

Introduction

Youngsters are naturally active and resourceful. They will construct, modify, and integrate ideas by interacting with the physical world. At play, they begin to form connections that clarify and extend concepts introduced in the classroom. Games that incorporate mathematical terms will provide concrete models and help students to develop number sense.

By the second grade, children have acquired a wide range of individual mathematics understanding; therefore, their level of knowledge must be appropriately assessed. Interviews and observations will be your best guide. It is recommended that the Pretest or Post Test, found on pages 7–8 and 109–110, be presented at the beginning and end of each chapter.

For easy assessment, a skills check test is provided at the end of each chapter (pages 42, 74, and 108). A file folder containing each student's tests should be kept for easy access.


The first chapter, Number Systems, provides practice in understanding numbers, the ways of representing numbers, and the relationships among numbers.

Chapter 2, Operations, explores the meaning of adding and subtracting as individual operations.

The last chapter, Computation, will help students develop and use **strategies** for computations.

The 100+ activity sheets were developed in accordance with standards as prescribed by the National Council of Teachers of Mathematics. Each of the three chapters—Number Systems, Operations, and Computation—is based on one of the three major content **strands** for Number and Operations. Each chapter contains a sampling of the five process **strands** for mathematics:

Problem Solving 

Reasoning and Proof 

Connections 

Communication 

Representation 

Look for the icons at the top of each page to see which process **strands** are covered by that page. Or check the Correlation to Standards chart on page 6 for a listing of **page numbers** by process strand.

In the early grades, building mathematical knowledge through **problem solving** should involve situations that arise in the classroom. Students should solve problems using familiar objects and situations.

Reasoning and proof are fundamental aspects of mathematics that require young learners to make assumptions and to investigate whether their ideas are sound. Encourage students to explain how they solved problems and how they know their answers are correct.

Language is as important to learning mathematics as it is when learning to read. In order to make assumptions and test ideas, students must be able to **communicate** their thoughts. In the classroom, it is important that youngsters hear the language of mathematics in meaningful context. To optimize mathematical thinking, create and structure a mathematically rich environment for your students. Exploring their ideas will give your students practice in thinking coherently and communicating ideas clearly to peers, teachers, and others. Model **appropriate** conventional vocabulary and, when necessary, encourage students to make and use the vocabulary cards at the back of this book to practice using mathematical language.

When students learn to make assumptions, test their assumptions, and can discuss them coherently, they will be able to recognize and use **connections** among mathematical ideas and to the world around them.

As students begin to create and use **representations** to organize, record, and communicate mathematical ideas, they will be able to solve complicated problems and make predictions. Even very young children can be taught to use models to understand physical, social, and mathematical phenomena.

When students are taught to problem solve, reason to prove, communicate mathematical ideas, make connections, and use representation to interpret mathematical phenomena, math will become more than simply numbers and operations. Mathematics will become the key to understanding their universe and how everything in it relates to everything else.

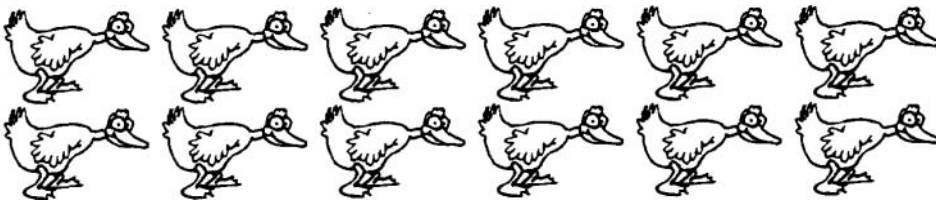



Guess, Then Count


Directions: Look at each set. Guess the number of animals. Write it on the first line. Now count the number of animals. Write that number on the second line. How well did you guess?

1.  _____

2.  _____

3.  _____

4.  _____

5.  _____

6.  _____