Multiplication Facts:
Tips, Tricks, and Strategies

Grades 2-5

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Anastasia Knechtel Silver received her degrees in Mathematics and Education at Queen's University in Kingston, and has lived and taught mathematics in both the USA and Canada.

Table of Contents

Introduction

This book is designed to be a complete overview of basic multiplication facts, from 0×0 through 12×12 and the beginnings of multi-digit multiplication. Students begin with skip counting; the patterns developed there are then revisited as repeated addition of numbers, which in turn leads to multiplication. Students practice each times table individually, with various different methods of visualizing the multiplication process – using counting, area calculations, and grids to demonstrate the facts. Tables are not presented in numerical order; those tables that are easiest for students to remember are provided first, so that confidence in their ability to complete the exercises is increased. In this way, much of the content of the later tables has already been learned, as students apply the associative property of multiplication. For instance, 7-times tables often give students more trouble; however, in this text, by the time the 7-times table is presented, students will already have been introduced to all but two facts from that table. The individual tables are followed by fun activities, which help make the facts more interesting and memorable for the students. Finally, drill practices reinforce the facts learned, and regular checkpoint pages provide a review of each section. A final checkpoint at the very end covers the gamut of topics covered, and a large blank grid form is included at the end for student use.

RATIONALE

Multiplication is a fundamental skill in further mathematical study; anything beyond basic adding of sums requires a firm grasp of multiplication facts. Knowledge of the multiples and factors of numbers can make division, manipulation of fractions, trigonometry, algebra, and investment mathematics simpler to compute.

HOW TO USE THIS BOOK

Begin at the beginning, and work through to the end! This workbook is designed to complement and supplement classroom instruction in multiplication, or it can be used as a stand-alone tool. Additional practice may benefit students; several of the "fun pages" include mnemonics, songs, rhymes, and even games for the students to use to reinforce their memories.

ORGANIZATION

This book is organized into three sections. First, students work with skip counting (that is, counting by 2's, 5's, etc.). Next, the multiplication process is formalized; students have a page of tables, some fun practice exercises, and drill questions for each times table. Finally, the distributive and associative properties are explored, and examples of 2-digit by 1-digit multiplication are introduced.

OVERALL LEARNING EXPECTATIONS

Students will skip count by numbers from 0 through 10 up to at least ten times the number, will learn and begin to memorize multiplication facts from 0 x 0 to 12 x 12, and begin to perform 2-digit by 1-digit multiplication.
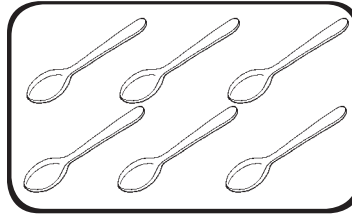
Count On It! – One Number At A Time
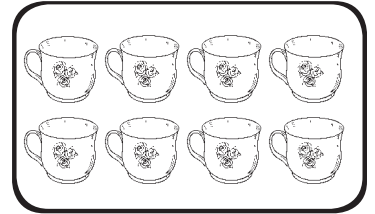
4 × 8 6 1 × 7 + **1** 5

We're going to start learning about multiplication with something familiar: counting and skip counting.
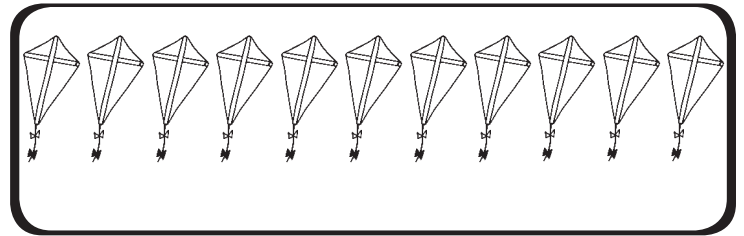
1. Count the spoons:
   How many spoons? _____

