

# Spreadsheet Magic

SECOND EDITION

Includes Lesson Templates  
and Samples downloads

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## Contents

Introduction .....	1
<b>Practical Magic .....</b>	<b>13</b>
How Spreadsheets Can Increase Teacher Productivity.....	14
Getting Started with Spreadsheets.....	19
▪ A Complete Model Lesson—Creating Bingo Cards.....	22
Quick Reference Guide for Using Excel .....	29
Standards by Lesson.....	36
Scope and Sequence Chart of Spreadsheet Skills.....	38
<b>Kindergarten Lessons .....</b>	<b>41</b>
1. Counting to 10 (MATH).....	42
2. Classifying Nouns (LANGUAGE ARTS).....	45
<b>First-Grade Lessons .....</b>	<b>47</b>
3. Counting on a Grid (MATH).....	48
▪ Counting to 100.....	48
▪ Counting by 2s, 3s, and 5s.....	51
▪ Counting Large Numbers.....	53
4. March Weather Watch (MATH, SCIENCE, LANGUAGE ARTS).....	55
▪ March Calendar.....	55
▪ Pictograph of March Weather .....	57
▪ Bar Graph of March Weather .....	58
5. Recognizing Patterns (MATH).....	60
6. Pets Survey (MATH).....	64
<b>Second-Grade Lessons .....</b>	<b>67</b>
7. Math Problems with 5, 7, and 9 (MATH).....	68
▪ Math Problems 1 .....	68
▪ Math Problems 2 .....	70
8. Money to Spend (MATH).....	72
9. Finding the Rule (MATH).....	74

10. Change for a Bill (MATH)	77
▪ Counting Up to Make Change	78
11. Apple-Tasting Survey (MATH)	80
12. Bats or Birds? (LANGUAGE ARTS, SCIENCE)	83
▪ Comparisons	85
<b>Third-Grade Lessons</b>	<b>87</b>
13. Secret Message: Pledge of Allegiance (MATH, SOCIAL STUDIES)	88
14. Plot the Points on a Grid (MATH, SOCIAL STUDIES)	90
15. Creating a Multiplication Table (MATH)	93
16. Budgeting Money (MATH)	96
17. Counting Colored Candies (MATH)	99
18. Classifying Vertebrates (SCIENCE)	103
19. Brainstorming and Organizing Ideas (LANGUAGE ARTS)	105
▪ Brainstorming from A to Z	106
▪ Developing Ideas with Writing Prompts	107
▪ Main Ideas and Details	108
▪ Brainstorming on a Timeline	109
▪ Making Comparisons on a Table	110
20. Designing Place Cards (MATH, LANGUAGE ARTS)	112
▪ Compound Words	115
<b>Fourth-Grade Lessons</b>	<b>117</b>
21. Word Search (LANGUAGE ARTS)	118
22. Magic Square (MATH)	120
23. My Measurements (MATH)	123
24. Formulas for Converters (MATH, SCIENCE)	126
25. Visualizing Fractions (MATH)	128
▪ Equivalent Fractions	129
▪ Colored Fractions	130
▪ Fractions: Greater Than or Less Than?	130
26. Music Survey (MATH, MUSIC)	134
27. States and Capitals (SOCIAL STUDIES)	138

<b>Fifth-Grade Lessons</b> .....	<b>141</b>
28. Science Dictionary (SCIENCE).....	142
29. Decimals and Negatives (MATH).....	144
▪ Decimals on a Grid .....	144
▪ Decimals on a Number Line.....	146
▪ Negative Numbers .....	147
30. Finding Prime Numbers (MATH).....	149
31. U.S. Weather Chart (MATH, SCIENCE, SOCIAL STUDIES).....	152
32. Concept Maps: Fairy Tales (LANGUAGE ARTS).....	155
33. Planning a Road Trip (LANGUAGE ARTS, SOCIAL STUDIES, MATH).....	159
<b>Sixth-Grade Lessons</b> .....	<b>161</b>
34. Colored Candies: Ratio, Percentage, and Estimation (MATH).....	162
35. Foreign Language Dictionary (LANGUAGE ARTS).....	166
36. Using Formulas to Calculate Equations (MATH).....	169
▪ Using Formulas to Make Basic Calculations.....	170
▪ Using Formulas to Evaluate Mathematical Expressions.....	172
▪ Using Formulas to Solve Mathematical Equations.....	174
37. Travel Slideshow (MATH).....	176
38. Analyzing Complex Patterns (MATH).....	181
39. Probability with Coins and Dice (MATH).....	184
40. Comparing Countries (SOCIAL STUDIES, MATH).....	189
<b>Appendix—National Educational Technology Standards for Students (NETS•S)</b> .....	<b>191</b>

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## Introduction

Welcome to the second edition of *Spreadsheet Magic*. The 40 lessons in this book provide step-by-step instructions for using spreadsheets to teach students in kindergarten through sixth grade. Spreadsheets were once thought of as a mathematics and accounting tool, but they have proven useful throughout the curriculum. The lessons that follow cover a variety of subject areas: language arts, social studies, science, music, and—of course—mathematics.

On [go.hbe.com.au](http://go.hbe.com.au) are the templates needed for each lesson, as well as samples showing how some of the lessons appear when completed. Extension Activities are also provided. The lessons are taught using Microsoft Excel, but the concepts can be applied to any spreadsheet program.

