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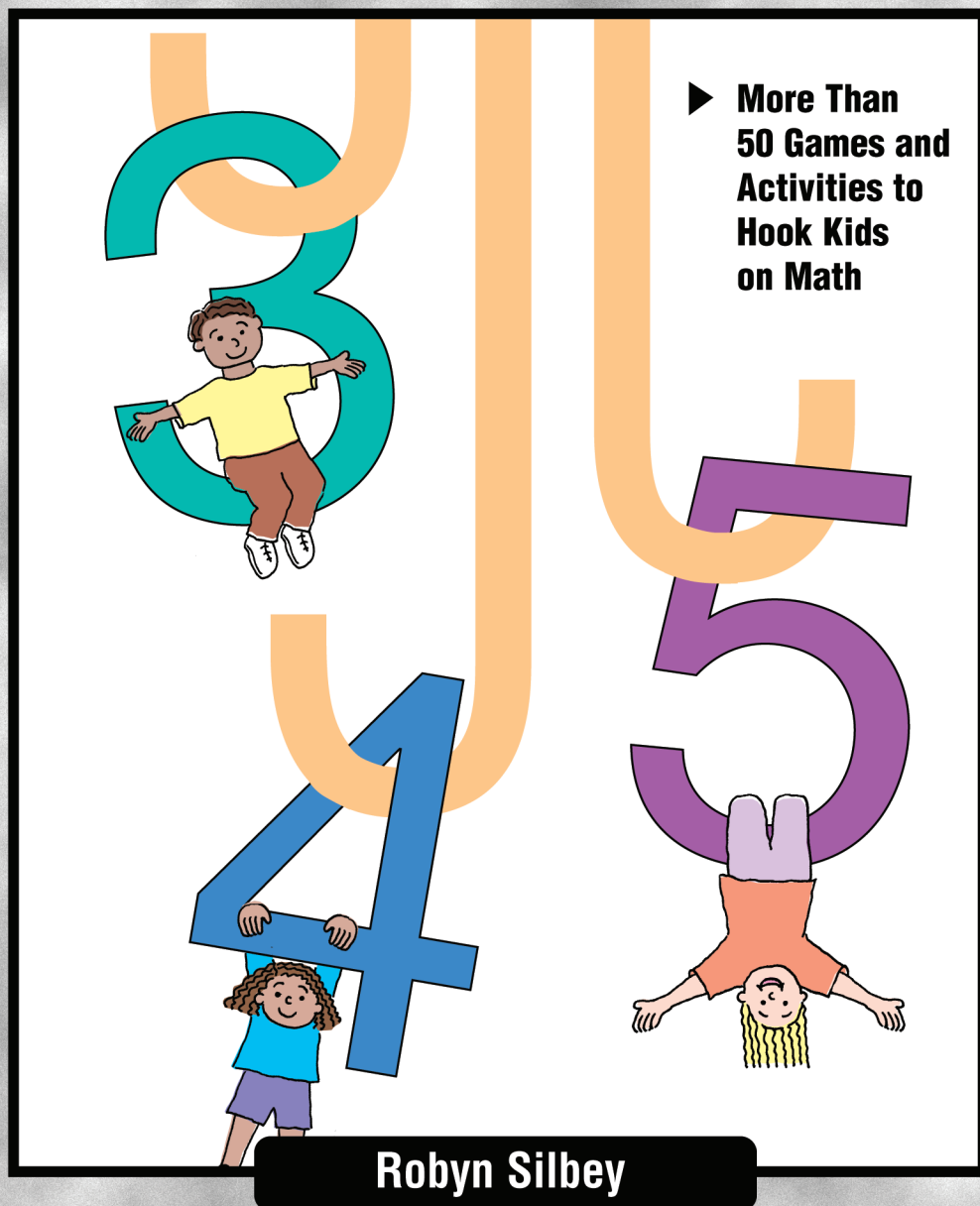
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# Math Hooks 2



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with love**



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# Our Nation's Goals in Mathematics

Most children in the United States are taught within the guidelines of a national program designed to improve children's understanding of mathematics. The Standards set forth by the National Council of Teachers of Mathematics suggest that:

- *Children will be engaged in discovering mathematics. Math Hooks 2* will involve children in games and activities that will help them discover patterns, concepts, and new ideas.
- *Children will see mathematics in daily life activities and experiences. Math Hooks 2* activities require children to integrate mathematics topics into every other aspect of their lives. They will see that they live math every moment of every day.
- *Children will explore and develop an understanding of mathematics concepts using materials they can touch and feel.* With your help, children will be using authentic manipulatives as they use these activities to explore mathematics in the real world.
- *Children will have the opportunity to explore, investigate, estimate, question, predict, and test their ideas about mathematics concepts. Math Hooks* activities involve probing, open-ended questions, and a wide variety of approaches.
- *Parents and teachers will guide children's learning, rather than insist on how it should be done.* Most *Math Hooks* activities include an extensive communication component. Parents and children will be able to discuss and compare solution strategies, or talk about conceptual understanding, observations, and predictions based on their experiences.
- *Children will communicate ideas about mathematics using appropriate terms.* Children should be able to discuss their solution strategies, describe their measurement techniques and tools, and convey their decision-making processes. A glossary is included so that you can enable children to use accurate terms in appropriate contexts. This glossary contains terms that children will hear in the course of their formal mathematics education. It is recommended that parents use the same mathematically correct terminology at home that is used in the classroom.

**Invite your child to explore core learning goals in mathematics that are age appropriate.**

Conceptual understanding (the ability to discover and apply patterns and relationships, number sense, and estimation) and mental math techniques are ideas that emerge with exposure, experience, practice, and motivation. General benchmarks for elementary school age children are shown below. These benchmarks, or core learning goals, reflect the curriculum that is typically taught in elementary mathematics programs from third through sixth grade throughout the country. Although many mathematics concepts encompass a range of understandings, specific concepts within broad categories are shown.

