FOREWORD

As educators, we often focus on the observable learning differentials between countries, states, and school districts, and between schools within a single district. With great clarity, Bush, Karp, and Dougherty demonstrate that in focusing on these differentials we are missing what is often a more significant differential—the differences in learning outcomes that exist within schools between teachers of the same grade level or subject.

Connected to and building on the latest mathematics education literature, the authors argue that it is essential that all stakeholders within a school collaboratively agree on and commit to following a Mathematics Whole School Agreement (MWSA). By making such a commitment, each school community can approach mathematics instruction in a unified and consistent manner. The fact that the authors recommend a *whole school* agreement is significant. While many schools today are engaged in professional learning community work, those communities, when effective, may only address horizontal consistency within a grade level or subject. Effective professional learning communities within an MWSA help ensure the needed vertical consistency in addition to horizontal consistency.

Even when the same curriculum and standards are used schoolwide, the outcomes students experience in different classrooms can vary greatly due to inconsistencies in notation, language, representations, instructional strategies, assessment techniques, depth of learning, and the "rules" students learn in different classrooms. It is this lack of horizontal and vertical consistency that contributes to inequitable learning outcomes in American schools. At its heart, achieving more equitable outcomes is the goal of the MWSA, and the authors provide a process to build, implement, and sustain this necessary agreement in a school, and ultimately a district.

An MWSA provides three levels of benefits to achieve necessary consistency: teacher, student, and school levels. Teacher-level benefits include support for high-quality mathematics instruction, enhanced teacher learning, increased professional communication, reduced personal isolation, and closer alignment between curriculum and assessment. Student-level benefits focus primarily on increased student success on outcomes and depth in students' mathematical understanding, which positively influence students' mathematical identity and agency. School-level benefits include a positive influence on school climate, support for innovation, a cultural shift that emphasizes equitable opportunity and outcomes, schoolwide attention on the needs of students, flattening of the power structure, and fostering of a professional culture of intellectual inquiry.

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As the authors state, "An MWSA must be grounded in a schoolwide commitment to equitable and high-quality mathematics instruction." The benefits of an MWSA address access and equity by supporting stakeholders' knowledge of the promises and challenges of the students they serve, providing a sense of collaboration for addressing potential obstacles that may limit access to high-quality mathematics teaching, and creating the space and sense of community necessary for stakeholders to ensure that the allocation of human and material resources is equitably distributed and meets the needs of both teachers and students.

In a school with an MWSA, the mathematical identity and success of each and every student become the collective responsibility of every adult involved in students' learning. We encourage you to take advantage of the authors' recommendations, collaboratively build an MWSA, make a commitment to its implementation, and make a difference in the learning outcomes of the students in your school and district.

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PREFACE

WHAT IS THIS BOOK ABOUT?

Imagine teaching at a school where mathematics instruction is coherent, high quality, and consistent across classrooms and grade levels. No matter which teacher a student has, they are receiving the highest-quality mathematics learning experience. All teachers in the school are working together as a team, a true team that considers the success of each and every student in the entire school as a collective responsibility. As students progress through the grades and have different teachers, they see how mathematical ideas connect, and they use familiar representations and consistent and appropriate mathematical vocabulary and notation. Teaching is done in a way that develops deep mathematical understanding, and the team knows that taking more time up front to develop concepts, connections, and procedural fluency will pay off in the long run, even saving time. Both teachers and students are excited by and feel empowered by mathematics. Welcome to *The Math Pact*, where you are about to embark on creating a Mathematics Whole School Agreement (MWSA)!

WHO IS THIS BOOK FOR?

If you are a teacher of mathematics, mathematics instructional coach, curriculum leader, principal, special education teacher, paraprofessional, parent, tutor, or anyone involved in ensuring that students are successful in mathematics, we are calling your name to join this movement toward unity of message and purposeful alignment of best practices. This book is for you and the young adolescents you teach. In short, if you care about doing what is best for students, this book *is* for you!

