What Your Colleagues Are Saying . . .

Eight Habits of Highly Effective Math Students (and the Teachers Who Teach Them) is a powerful guide to providing high-quality math learning opportunities for all students. Packed with practical tools and actionable strategies, the authors thoughtfully unpack the eight habits in a way that supports students to develop mathematical proficiency and agency. This is a great book to anchor conversations with all stakeholders in education, from classroom teachers to coaches to administrators.

Jenna Laib
K–8 Math Specialist, Driscoll School
Public Schools of Brookline
Brookline, MA

If your goal is to develop competent and confident students in mathematics, *Eight Habits of Highly Effective Math Students (and the Teachers Who Teach Them)* is the book for you. The authors guide teachers through the inquiry process by providing practical examples and tools that can be used to develop and strengthen students as mathematicians. Focusing and reflecting on one's own work as a teacher, and making revisions to teaching practices, can have a substantial impact on students' learning.

Susie Katt
K–2 Mathematics Coordinator, Lincoln Public Schools
Lincoln, NE

The book is written in a way that speaks directly to educators, using language and concepts that resonate with their experiences and needs. At the same time, the content is accessible to administrators who may not be as familiar with what effective math pedagogy looks like or sounds like in the classroom. This broad accessibility ensures that the book can be valuable to both teachers looking for practical strategies and administrators seeking to better understand and support good teaching practices.

Tali Amar
Math Coordinator, York Region District School Board
Ontario, Canada

The inherent consistency the book advocates for (habits!) makes it something that teachers will find useful across the year, no matter the content they teach.

Karla Bandemer
Grade 3–5 Math Teacher Leader, Lincoln Public Schools
Lincoln, NE

EIGHT HABITS OF HIGHLY EFFECTIVE MATH STUDENTS

(AND THE TEACHERS WHO TEACH THEM)

GRADES K–5

Dedications

Sue – To my daughter Elizabeth Chapman Sun, who courageously reminds others that teaching is not about test scores but about making the world better by giving students the tools they need to interact thoughtfully and confidently with life.

Holly – To Renee Everling, who reinvigorated my love for learning and teaching mathematics.

Mary – I dedicate this book to teachers with unwavering passion who identify themselves as learners and who make efforts to connect with their students and learn alongside them in their classrooms every day.

EIGHT HABITS OF HIGHLY EFFECTIVE MATH STUDENTS

(AND THE TEACHERS WHO TEACH THEM)

GRADES K–5

SUE CHAPMAN • HOLLY BURWELL • MARY MITCHELL

CORWIN Mathematics

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A Sage Company

FOR INFORMATION:

Corwin
A SAGE Company
2455 Teller Road
Thousand Oaks, California 91320
(800) 233-9936
www.corwin.com

SAGE Publications Ltd.
1 Oliver's Yard
55 City Road
London EC1Y 1SP
United Kingdom

SAGE Publications India Pvt. Ltd.
Unit No 323-333, Third Floor, F-Block
International Trade Tower Nehru Place
New Delhi 110 019
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Visit the companion website at
https://companion.corwin.com/courses/eighthabits
for downloadable resources.

Note From the Publisher: The authors have provided web content throughout the book that is available to you through a QR (quick response) code. To read this QR code, you must have a smartphone or tablet with a camera. We recommend that you download a QR code reader app that is made specifically for your phone or tablet brand.

Figure P.1 • 8 Math Habits of a Highly Effective Math Student

I expect math to make sense.

I love challenging math problems.

I learn from math mistakes.

I talk about math.

I represent math in different ways.

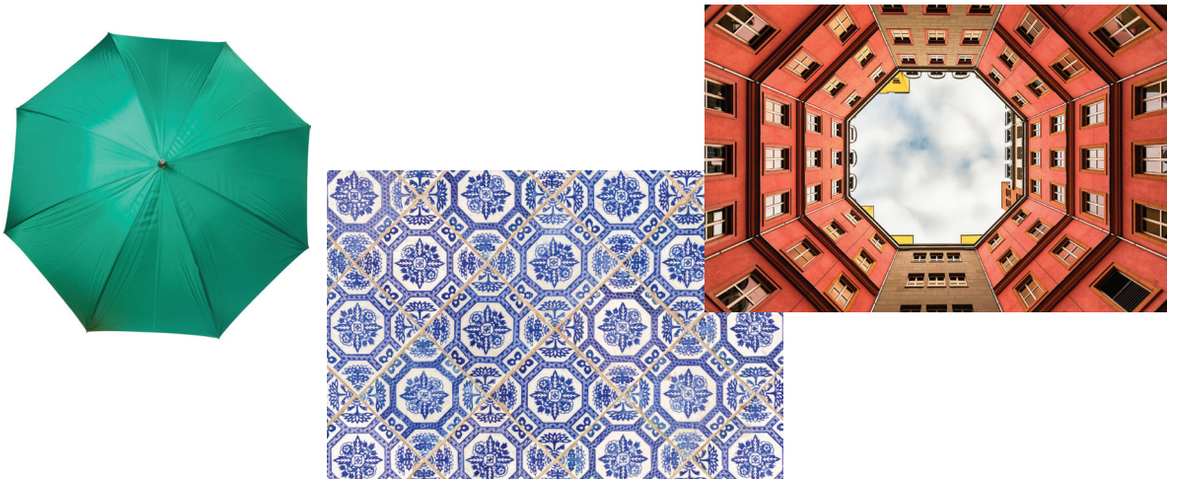
I make math connections.

