachers and are all available for educators to download on the companion website.

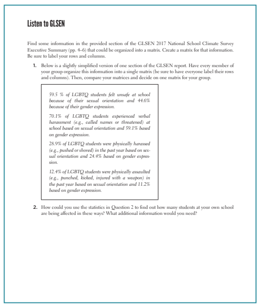
WORKSHEETS AND TEACHER RESOURCES

online resources *These downloadable resources can be found online at* **resources.corwin.com/TMSJ-highschool**

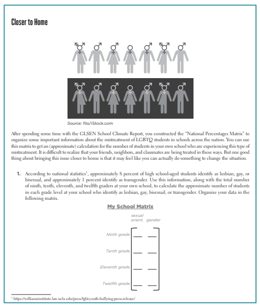


▲ *Student Homework Resource 1*

▲ *Student Resource 2*



▲ *Task Card 1*



▲ *Task Card 2*

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All worksheets and online resources provided in the Resources and Materials of each lesson are available for download or viewing on the companion website.