2. Count the cups:
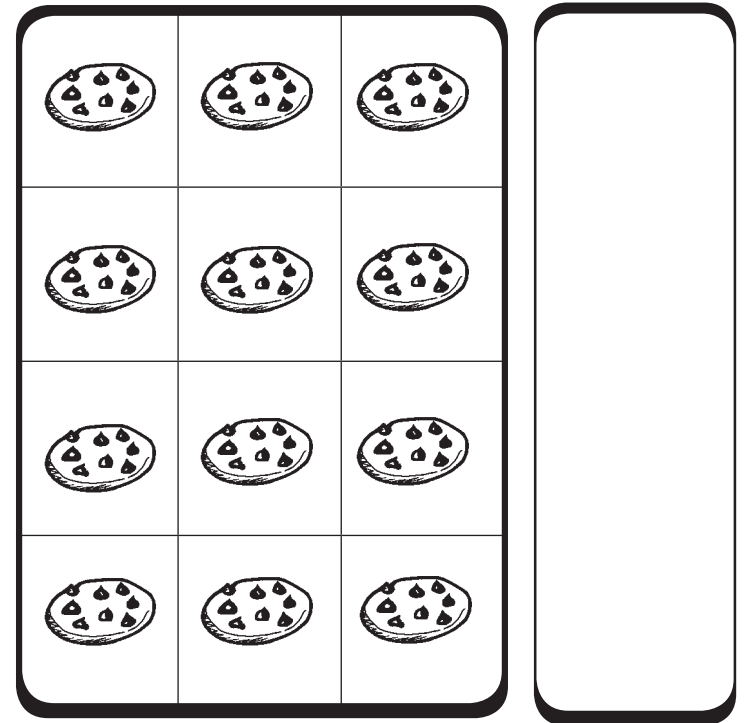
   How many cups? _____

3. Count the kites.

   How many kites? _____

4. We counted these things one by one, not skipping any. Each number we counted is exactly one more than the last number.

   Suppose you have 12 boxes with one cookie in each.
   How many cookies do you get when you take each cookie out one at a time and put it in a pile?
   Cross out each cookie to take it out of its box and draw it in a pile to find out.
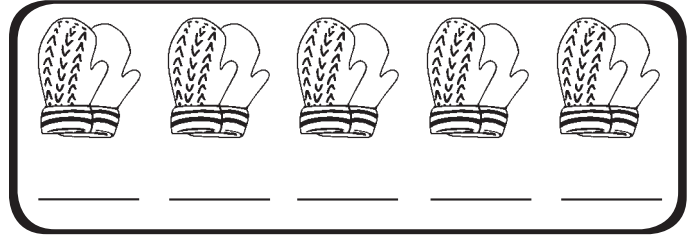   Did you get 12 cookies in the pile? _____

+1 Skip Counting

Count On It! – Pair It Up
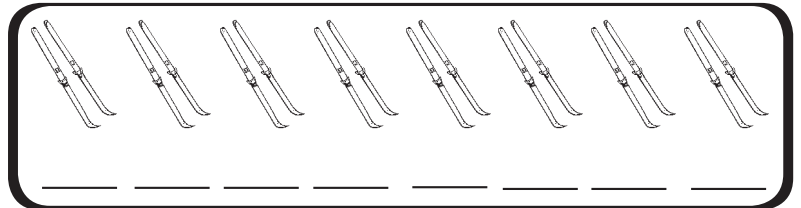
4 × 8 6 1 × 7 + **2** 5

Sometimes we don't want to count every single one of something.
So what can we do? We can skip count instead!

1. How many mittens does Eric have?
Skip count by 2's to find out.
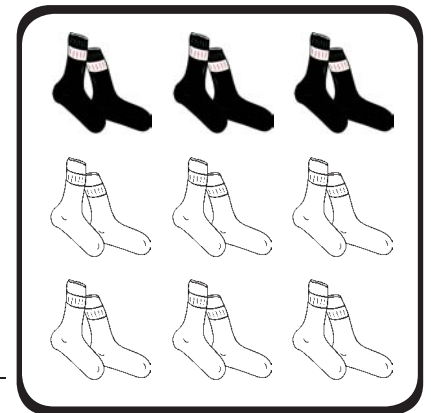Use the lines under each pair to
keep count.