I look for and use math patterns.

I see myself as a mathematician.

Preface

Eight line segments of equal length come together to create a unique geometric shape—a regular octagon. Octagons are frequently used in construction projects of all types because of their natural strength. They are visually appealing and can be seen in design elements of buildings and decorative objects. In the Chinese practice of feng shui, the octagon is believed to attract good fortune and positive energy.



Sources: Umbrella image by istock.com/luminis; floor tiles image by istock.com/WitchitS; Berlin apartment building image by istock.com/Daniel Lange

Like the eight sides of an octagon, the 8 math habits work together to support mathematical competence and confidence. These habits help learners recognize themselves as innately math-capable and see mathematics as a valuable and interesting way of understanding and interacting with the world. Together, these 8 math habits describe a highly effective math student (Figure P.1).

These are the habits that data scientists, engineers, and other professional mathematicians rely on to support mathematical thinking and understanding. They are essential to mathematical proficiency and a required part of today's mathematics curriculum. When students internalize these habits, they enjoy healthy mathematical identities and learn to take an active role in their math learning.

Your own math learning experiences in elementary school likely focused on computational skills and afforded few opportunities to engage in these math habits. Effective implementation of today's curriculum and instructional standards requires educators to take a learning stance toward the math habits. We want to support you in this learning journey. In this

book, we will help you build your understanding of the math habits and show you how to develop them in students. We'll share teaching practices we have used ourselves and helped thousands of other teachers use to equip students with the learning habits they need to thrive as math learners and users. We'll also be by your side as you try out these practices in your classroom and monitor their impact on your students' learning.

As you cultivate the math habits in students, you will realize that you are not only growing new teaching habits, you are also strengthening your *own* math habits. This book will help you and your students experience mathematics as a meaningful, inspiring, and joyful learning journey.

WHO IS THIS BOOK FOR?

Eight Habits of Highly Effective Math Students is written for elementary school teachers who want to grow their effectiveness as teachers of mathematics. It is also a valuable resource for collaborative professional learning settings, including professional learning communities and partnerships between teachers and instructional coaches.

Schoolwide use of *Eight Habits of Highly Effective Math Students* can elevate your school's mathematics program, creating a culture of shared responsibility and collective efficacy. It will help you and your math community achieve the National Council of Teachers of Mathematics' Guiding Principle for Professionalism in School Mathematics: "In an excellent mathematics program, educators hold themselves and their colleagues accountable for the mathematical success of every student and for personal and collective professional growth toward effective teaching and learning of mathematics" (National Council of Teachers of Mathematics, 2024, p. 5). In addition, *Eight Habits of Highly Effective Math Students* is a useful resource for education leaders at the school and district levels who support the improvement of mathematics teaching and learning.

A COMMITMENT TO EQUITY

Eight Habits of Highly Effective Math Students offers math educators an important tool for equity work at the classroom level. It is grounded in the following beliefs:

- All students are capable of learning high-level mathematics with understanding when they have access to high-quality mathematics instruction.
- All teachers are capable of learning how to teach mathematics effectively and enthusiastically.

> *Equity isn't a "stand-alone" topic in teaching and learning mathematics. It permeates everything you do.* (SanGiovanni et al., 2022, p. 5)

The habits of highly effective math students articulate student learning behaviors that contribute to mathematical competence and confidence. When educators commit to helping every student grow these proficiencies, students come to see themselves as mathematically powerful. When educators use the habits as a lens for noticing patterns of inequity and then work to disrupt these patterns, mathematics teaching becomes action toward good and just teaching. This practice-based professional learning process increases student access to rigorous mathematics learning and strengthens teacher understanding of practices that promote equity in math education.

