

INTRODUCTION

Elementary students bring curiosity and wonder to their learning environments, including connections they build between school and their lives outside of school, the wonderings about their world they bring into conversation, and their sense and inclination for problem solving and exploration. Elementary mathematics should be related to students' questions, interests, and lives, and build on their experiences in school, at home, and in their communities. Mathematical investigations should occur in contexts that are interesting and meaningful to students. Teachers' desire to build on this knowledge and expertise in lessons can be stifled based on calls to use prepackaged materials, rigid pacing guides like factory workers on an assembly line, and limited time to plan and collaborate around integrated lessons or units. Yet teachers push forward, mindful of what they know to be best for the groups of students in their care.

We know that when teachers can draw from the lives and interests of students, families, and communities, meaningful instruction happens. This instruction is rooted in contexts that are familiar, personal, and connected to the things that students in the classroom are experts in. This is an idea we share with teachers we collaborate with, preservice teachers we mentor, and policy makers we aim to inform. This work is complex; it takes time, persistence, and creativity. But it is also worthwhile and can mean the difference for students developing a passion for mathematics.

By the time you finish reading and implementing ideas from this book, it is our hope that you will experience several benefits:

- You will acknowledge all children in your classroom as capable mathematics learners and social justice advocates, seeing their experiences and wonderings as opportunities to contribute their voice and agency with their communities.
- You will recognize the ways in which you are already on this journey of teaching mathematics for social justice in your classroom and in your professional development and identify ways to enhance what you are already doing.
- You will learn to use mathematics regularly and seamlessly as a lens to facilitate discourse around important topics that matter to your students' lives.
- Your students will see how mathematics applies to their lives, helps them understand the nature and roots of social disparities, and how they can use it to intervene and seek equity.
- Your students will become more engaged in their communities, cities, states, and regions, and feel empowered to lead efforts to improve social disparities.

- You will know that you are not alone in this work and that there are other elementary mathematics educators who exist to partner with, to share ideas with, or to lend support.

This book offers a collection of multiday mathematics lessons. Understanding mathematics and understanding the world through mathematics takes time. Each lesson is tied to the mathematics standards we must teach as well as to the Social Justice Standards from Learning for Justice (formerly known as the Teaching Tolerance Standards from the Southern Poverty Law Center) and is also grounded in issues of social importance to both you and your students (Learning for Justice, 2016). These lessons are bookended by practical advice. In the opening chapters, we discuss our ideas of what it means to teach mathematics for social justice and strategies to effectively do so. We close by offering some ideas for how to create your own social justice mathematics lessons as well as with some wisdom and advice from other teachers who have embarked on this journey.

WHY IS TEACHING MATHEMATICS FOR SOCIAL JUSTICE CRITICAL?

An important aspect of our responsibility as educators is to help empower students to be agents of change in their communities, states, nations, and world.

While it is not always discussed in classrooms, students regularly experience the effects of social privilege, power, and activism. Each day, students in schools and communities are faced with disparities in opportunity. Parents, caregivers, grandparents, aunts, uncles, friends, cousins, neighbors, and community members share stories about their lives and perspectives and students carry this knowledge inside of themselves. Students have concerns about their world, their community, and their family. An important aspect of our responsibility as educators is to help empower students to be agents of change in their communities, states, nations, and world.

We would like to go further than simply stating the importance of connecting mathematics teaching and learning to teachers' and students' lived experiences and interests; we argue that teaching mathematics for social justice (TMSJ) is critical for four reasons:

- It builds an informed society.
- It connects mathematics with students' cultural and community histories.
- It empowers students to confront and solve real-world challenges that they face.
- It helps students learn to use mathematics as a tool for social change.

TMSJ can and should extend mathematics beyond the classroom. It can and should encourage students to

- Learn important mathematics;
- Express self-love, pride, confidence, and healthy self-esteem about themselves as mathematical thinkers and learners;

- Express comfort in working with and learning from people who are both similar to and different from them and engage respectfully in collaborative work;
- Develop concern for the happiness of other human beings and life forms; and
- Plan and carry out collective action using mathematics as a tool to address injustice in the world.

THIS BOOK'S AUTHORSHIP

This book began when we—the four editors—reacted to a post online announcing the publication of the book, *High School Mathematics Lessons to Explore, Understand, and Respond to Social Injustice*. We were thrilled to see such a resource published, and we almost immediately began commenting on how we wished there were similar resources for students at other grade levels. Others joined in, noting specifically how great it would be to have such a resource for early childhood and early elementary grades, upper elementary grades, and middle school grades.

We already had a mutual interest in providing elementary mathematics teachers with a collection of lessons that address both essential mathematical concepts and issues of social concerns and injustices. We all worked with and heard from many elementary teachers who recognized that students were significantly more engaged when the context of their learning was more personally meaningful. Furthermore, elementary teachers shared how their students regularly posed questions about their own lived experiences as well as injustices that they heard about or experienced. More and more of the teachers with whom we work are using social, economic, and environmental justice contexts in their elementary classrooms, including when teaching mathematics.

Lesson Authors

As we discussed these shared experiences of elementary teachers wanting a similar resource, we recognized that we were all working in universities. Our perspectives represented only a sliver of the teachers and students interested in the book we imagined. Knowing that our own four sets of passions, perspectives, and lived experiences were limited and wanting to include as diverse a range of perspectives and voices as we could manage, we solicited lessons from mathematics educators around the country, with specific requests for lessons created by or with practicing elementary mathematics teachers. In addition, we sent the lessons out to field testers to implement in their own elementary classrooms as well as to reviewers with elementary mathematics teaching experience. These field testers and reviewers gave extensive and valuable feedback on the lessons; their thoughtful insight made these lessons, and this book, better.