**Place Value, Numeration, and Number Sense**

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- *Understand numbers and place value*
  - *Compare and order numbers*
  - *Estimate numbers*
  - *Build and take apart numbers*
- 

**Whole Number Operations**

---

- *Develop conceptual understanding of multiplication and division*
  - *Recall basic facts in multiplication and division*
  - *Recognize how operations are related*
  - *Add, subtract, multiply, and divide whole numbers*
  - *Estimate sums, differences, products, and quotients*
  - *Identify patterns in sums, differences, products, and quotients*
  - *Make generalizations about numbers and operations leading to an understanding of algebraic concepts*
-

## **Money and Time**

- *Relate money concepts to real-life experiences*
- *Make change*
- *Add, subtract, multiply, and divide money amounts*
- *Explore elapsed time*
- *Estimate units of time*
- *Develop “time” sense through schedules and time management*

## **Fractions**

- *Construct models for fractional parts*
- *Find fractional parts of regions and sets*
- *Find a fraction of a number*
- *Use fractions within real-life concepts*
- *Add, subtract, multiply, and divide fractions and mixed numbers*

## **Geometry and Measurement**

- *Apply concepts of congruence, symmetry, and transformations*
- *Apply perimeter and area to real-life situations*
- *Find perimeter and area of shapes*
- *Develop spatial sense and visual reasoning*
- *Explore solid and plane geometric figures*

## Data

- *Read simple tables and graphs*
- *Organize data into simple tables and graphs*
- *Sort and compare everyday objects*
- *Copy and continue patterns*
- *Create original patterns*

*Math Hooks 2* is organized by categories so that, as your child is focusing on a topic at school, it can be effectively discussed and reinforced at home. Modify the activities to meet the needs of your child. Encourage your child to “take risks” by accepting responses that may not be correct, but that offer a clear vision of his or her thought processes. Guide your child to think and discover. Help your child find the importance of mathematics in his or her daily life.





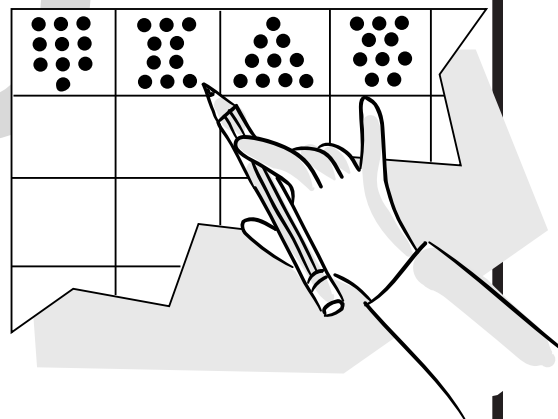


# Place Value, Numeration, and Number Sense

# Im-“pressed” with One Thousand

**Y**our child may already know how to read and write one thousand. In this activity, he or she will learn more about the size of one thousand.

(Grades 3–4)



**Categories:** Numeration, Number Sense  
**Format:** Activity  
**What you need:** Ten-by-Ten Grid (p. 76), calculator

## What to do:

- 1 Have your child trace or copy the grid on the Ten-by-Ten Grid. Then ask your child to draw ten dots in every square on the top row of the grid. Discuss how the total number of dots can be found by skip-counting by tens rather than counting each one. Then have your child find the total.
- 2 Ask, “How many dots would you have if you drew ten dots in every square of the grid?” Discuss the response and guide if necessary. (There would be 1,000 dots.)
- 3 Have your child use a calculator to check his or her work. Your child can begin by entering [1] [0] [0] [=] into the calculator.
- 4 Have your child enter [=] and tell what happens. Then ask your child to predict the number of times [=] will need to be entered to make 1,000. Have your child use the calculator to test his or her prediction. (10 repetitions of = will make 1,000.)

*As an extension of this activity, have your child press [ON/C] to clear the screen and start over. This time, have him or her enter [1] [0] [=] into the calculator and predict the number of times [=] must be entered to reach 100, then 1,000. (10 times for 100, 100 times for 1,000.)*



$$15 \div 3 = 5$$

$$4 \times 9 = 36$$



# Whole Number Operations

$$8 \div 2 = 4$$

$$2 \times 4 = 8$$

# Cross-Out Chart

Blank Basic Facts Table

$\times/\div$	0	1	2	3	4	5	6	7	8	9	10
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

**T**his activity focuses your child on what he or she already knows. It promotes a positive attitude and gives your child an idea of where he or she is with regard to memorizing one set of basic facts.

(Grades 3–5)

**Categories:** Whole Number Operations, Patterns and Relationships

**Format:** Activity

**What you need:** Blank Basic Facts Table (p. 78), Multiplication Facts List (p. 77), or Basic Facts Table (p. 79)

## What to do:

- 1 Work with your child to complete one row of the Blank Basic Facts Table at a time. You may wish to provide your child with a completed facts list or chart as a reference. Guide your child to seeing the skip-count patterns he or she creates upon completing each row. Actively involve your child by asking him or her to do all of the writing. Provide facts wherever needed—this sheet will be used later as a reference.
- 2 Once the entire table is completed, help your child decide which facts he or she already knows. Ask your child to use a pencil to lightly cross these facts off of the table. Make sure your child only crosses off facts he or she really knows since they will be eliminated from future activities.

*Your child will find that, after he or she eliminates facts such as the “times zeros,” he or she has less to learn than supposed! Proceed with basic fact mastery using one of the several activities found in this section.*