We wholeheartedly believe that all students, including students with disabilities and students who have been marginalized because of their language, race, or socioeconomic status, are innately math-capable and will develop mathematical proficiencies when given appropriate learning opportunities and support. We agree with Zaretta Hammond (2015), who tells us, "We have to help dependent students develop new cognitive skills and habits of mind that will actually increase their brainpower. Students with increased brainpower can accelerate their own learning, meaning they know how to learn new content and improve their weak skills on their own" (p. 15). We have written this book to support educators in teaching the cognitive skills and mental habits all students need to successfully and joyfully learn mathematics.

We also agree with Pamela Seda and Kyndall Brown (2021), who say, "If teachers are willing to look past their preconceived notions and give students opportunities to do mathematics, they might be surprised with what they are able to do" (pp. 167–168). We hope this book will encourage educators to test the validity of their assumptions about students' capacity for mathematical understanding so they can discover each of their students' natural mathematical brilliance.

In this book, we strive to use inclusive language. We use the currently accepted terms *white*, *Latine*, and *Black* to honor people's preferences for what they are called. We use the gender-neutral pronoun *they* rather than *he* or *she* whenever possible.

CHAPTER FEATURES

In each chapter, you'll find a wealth of activities and resources to support you in growing a specific math habit in your classroom. You can engage with these exercises in sequence or choose specific activities that best meet your needs:

- **Notice the Habit:** A quick exercise to activate your schema about the habit
- **Deconstruct the Habit:** Descriptors of specific behaviors associated with the habit
- **Look for the Habit:** A self-reflection tool to help you notice evidence of the habit in your students and how you currently support the habit in your teaching
- **Using Classroom Data to Grow the Habit:** An example of learning data related to the habit and a chance to consider how these data might support a teacher in growing this habit in their classroom
- **Understand the Habit:** A concise explanation of the habit and why it is important to math learning
- **Strengthen Your Eyesight:** Questions you can use in one-on-one interviews or a class discussion to strengthen your ability to notice the habit and build your skills in gathering classroom learning data related to the habit
- **Consider Teaching Actions to Grow the Habit:** A menu of specific teaching strategies you can implement to help your students strengthen the math habit
- **Coach the Habit:** An example of a brief coaching conversation with a student about the habit to support you in coaching your own students
- **Grow the Habit in Your Classroom:** Three options for teacher inquiry projects to grow the habit in your students
  - Give It a Go! (An Informal Exploration of a Teaching Action and Its Impact on Student Learning)
  - Classroom Inquiry (A Classroom-Based Teacher Inquiry Project)
  - Focus on Equity (A Teacher Inquiry to Notice and Disrupt Patterns of Inequity)
- **Summary:** Two opportunities to reflect on the big ideas of the chapter and consider how to put these ideas to work in your teaching
  - **Habits of Highly Effective Math Learners and Teachers:** A chance to reflect on your learning related to the habit
  - **Habits of Math Teachers Who Continue to Learn and Grow:** A chance to reflect on and celebrate your professional learning habits and growth as a teacher
- **Downloadable Resources:** Tools to support your work referenced in the book and available on the *Eight Math Habits of Highly Effective Math Students* companion website at https://companion.corwin.com/courses/eighthabits

> The question is not whether all students can succeed in mathematics but whether the adults organizing mathematics learning opportunities can alter traditional beliefs and practices to promote success for all. (National Council of Teachers of Mathematics, 2024, p. 61)

WHY WE WROTE THIS BOOK

Equipping all math teachers with the knowledge, skills, and mindsets they need to provide high-quality math learning opportunities for all students is our why. It is the driving passion that guides our daily work as educators and led us to write this resource about mathematics teaching and learning.

What is your why, your personal vision and mission as a math educator?

We become teachers to make a positive difference in children's lives. We quickly discover, however, that teaching is extraordinarily complex work. It has been said that teachers make approximately 1,500 decisions a day in their efforts to provide for the learning needs of each of their students. These decisions are frequently made reflexively and in the moment, often without conscious thought. We are more effective as teachers when we deliberately examine our teaching decisions and their impact on our students' thinking and understanding. The habit of intentionally and strategically looking at the link between our teaching decisions and our students' learning helps us strengthen our teaching craft and achieve our whys, to help all children learn and grow.

Teaching and learning mathematics can take on the spirit of an adventure if we let it. The opportunity to examine the impact of our teaching actions on our students' math learning is both enlightening and rewarding. *Eight Habits of Highly Effective Math Students* will help you achieve your personal why. We predict you'll also find this exploration of mathematics teaching and learning to be inspiring and joyful.