When children learn that mathematics can be used as a tool to help them understand, explore, and investigate social situations, they are empowered to see themselves as both mathematical thinkers and active change agents in a world of change.

We value the voice of each educator who contributed a lesson, and we have made all attempts to share their work and their voice with you. Outside the major required elements for submissions, we asked lesson authors to format and submit lessons based on how they had implemented them in their classrooms. We then edited lessons for clarity, mathematical rigor appropriate for the identified grade level, explicit social justice goals, and cohesion in order to highlight the voice and authenticity of work in the field. Lessons have been tested and refined, in their own classrooms and in others. We are grateful to the lesson authors and all those who helped develop this book. As a team, we each have our own motivations and understandings of TMSJ. Each lesson author is highlighted in the chapter in which you find their lesson, providing readers some information about each of them, including their journey to becoming social justice educators.

WHO IS THIS BOOK FOR?

This book welcomes those who are new to TMSJ and those who have been engaged in this work for some time. This book is meant for Grade 3–5 teachers, mathematics coaches, school and district leaders, and mathematics teacher educators to empower students and teachers alike. We intend for this book to support you and your students to move from questions like “When/How/Where am I ever going to use this?” to questions like “What can we do about this?” “How can mathematics be used as a tool to address this injustice?” Those outside of the Grades 3–5 band may find the lessons and guiding principles as important in their thinking about what experiences students may come to their classrooms with, or as an eye-opening highlight of the capabilities that upper elementary students bring with them to the classroom setting. Administrators may find reflections and lessons learned powerful as ways to conceptualize support for teachers who are on this journey and needing a supportive community (whether on their teaching team, or when facing stakeholder pushback).

During your reading, we hope that you will grow in your understanding that mathematics may be a privileged space through which both you and your students can be empowered. Many students do not have an opportunity to connect mathematics with their culture and lives. Thus, your interest, reading of this book, and implementation of lessons in the classroom present an opportunity to shape students’ lives and actions. When children learn that mathematics can be used as a tool to help them understand, explore, and investigate social situations, they are empowered to see themselves as both mathematical thinkers and active change agents in a world of change. We hope that the lessons and the critical call for action contained in this book highlight how each and every student is capable of mathematical learning and can be empowered to use mathematics for change in their own and others’ lives.

THE BOOK'S ORGANIZATION

This book is organized into three parts. Part I, consisting of Chapters 1–4, provides a foundation for TMSJ. Chapter 1 shares our idea of what social justice means and what TMSJ looks like, framed around the four domains of the Social Justice Standards, laying an important context for understanding the goals of TMSJ and implementing the lessons of this book. We hope it can also serve as a chapter for you to reflect on your own goals for teaching children through mathematics. Chapter 2 begins a conversation about preparing to teach for social justice and foster a classroom community for social justice in your mathematics classroom. This chapter considers mathematics content as well as the local context in which you will implement TMSJ. It also introduces questions of *who*, *how*, and *when*. Chapter 3 aims to support you in leveraging the tools you are already using to implement TMSJ, particularly around goal setting, using inquiry-based/problem-based learning, and formative assessment. Of note, we provide suggestions in this chapter on how to tread across potentially controversial topics and lead difficult discussions. Chapter 4 focuses on teaching social justice mathematics lessons, including discussion of the structure of lessons in this book as well as a pedagogy that engages students in actively investigating, understanding, and reflecting on challenging mathematical and social questions to empower themselves into action.

Part II of the book includes social justice mathematics lessons, organized around three overarching themes: Building and Examining Identities (Chapter 5), Society and Social Movements (Chapter 6), and Understanding Our World (Chapter 7). Each lesson includes reference to a mathematics standard and a mathematics practice to support teachers in easily locating ideas that may be infused with mathematical course progressions from their state, district, or school. Each lesson also references one or more domains from the Social Justice Standards to support teachers in attending to a variety of objectives identified in these standards and to find lessons that tackle certain social injustices that are relative to their demographic, environmental, or social contexts. You may have expected that the book would be organized by grade level or mathematics content. We chose not to organize by grade level because most of the lessons can be adapted to target learning goals for Grades 3, 4, or 5. We chose not to organize by mathematics content because not all of the lessons fit nicely into a content domain. Importantly, we see this as a strength of the lessons—that many support student learning across multiple content domains. Yet we knew that some organization would be helpful for you, the reader. We hope that the overarching themes serve that purpose.

Part III offers two concluding chapters. First, Chapter 8 shares the reflections of some of the contributing authors, including their experiences implementing these lessons and more generally about experiences of TMSJ. And finally, in Chapter 9, we share our recommendations for developing your own social justice mathematics lessons.

If you are like us, you might not read this book straight through from cover to cover. It might make sense to identify the lessons that align with the content standards assigned to the grade you are teaching. Or you might read the introductory chapters (Chapters 1–4), but then skip around Chapters 5, 6, or 7 for lessons and topics that speak to you and may be most relevant to the students in your classroom. While we provide these lessons as templates to use in your classroom, as with any curricular resource, we assume that you will have to think through them and make minor (and maybe major) changes to meet the needs, interests, and backgrounds of the students in your classroom.

We hope that the resources in this book will help you create and focus energy on authentic experiences for students while also generating mathematical analysis or modeling to explore and take action upon issues of injustice relative to students' lives. We commend you for bringing your students' curiosities and concerns about their lives into your mathematics classroom. We hope that the lessons in this book help you to foster student-to-student interactions that move beyond the mathematics to be learned and into actionable change in students' lives and society.