How to Use This Resource

> *What we want from children who play games is for them to construct insights into the games, create mathematical strategies for winning the games, explain those insights and strategies to others in their own words, have good reasons for believing in their insights and that their strategies work, and respond appropriately to challenges to the adequacy of those reasons and strategies.* ***These are important skills to acquire not only for mathematics but also in life in general.***
>
> —Michael S. Schiro, Associate Professor,
> Boston College and author of numerous games articles

Why These Games?

The Selection Process

The games in this resource have been selected carefully through a three-step process:

1. First, each game was chosen for its success, time and time again, in helping students develop skills in the mathematical areas of geometry and measurement (including data). In *Math Games for Geometry and Measurement* you will find all-time favorites such as *Connect Four* and *Compare*. You will also find games you've likely not encountered before, as well as twists on some of your personal favorites.
2. Second, the list of games was narrowed to those games that can be played successfully by learners on their own in learning stations as part of math workshop.
3. Third, every game was considered carefully within the context of mathematical standards, resulting in those that strongly support mathematical standards. For those who would like support with these connections, see page ix to download supporting materials.

My Story

When I first began teaching, I was constantly looking for resources to support my students' learning of mathematics. My search often led me to Math Solutions' publications. In later years, I became a consultant for Math Solutions. As I led professional learning courses across the nation, I found that much of my time was dedicated to developing capacity and depth in the areas of geometry, measurement, and data. Teachers near and far wanted ways to support their learning as well as their students' learning in these areas.

After facilitating professional learning for implementing math workshop, I developed and wrote *Math Games for Number and Operations and Algebraic Thinking*. This resource has helped teachers effectively introduce concepts while supporting individual learners and learning styles. There were two more strands of mathematics unaddressed in the first book, and so *Math Games for Geometry and Measurement* needed to be written. This book is a companion to the first. The more than twenty games in this book offer teachers an

> "The more than twenty games in this book offer teachers an abundance of ideas for use in their learning stations during math workshop, while simultaneously providing meaningful practice and supporting individual students."

abundance of ideas for use in their learning stations during math workshop, while simultaneously providing meaningful practice and supporting individual students. *Math Games for Geometry and Measurement* supports teachers in differentiating any math curriculum by altering content, process, or product. Students are able to learn at their own level. Students are able to produce different products to demonstrate their understanding. Teachers are able to address the mathematical standards in geometry, measurement, and data. I collected and created these games, tested them with students, and *Math Games for Geometry and Measurement* includes them all.

Do I Have Time for These Games?

The instruction of each game takes approximately one math lesson or sixty minutes (some are slightly less than an hour and others are slightly more). The independent play of each game takes twenty to thirty minutes on average. It's important to note that every game is designed so students can ultimately play them independently, freeing you for time to do small-group instruction and more.

Do These Games Support My Curriculum?

The games offered within this resource support and sustain a math workshop model while complementing any math curriculum. The games support common mathematical standards as well (see page ix for directions on how to access and download these connections).

How Is This Resource Organized?

Step-by-Step Instructions

The format of this resource is intended to be friendly and accessible for you, the teaching professional. Each game features step-by-step instructions, organized in four steps:

Part I: The Connection: Relate the game to students' ongoing work.

Part II: The Teaching: Introduce and model the game to students.

Part III: Active Engagement: Engage students to ensure they understand how to play the game.

Part IV: The Link: Students play the game independently.

These steps are adapted from the Math Solutions resource *From Reading to Math: How Best Practices in Literacy Can Make You a Better Math Teacher* by Maggie Siena (2009).

Tips

Various tips are included in the margins of each game for quick reference; these tips are intended to facilitate the teaching of the game and give insights into managing game materials, how students might experience the game, how technology might assist when modeling the game, and more.

Key Questions

Every game includes key questions to ask students as you observe them playing. Asking these questions assists you in understanding how or whether students are developing strategies. By asking questions, students are given the opportunity to hear each other's thinking and to develop their own understanding of the content even further.

Learning Targets

Each game includes Learning Targets. The Learning Targets are guided by mathematical standards. They are written for the student in a way so that students have a clear understanding of the content knowledge required of them in the game. I recommend sharing Learning Targets and posting them where the class can easily see and refer to them as the game is played.

Differentiating Your Instruction and Assessments

Every game includes insights on how it can be modified according to the levels and needs of your students. Differentiation occurs when you alter content, process, or product. In some cases, assessments are also included.

Reproducibles

As often as possible, game materials—especially game boards and recording sheets—are provided in reproducible format at the end of this resource. As you might imagine, recording sheets encourage students to record their thinking; it is important for students to be able to articulate how they are thinking. It is equally valuable for other students to see how their partner is thinking about the content of geometry, measurement, and data. See page ix for directions on how to access and download the reproducibles.

Game Directions

At the end of the resource, you will find a condensed page of each game's directions written for students (these reproducibles are numbered starting with the letter G). These directions can be reproduced and handed out as needed to facilitate the game, especially during math workshop. The directions support students' success in playing each game and also make it easier for students to play the game at home. See page ix for directions on how to access and download printable versions of the game directions.

Get Started!

The games can be accessed in any order. To help you find the game you want as quickly as possible, two contents lists are provided:

This resource is written for professionals who wish to support students' understanding in learning about how mathematical concepts work. It's written to help students explore geometry, measurement, and data by using materials, engaging with peers, and discussing and deepening their understanding. This resource is written for us—the teachers and teaching professionals who want our students to succeed in mathematics. It is written with a love for learning, compassion for colleagues, and dedication to students past, present, and future. My hope is that *Math Games for Geometry and Measurement* enriches the understanding of your students while minimizing your planning and preparation time. It's all here. Use it. Enjoy it. Share it.