With gratitude for your commitment to students' mathematical success,

Acknowledgments

SUE'S ACKNOWLEDGMENTS

Every day of my almost five-decade career as a teacher, I have learned important lessons about math teaching and learning from fellow educators. I am honored to be a member of the education community and grateful to be able to pay forward some of what I have learned with this book. I'm also inspired to know that the professional habit of sharing and constructing professional knowledge together will continue to renew our profession and nourish our next generation of teachers. I am forever grateful to Holly and Mary for partnering with me in this learning journey.

HOLLY'S ACKNOWLEDGMENTS

No one person can know everything, but together, with our communities, we know a lot. To my first community at Lincoln Elementary and Sunnyside Elementary, I am grateful for the support and encouragement as I learned to be a teacher. To the instructional leaders and coaches who took a chance on me and taught me how to serve and support teachers, your modeling and guidance were everything. To Renee Everling and the entire team at Math Solutions, you believed in me and provided me with opportunities to learn and grow from teachers all over the country. To Patty and Cherie for allowing me to step up and lead a team of coaches and providing me with opportunities to have my voice heard. And to teachers everywhere, especially in Great Falls Public Schools, for having real, honest, and thoughtful discussions around mathematics education, you are what drives me every day.

I want to thank Mary and Sue, two incredible educators who also took a chance on a young teacher and gave my voice a platform. You exemplify the mathematics educational landscape. I am forever grateful to have you in my community.

MARY'S ACKNOWLEDGMENTS

As educators, we have a professional responsibility to keep the fire burning as we accept, run with, and pass on the torch of teaching and learning. I am thankful for Nickie Rizzo, who saw something in me that I did not. I am also grateful to the generation of educators who came just slightly before me and stirred in me a fire that was just waiting to come out in unique and special ways: Marilyn Burns, Marji Freeman, Patty Clark, Carolyn Felux,

and so many others. Over my career, I became part of an educational community of equally passionate people who grew me to a place that made me want to run with the torch. Thank you to Sue Chapman and Holly Burwell, who steadfastly keep the fires burning with their desire to generously share their knowledge and grow us all to our unlimited potential.

We want to thank Debbie Hardin for her expert and enthusiastic guidance and support of *Eight Habits of Highly Effective Math Students*. She is a true champion of high-quality mathematics instruction and professional learning in support of mathematics. Her leadership is helping shape math education so that math learners of all ages recognize themselves as math-capable and see math as fascinating and worthwhile. Thank you to the entire Corwin team for your care and diligence in bringing this publication to life.

PUBLISHER'S ACKNOWLEDGMENTS

Tali Amar
Math Coordinator, York Region District School Board
Ontario, Canada

Karla Bandemer
Grades 3–5 Math Teacher Leader, Lincoln Public Schools
Lincoln, NE

Carrie S. Cutler
Clinical Associate Professor, University of Houston
The Woodlands, TX

Vada Gray
Math Consultant, Black Girl Math Education Services
Flossmoor, IL

Desiree Y. Harrison
Elementary Instructional Coach, Farmington Public Schools
Southfield, MI

Susie Katt
K–2 Mathematics Coordinator, Lincoln Public Schools
Lincoln, NE

Janet D. Nuzzie
District Intervention Specialist, K–12 Mathematics, Pasadena ISD
Pasadena, TX

Oliver Woollett
Year 2 Teacher, Caulfield Grammar School
København, Denmark

About the Authors

Photo Credit: Manuel Ruiz

Sue Chapman has served students and other math learners in the roles of teacher, mathematics coach, campus administrator, district curriculum coordinator, and teacher educator. She teaches mathematics methods courses to preservice teachers at the University of Houston–Clear Lake and provides professional learning and coaching support to teachers and leaders nationwide. Sue is a coauthor of *Power Up Your Math Community: A 10-Month Practice-Based Professional Learning Guide* (Corwin, 2025) and has written numerous blog posts and articles about coaching, teacher leadership, instructional improvement, and math education. Sue is passionate about building capacity and collective efficacy in educators, teams, schools, and districts. You can connect with Sue at suechapmanlearning@gmail.com.

Photo Credit: Lindsey Johnson Photography

Holly Burwell is a teacher, an author, a learning facilitator, and an instructional coach with students and educators in Grades Pre-K through 12. She consults through her business Inspired Mathematics, supporting math educators, and regularly presents professional learning sessions at regional and national conferences. Holly is a coauthor of the math book *Power Up Your Math Community: A 10-Month Practice-Based Professional Learning Guide* (Corwin, 2025) and worked as a math specialist in Great Falls Public Schools to lead and grow math achievement for more than 10,000 students. Holly is committed to bringing joy to teaching and learning mathematics in schools. You can connect with Holly at hollyburwell@inspiredmathematicsmt.com and @inspiremath.bsky.social.