_____ _____ _____ _____ _____

How many mitts all together?: _____

2. These sets of skis need to
have their bindings checked.

How many bindings does Han
need to check? _____

___ ___ ___ ___ ___ ___ ___ ___

3. Fenton bought black socks and
Gemma bought white ones.

How many black socks are there? _____

How many white socks? _____

How many socks are there all together? _____

4. What kind of numbers do you use when you skip count by 2's? _____

What numbers are even numbers?

_____, _____, _____, _____, _____

+2 Skip Counting

Count On It! – Stars in My Pocket
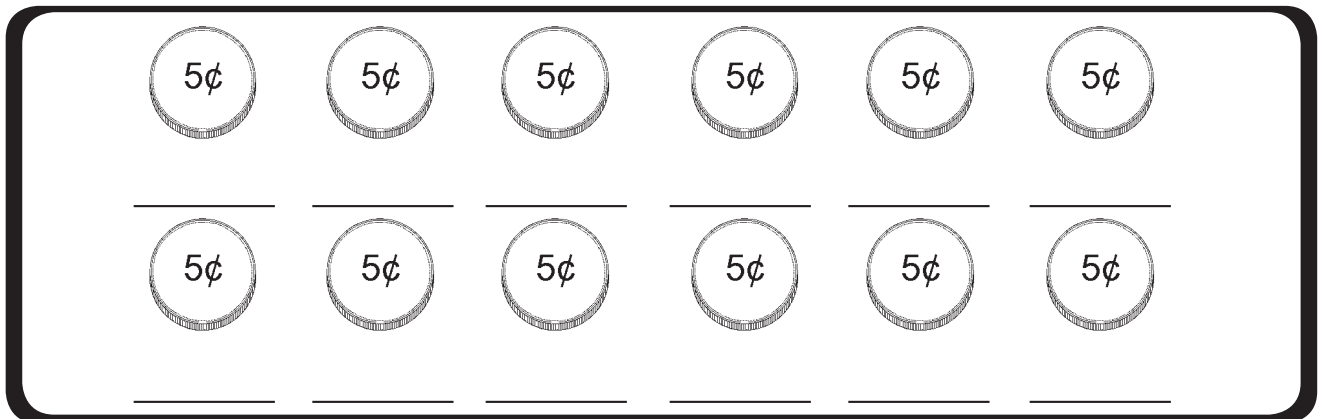
4 × 8 6 1 × 7 + 5 5

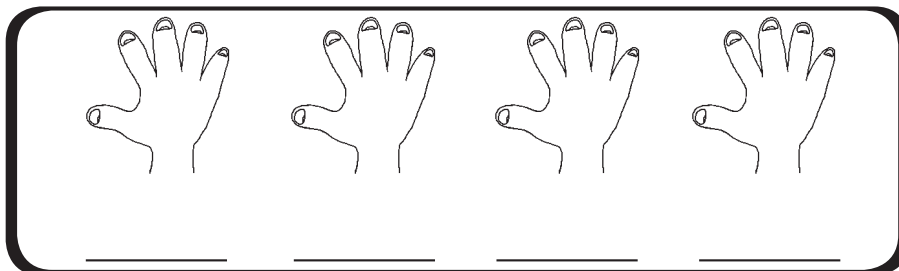We can skip count by other numbers, too. Let's try skip counting by five's!

1. Jessica wants to put a light on each point of every star, but she doesn't know how many lights she needs. Each star has five points. Under each star, put the total number of lights needed.

_____ _____ _____ _____ _____ _____ _____

2. Kyle has part of a roll of nickels. Help him count how many cents he has.

| 5¢ | 5¢ | 5¢ | 5¢ | 5¢ | 5¢ |
| 5¢ | 5¢ | 5¢ | 5¢ | 5¢ | 5¢ |

_____ _____ _____ _____ _____ _____

_____ _____ _____ _____ _____ _____

3. Louise and Mark have finger puppets. If they can put one on each finger, how many puppets can they hold? Skip count to find out!

_____ _____ _____ _____

+5 Skip Counting