



Say It with Shapes and Numbers

Games, projects, and activities that mix in math
for ages 3–6

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SAY IT WITH SHAPES AND NUMBERS

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Say It with Shapes and Numbers

Games, projects, and activities that mix in math for ages 3–6

Play games, build towers, move to the beat, and go on a pretend picnic—all with math!

This book contains over 300 ways to mix in math.

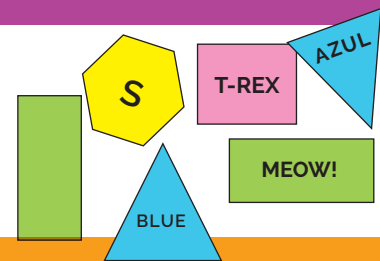
Games

Play to match colors and numbers, to compare, sort, and count, and to add and subtract. Includes Game boards and Ladybug Card Deck.



Projects and Crafts

Build, design, and create with projects and crafts that use everyday materials. Includes letters and English and Spanish words in colorful geometric shapes to use for projects that combine geometry, patterns, and literacy.



Food and Water

Ideas to investigate and games to play in the kitchen, at snack time, or around water.

Good for Groups

Group games, party favorites, icebreakers, and circle time activities for indoors and out.

Anytime, Anywhere

Activities to do and games to play wherever you are: in the car, on the bus, in a waiting room, or at the dinner table.

All Year Round

Ideas for mixing math into seasons, holidays, and special events all year round.

Aligned with the NAEYC /NCTM Joint Position Statement on Early Childhood Mathematics and the Kindergarten Common Core Math Standards. Developed by the MIXING IN MATH group at TERC, an education non-profit, and based on research funded in part by the National Science Foundation.



Why did we write SAY IT WITH SHAPES AND NUMBERS?

We believe that creativity, play, and socializing are important ingredients in learning just about anything. This book is designed to put those ingredients into learning math.

We started with the activities, games, and projects that young children enjoy in childcare programs, at preschool, at public libraries, and at home. We highlighted the inherent math with things to talk about, and sometimes we added a mathematical twist. To ensure that our materials were engaging and enriching, we piloted them in a wide range of settings. Independent research showed that children and adults gained math skills, confidence in their math abilities, understanding of the role of math in everyday life, and positive attitudes toward math. To find out more about this research, see mixinginmath.terc.edu.

SAY IT WITH SHAPES AND NUMBERS is based on nearly 15 years of development and research funded in part by The National Science Foundation.

Who is this book for?

Everyone! It's for young children and their families, for mathophobes and mathophiles, and for parents, childcare providers, librarians, and teachers. The games, projects, and activities are geared toward children ages 3-6, but older children will also enjoy and find challenge in them. Some are perfect for one or two children with an adult or older child, others work well with a group at home, at a party or family event, at a childcare program, at school, or just about anywhere.

What math is in the book?

The games, projects, and activities in this book span the key topics addressed in the NAEYC/NCTM Joint Position Statement on Early Childhood Mathematics and the Kindergarten Common Core State Standards for Mathematics. See pp. 105-109 for more detail. Many of the ideas in this book are interdisciplinary, including topics in literacy, arts, science, social studies, and engineering.

Thank you!

The authors of the book, Marlene Kliman, Valerie Martin, and Nuria Jaumot-Pascual, are very grateful to Martha Merson of TERC for her contributions including ideas behind our word shape projects, to Lily Ko of TERC for her input and support, to our external evaluators for evidence-based insights (Char Associates, Miller-Midzik Research Associates, and Program Evaluation Research Group), to Laura DeSantis for amazing images, and to the many childcare and after-school providers, librarians, parents, and children who have collaborated with us over the years. We extend our appreciation to TERC for providing a home for our MIXING IN MATH projects. Marlene would like to thank her daughters Clara and Chloe for helping her mix in math from the start and for providing a reality check on math at home.

Making the most of SAY IT WITH SHAPES AND NUMBERS

This book contains hundreds of games, projects, and activities. You can do them in any order. Look for the information below in each game, project, and activity.

Level. Each is marked with one or more of Easy, Medium, and Hard. Levels reflect "typical" 3-4 year old (Easy), 4-5 year old (Medium), and 5-6 year old (Hard) cognitive, social, language, fine motor, and other skills. Keep in mind that young children vary widely in their abilities. Some people start with Easy for almost any age and then move up as needed.

Note: Levels that only appear in Variations are in parentheses.

Group size. Some projects and activities can be done alone; others are best done with a group. Games require more than one player.

Materials. Some involve no materials; others rely on common materials.

Variations. Includes ways to vary and adapt for different levels of challenge.

Levels: Easy, Medium, Hard
Group size: any

Yes, No, Maybe

Will the next person to arrive have two eyes? ... three eyes?
Predict what's possible.

Materials
none

1 Pose a silly or serious yes-or-no question

Ask about something that could happen ...

Easy. ... in the next few minutes.

Will the next person to get on the bus have two heads?

Medium. ... in the next hour.

Will the rain stop by snack time?

Hard. ... by the end of the day.

Will we have a snowstorm today?

2 Predict

Everyone predicts "yes," "no," or "maybe."

Pick "maybe" only if you're really not sure!



*Why do you think we will have a snowstorm today?
Do we usually get snow in the summer?*

3 Wait and see



Did your prediction come true?

Talk About. Offers ideas on what to talk over in order to support math skills.

Variations

Definite and impossible (Medium, Hard). Everyone says one thing that will (almost) definitely happen and one that is (almost) impossible. For instance, "When I wake up tomorrow morning, I will still be 5 years old," and "When I wake up tomorrow morning, I will have turned into a cat."

Number it (Hard). Choose a number from 1 to 10 to show the likelihood, with 1 unlikely or impossible and 10 very likely or definite.



About the Authors

Marlene Kliman, Senior Scientist and Director of the MIXING IN MATH group at TERC, brings 30 years experience developing research-based resources for children’s math learning in and out of school. A Principal Investigator of out-of-school math projects funded by The National Science Foundation, she has collaborated with a wide range of educational organizations including after-school programs, public libraries, and family literacy centers. She formerly taught math to pre-service elementary grades teachers at Lesley University. Marlene completed her undergraduate studies in mathematics at Harvard and her graduate studies in learning and epistemology at MIT.

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