Mary Mitchell learned at an early age that she was "not a math person." These messages from her parents and teachers grew in her a desire to not repeat a similar path for the students in her own elementary classroom. After leaving her role as an elementary teacher, Mary spent most of her career as a math coach and later as an instructional designer. For more than 20 years, she supported students, teachers, coaches, and administrators in schools across the country. Mary continues using her experiences to contribute to the school community at Sherwood Elementary School, part of the Forest Hills School District, in Cincinnati, Ohio. Mary is motivated by the idea that every day presents an opportunity to engage with others in a way that makes a difference in both big and small ways.

PART ONE

Getting Started

Source: istock.com/Ana Tivikova

CHAPTER ONE

The 8 Habits of Highly Effective Math Students (and the Teachers Who Support Them)

The quality of our lives often depends on the quality of our habits.
(Clear, 2018, p. 7)

Habit: A pattern of behavior that shapes our daily lives.

A **habit** is a pattern of behavior that shapes our daily lives. Habits help us handle everyday events with minimal energy, freeing up cognitive and emotional resources to tackle unexpected or challenging situations. Habit expert James Clear (2018) explains,

> As habits are created, the level of activity in the brain decreases. You learn to lock in on the cues that predict success and tune out everything else. When a similar situation arises in the future, you know exactly what to look for. There is no longer a need to analyze every angle of a situation. Your brain skips the process of trial and error and creates a mental rule: if this, then that. (p. 45)

We all develop habits as a natural response to the complexity of life. In schools, students acquire habits that influence their learning. Math learners, for instance, develop habits for how they respond to challenging math problems, how they select math tools to use in solving problems (or if they even consider using math tools), and how they respond when they make a mistake.

Teachers acquire habits related to their work in support of student learning. Math teachers develop habits for how they select the math tasks they use with students, the evidence of learning they watch and listen for during lessons, and how they use this evidence to plan for instruction.

Our habits influence our perceptions, beliefs, identities, and, therefore, our future choices and the outcomes of those choices. However, we are not stuck with our current habits (Covey, 2020). We can grow new and better habits through an intentional process of goal-setting, practice, progress monitoring, and reflection (Clear, 2018). We each possess an unlimited capacity to grow productive new habits that allow us to become the person (or mathematician or math teacher) that we want to be (Boaler, 2022).

So, habits are important. As teachers committed to preparing our students for their best futures, we need to pay attention to the habits students are developing while in our classrooms. When teachers, teams, and schools intentionally nurture habits that help students learn math effectively and help teachers effectively support this learning, our students come to see themselves as mathematically capable and engage enthusiastically in their own mathematical growth. Students' math habits can help them build a positive relationship with mathematics and set in motion an unstoppable trajectory of math learning. Investing in the development of our students' math habits and our own instructional habits is indeed smart teaching!

OVERVIEW OF THE HABITS

What does it mean to be a math teacher? Many people would say that elementary school math teachers help students learn how to add, subtract, multiply, divide, and understand fractional numbers and a bit of measurement, algebra, and geometry. These are certainly important aspects of teaching mathematics, but we hope to broaden your definition of math teaching to also include the following:

I teach students to trust in their abilities to make sense of mathematics.

I teach students to enjoy wrestling with challenging math problems and to recognize productive struggle as part of learning.

I teach students to know that mistakes are a natural part of doing mathematics; they are essential stepping stones to learning.

I teach students to talk about and listen to others' math thinking to support their mathematical understanding and learning.

I teach students to show their math thinking in a variety of ways because the use of multiple math representations deepens understanding and supports communication.

I teach students to make connections between mathematical ideas, and from mathematical ideas to their own lives and the wider world, because connections deepen and solidify mathematical understanding.

I teach students to look for and use patterns to build strong conceptual understanding of foundational math ideas and as a tool for solving math problems.

I teach students to recognize themselves as growing mathematicians, to know that they are powerful because of their mathematical perspectives and abilities, and to see mathematics as a fascinating, valuable, and satisfying pursuit.

We call these learning outcomes the 8 Habits of Highly Effective Math Students. When teachers help students grow these mathematical habits of thinking and acting, they set students up for learning success this school year and far into their futures.

WHAT ARE THE 8 HABITS OF HIGHLY EFFECTIVE MATH STUDENTS?

The 8 Habits of Highly Effective Math Students are learning habits that mathematicians of all ages can lean into as they learn and do mathematics. Introduced in *Power Up Your Math Community: A 10-Month Practice-Based Professional Learning Guide* (Burwell & Chapman, 2025), they offer a student- and teacher-friendly way of thinking about the mathematical practices or processes (often referred to as the Standards for Mathematical Practice or SMPs) that are a part of every state's and province's mathematics curriculum standards (see Figure 1.1).