OUR UNIQUE AND INNOVATIVE APPROACH

Actually, our approach is really just common sense. It's all about getting everyone on the same page. We are not suggesting losing the individual style teachers have or eliminating the magic of their personality infused into mathematics instruction; we are talking about best practices and precision. These are not points of academic freedom; rather, they are ways to work toward the best interests and learning of mathematics by young adolescents in preparation for the adults they will someday be, through the implementation of research-informed best practices.

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WHAT INSPIRED US

Years ago Karen started talking in her presentations at National Council of Teachers of Mathematics (NCTM) conferences and institutes about the need to avoid rules that expire (if you are not sure what these rules are, keep reading). With the encouragement of Sarah and Barbara, the three formed a team to write first an article for *Teaching Children Mathematics*, followed by other grade band articles in *Mathematics Teaching in the Middle School* and *Mathematics Teacher*. Two of these articles are in the top 10 downloaded journal articles (most recent figures) published by the NCTM: "12 Math Rules That Expire in the Middle Grades" (ranked #1) and "13 Rules That Expire!" (ranked #8). In addition, "13 Rules That Expire!" was selected as the NCTM Editorial Pick of the Year for *Teaching Children Mathematics* (2015) and was reprinted in 2019 in the compilation journal, *The Best of Teaching Children Mathematics, Mathematics Teaching in the Middle School, and Mathematics Teacher on Questions, Discourse, and Evidence*. This response was very encouraging. Many people contacted us by email to say that they resonated with the very things we had learned over the years. They wanted these ideas faster than the way we learned them, which was very slowly over the years (sorry to all our former students!)— they wanted them *now*. The next step was logically to bridge these ideas across the grades, so we wrote an article about establishing the whole school agreement, which appeared in *Teaching Children Mathematics* in 2016. After these published pieces and approximately 15 presentations at conference venues and many talks in school districts, the grade-level books seemed the next logical step to share these ideas that teachers were emailing us about, tweeting us about, discussing in their own articles and citing us, and sharing in their presentations. We thank everyone for the encouragement—it led to this series.

WHAT'S IN THE BOOK, AND HOW CAN YOU USE IT?

Consider this book your handbook and go-to guide for ensuring equitable, coherent instruction across grades, schools, and your district. This book is organized into three parts. In Chapter 1, we provide an introduction that includes describing what an MWSA is and why it is critical to the success and well-being of each and every student. In Chapters 2–6 we dive into each component of an MWSA, providing detailed vignettes and suggestions as you consider and develop your own MWSA as a team. Finally, in Chapters 7–9 we delve into the enactment of an MWSA, including incorporating it into all of your team's lessons, across your school and district,

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and we share success stories from those who have made this work a reality, transforming the teaching and learning of mathematics in their setting.

We hope you too feel the urgency for an agreement as a way to promote students' learning of mathematics. By providing examples and stories of our own missteps and recovery, we are hopeful we can help you navigate around our errors. Via a step-by-step walk-through of the process, we want to support you in your teamwork and your personal work. Along the way we try to point to timely resources embedded in the chapters and share why this is the right approach. We recognize that this book can never address every aspect you will need to consider as you craft your own MWSA. The purpose of this book is to provide a foundation and then you can build off this work using additional resources to best meet the needs of each and every student in your setting.

INSPIRATION TO JUMP-START YOUR WORK

Collaboration can save time rather than suck up time if people work productively toward common goals. The power to make change is in your hands and in your heart. It takes both hands and heart to work through the decisions that must be considered in the activities and reflections in this book that will guide your thinking. Chapter by chapter we will unveil a twofold process—one that is founded on the forging of a team and the other a self-guided and self-empowered learning opportunity. Pause and reflect, but do make change in support of having all students experience the joy, wonder, and lifetime usefulness of mathematical understanding.

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