We have chosen to refer to these practices as habits to emphasize that they can be fostered by skillful teaching and strengthened through intentional effort. These 8 math habits play a key role in supporting the cognitively complex work of learning math. As students gain confidence and proficiency with the 8 math habits, they free their minds to engage deeply in mathematical reasoning, contributing to their mathematical understandings and ability to solve complex math problems. Because the 8 Habits of Highly Effective Math Students describe behaviors of successful math learners, they can serve as a valuable compass for your math instruction.

It's important to recognize that many of us had limited opportunities to grow these habits when we were in school. Our teachers did their best,

Figure 1.1 • The 8 Habits of Highly Effective Math Students

Blue = Mathematical Mindsets

Orange = Thinking and Communicating About Mathematics

Green = Mathematical Understanding and Problem Solving

Red = Mathematical Agency and Identity

I expect math to make sense.

I love challenging math problems.

I learn from math mistakes.

I talk about math.

I represent math in different ways.

I make math connections.

I look for and use math patterns.

I see myself as a mathematician.

Icon Source: Miranda Murray

but most didn't understand the math habits or their importance to math learning. Depending on our age, the math habits may not have been part of the curriculum our teachers were charged with teaching. So, it is likely that some of us will need to grow our own math habits as we nurture these same habits in students. This serendipity is truly good fortune—as we and our students explore the math habits and celebrate our growth together, we will collectively experience the joy of mathematics and build a strong mathematical community.

HABIT CLUSTERS

The 8 math habits interact fluently and flexibly to support math learning and mathematical proficiency. They can be considered individually, as you will have a chance to do using the resources in this book. They can also be grouped by function into four habit clusters.

Habit Cluster 1: Habits that function as **mindsets essential to math learning and mathematical work**:

- I expect math to make sense.
- I love challenging math problems.
- I learn from math mistakes.

Habit Cluster 2: Habits that function as **mental tools to support thinking and communicating about mathematics**:

- I talk about math.
- I represent math in different ways.

Habit Cluster 3: Habits that function as **mental tools to support mathematical understanding and problem-solving**:

- I make math connections.
- I look for and use math patterns.

Habit Cluster 4: Habit that functions as a synthesis of the other seven habits, resulting in a healthy **mathematical identity and agency**.

- I see myself as a mathematician.

These habit clusters are incorporated into the color coding and organization of this book to support you in thinking about how the habits work together and complement one another.

This book offers you a wealth of practical ideas for growing the math habits in your students as you simultaneously deepen your understanding of these habits and your skills in facilitating habit development. As a result of this learning journey, you and your students will come to see mathematics and your own math abilities with new eyes.

HOW DO THE HABITS SUPPORT MATHEMATICAL PROFICIENCY?

When students engage in the math habits, they are authentically *doing* mathematics. As they do math, they develop mathematical understandings and proficiencies. As they experience the relationship between their use of math habits and their math learning, they recognize their math habits as personal strengths, resulting in positive **math identities**. Motivated and empowered by the impact of the math habits on their learning, students continue to exercise their math habits, thus growing **math agency**.

Math instruction is not delivered *to students. It is done with them and by them.* (SanGiovanni et al., 2022, p. 6)

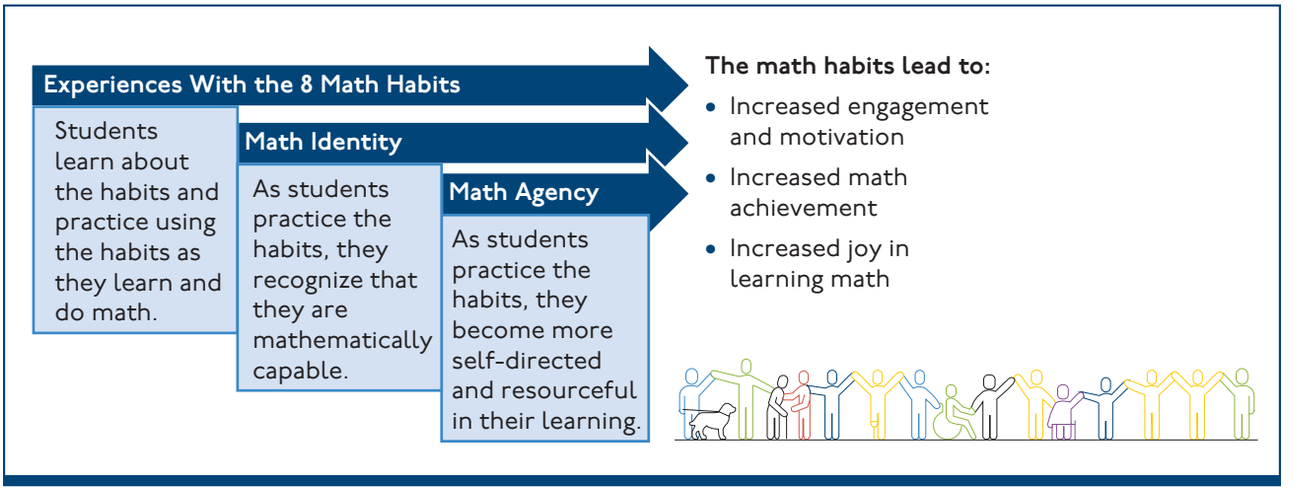
Math identity: A person's beliefs about their capacity for understanding mathematical ideas and the importance of mathematics in their life.

Math agency: A person's self-directedness in learning mathematics and using mathematics in real life.

The 8 math habits consist of actions taken in response to specific circumstances:

- When I notice that a mathematical idea doesn't make sense, I check my thinking using a math tool or by talking with a classmate.
- When I get stuck on a challenging math problem, I take a deep breath and try a new strategy.
- When I make a math mistake, I think "How interesting!" and consider what I can learn from the mistake.
- When I listen to someone else explain their math thinking, I decide whether I agree or disagree and why.
- When I want to understand or share a mathematical idea, I represent it in different ways.
- When I learn about a new mathematical idea, I think about how it might be connected to other things I know.
- When I notice what might be a math pattern, I test it out.
- When I engage in math, I consciously and intentionally use my math habits to help me do and learn math.

We can help students internalize these habits by designing math learning experiences that allow students to practice the 8 math habits.



Source: istock.com/Yuliya Soklakova

The 8 math habits are actionable steps students can take to enact a growth mindset. When we engage students in growing their math habits, we teach them principles of self-directed learning and self-regulation that position them for future success in school and life. When we help each of our students grow strong math habits, we take action toward equity, ensuring that all students can thrive in our math classrooms.

"[Self-regulated mathematics learners] know what to do, when they don't know what to do, and we are no longer their math teachers." (Almarode et al., 2024, p. 7)

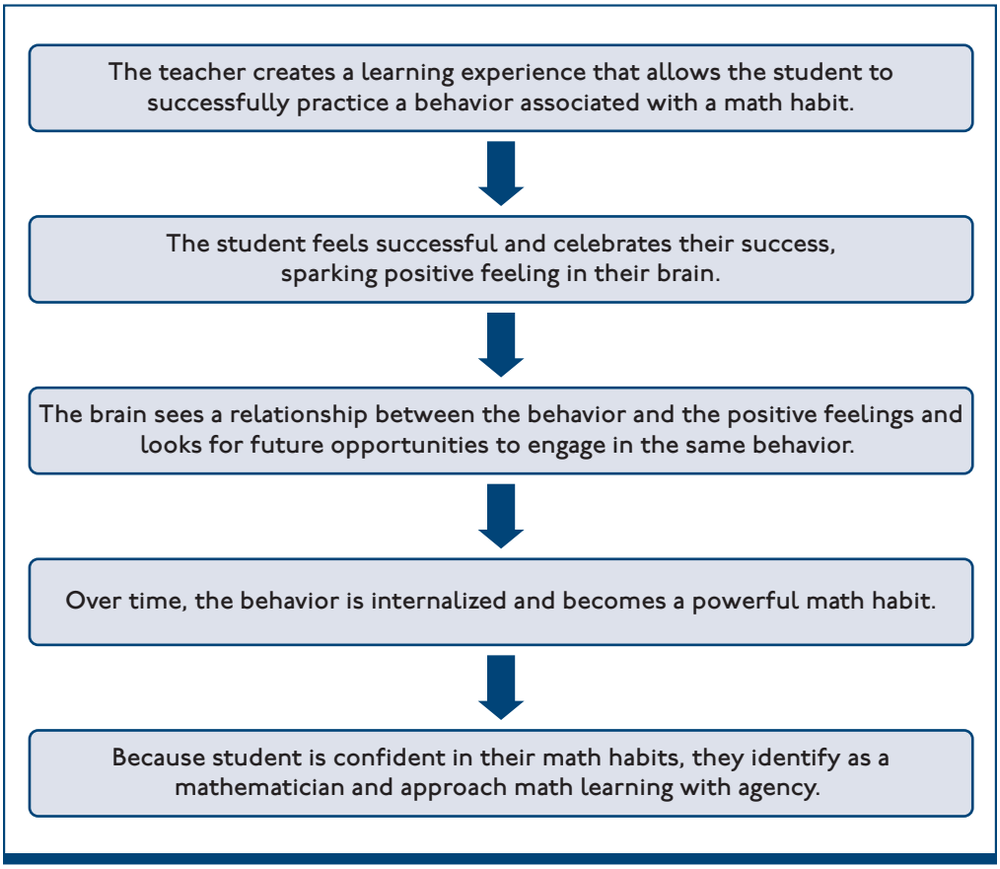
The math habits accelerate math learning because they build students' mathematical identities and agency. They set in motion a trajectory of learning that positions students as self-regulated math learners today and across their lifetimes.

MAKE A HABIT OF CELEBRATING GROWTH

There is a direct connection between what you feel when you do a behavior and the likelihood that you will repeat the behavior in the future. (Fogg, 2020, p. 137)

Our brains want to feel good. This simple truth offers a powerful way to support students in growing the 8 math habits. Fogg (2020) says that celebration is "the most important skill for creating habits" (p. 143). When we, as teachers, structure learning experiences that allow our students to feel successful, their brains release special neurotransmitters, chemicals that activate positive emotions. When we also teach our students how to celebrate growth, we equip them with a strategy that heightens these positive emotions, encoding a cause–effect relationship between the habit and the positive feelings in their brains. This memory of success creates the expectation that engaging in the math habit will result in similar positive feelings in the future, which increases the likelihood that the students will repeat and eventually internalize the math habit. When we teach students how to celebrate small successes toward using the math habits, we give them a tool for becoming powerful and successful math learners this school year and growing into the people they aspire to be throughout their lifetimes (see Figure 1.2).

Figure 1.2 • How Celebrations Grow Habits



These small celebrations of student learning related to the math habits are not elaborate; they often take the form of a simple statement made by a student or a teacher. Imagine mini-celebrations like these in your classroom (Table 1.1):

Table 1.1 • Statements as Mini-Celebrations of Students' Use of the Math Habits

Student Statements
The problem just didn't make sense to me, so I used color tiles to think about it. I figured it out!
We each had a different idea for how to solve this problem, and we couldn't agree, so we each tried our own strategy. Can we tell the class what we figured out about how our strategies are alike?
I really struggled with this problem, but I persevered. I hope we get to work on another challenging math problem tomorrow! I love stretching my brain!
Teacher Statements
You corrected your error, and you also explained why you changed your mind about this answer. You're using mistakes to grow as a mathematician! How exciting!
You've proved that you found a math pattern with a table and equations. I bet you feel pretty mathematically powerful right now!

Think about your own classroom. What math habits do you already see your students using? How might you celebrate this important learning in simple ways together with your students?

We can lift up our students as learners by teaching them why learning celebrations are important and how to celebrate their learning successes in simple but meaningful ways. The purpose of a learning celebration is to create positive feelings in the brain that will reinforce a specific learning behavior and make it more likely that this behavior will take place in the future. Because our personalities and experiences differ, our celebrations will also differ. What feels like a celebration to you will not feel like a celebration to some of your students and vice versa. Encourage your students to experiment and find celebrations that work well for them (see Table 1.2). A celebration is a good match for an individual if it generates feelings of pride, exhilaration, and joy.

Table 1.2 • Celebrations Students Might Try

Celebrations involving movement
• Thumbs-up
• Fist pump
• Victory sign with fingers
• Superhero stance (hands on hips, chest out)
Celebrations said out loud or silently
• Hurray!
• I did it!
• Good for me! I [name the behavior].
• I'm the kind of person who [name the math habit].
Quiet celebrations
• Smile
• Draw a smiley face on paper
Social celebrations
• High five
• Recruit a celebration partner, someone who will be genuinely happy when you share a celebration

SUMMARY

Our students, every one of them, have unlimited potential for learning mathematics and growing as mathematicians. Our job, as their math teachers, is to position each of our students for mathematical success by equipping them with strong habits of mathematical thinking and acting and helping them see mathematics as fascinating and worthy of learning.

To do mathematics means more than just learning the facts of mathematics—it means seeing oneself as a capable mathematical learner who has the confidence and the habits of mind to tackle new problems. (Su, 2020, p. 5)

Engage in the Habit of Reflecting on Your Learning

- What are your big takeaways from this chapter?

Engage in the Habit of Celebrating and Sharing Your Learning

- Why are these ideas important to you? How will they help you in the future?
- How might you share your learning to benefit a colleague or your entire school community?

Engage in the Habit of Setting New Learning Goals

- What next steps might you take to continue growing your effectiveness as a math teacher?