### The Benefits of Spreadsheets

Why teach with spreadsheets? Spreadsheets are a powerful organizational tool for visual learners. They encourage higher-order thinking and help students develop, arrange, and connect ideas. Students benefit from the visual cues provided by the spreadsheet grid, the formatting of cell borders, various fills, and the use of clip art, formulas, charts, and numerical functions.

Working on computer rather than with pencil and paper helps motivate students to learn. Students love to play on computers and are motivated to complete tasks that might bore them using pen and paper. As I teach my students with spreadsheets, I find the computer engages them as they actively participate and create a product. They enjoy entering their spelling words into a spreadsheet, especially if they can use a tool to check the spelling and to sort words alphabetically.

Working on the computer also allows students to edit their work, correct errors, and print a professional-looking document. Colors and patterns are strong motivators, and students love to change font types and size and add borders of their own choosing. They also love to add clip art to their work.

But spreadsheets aren't just "fun" for students. Organizing data on a spreadsheet grid helps develop thinking skills such as sorting, categorizing, generalizing, comparing, and focusing on key elements. For instance, in the third-grade lesson *Classification of Vertebrates*, students use a spreadsheet to organize data they gather. As they conduct Internet research, students drag and drop data from Web sites to a spreadsheet, categorize the data in rows and columns, and then analyze and interpret the data.

In other lessons, students use the spreadsheet grid to organize words on a page to create products such as calendars; explore number patterns by counting by 7s; and solve a symmetry problem to create place cards. They sort words alphabetically to make a spelling list and a science dictionary. They match questions and answers to make their own flash cards, which helps them memorize math facts, foreign language vocabulary, or states and capitals.

In the *Brainstorming and Organizing Ideas* lesson, students begin with main ideas and develop details for writing a paragraph. In one part of the lesson, they are given

## Encouraging Higher-Order Thinking Skills

Using spreadsheets promotes higher-order thinking skills. Students engage in problem-solving and open-ended activities that have more than one “right” answer. As students complete the lessons in this book, they use the following higher-order thinking skills as defined in Bloom’s Taxonomy: analysis, synthesis, and evaluation.

**Analysis.** In the first-grade Recognizing Patterns lesson, students analyze color and number patterns, then repeat them (Figure I.3). They analyze geography information in the Planning a Road Trip and Comparing Countries lessons. They classify animals as they categorize their characteristics in the second-grade Bats or Birds? (Figure I.4).

Make the pattern above with numbers									
1	1	2	3	1	1	2	3	1	1
2	3	1	1	2	3	1	1	2	3
Make your own patterns using colors, numbers, or basic shapes									
1	2	2	3	1	2	2	3	1	2
2	3	1	2	2	3	1	2	2	3

**Figure I.3.** A completed Recognizing Patterns lesson.

Name: \_\_\_\_\_

### Bats or Birds

What difference does it make?

<p><b>Bats</b></p> <p>They have fur. They don't have beaks. They are born alive. They sleep upside down. They hang from branches.</p>	<p><b>Both</b></p> <p>Both have eyes. Both are animals. Both have wings and can fly. Some eat meat. They are both warm-blooded. Both look after their young.</p>	<p><b>Birds</b></p> <p>They have feathers. They have beaks. They lay eggs. They can stand on a branch.</p> 
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What did you learn about being different from reading *Stellaluna* by Janell Cannon?  
It's OK to be different. It's sometimes hard to be different.

**Figure I.4.** Comparing and contrasting bats and birds helps students understand the characteristics of different kinds of animals.

**Synthesis.** Students synthesize information in numerous spreadsheet lessons. They make up their own patterns, math problems, and secret messages. They integrate and combine ideas, such as in the My Measurements and Travel Slideshow lessons. In the fourth-grade Music Survey lesson, they predict which type of music would be most popular with adults and children, organize their findings, and draw conclusions.

## Scope and Sequence Chart of Spreadsheet Skills

<b>COMPUTER SKILLS</b>	<b>K</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Charts</b>							
Insert a chart, select a chart type		X	X	X	X	X	X
Give a chart or graph a title		X	X	X	X	X	X
Change the color on a pie chart or bar graph				X	X	X	X
Resize and move charts				X	X	X	X
Select non-adjacent data to chart using Ctrl key					X	X	X
Format a Chart					X	X	X
Right-click on a chart and edit it						X	X
Delete series on a chart or graph							X
<b>Document</b>							
Open a document, use Save As		X	X	X	X	X	X
Hide or unhide rows/columns			X	X	X	X	X
View toolbars						X	X
<b>Editing</b>							
Insert text or numbers in a cell	X	X	X	X	X	X	X
Insert or delete columns and rows			X	X	X	X	X
Resize columns and rows			X	X	X	X	X
Insert and Delete cells			X	X	X	X	X
Enter numbers using the number pad			X	X	X	X	X
Enter numbers, plus signs, and equal signs			X	X	X	X	X
Drag and drop contents of a cell			X	X	X	X	X
Edit a spreadsheet and use Undo			X	X	X	X	X
Extend contents of a cell using Fill Right or Fill Down				X	X	X	X
Show/Hide formulas or data				X	X	X	X
Delete text				X	X	X	X
Copy and Paste text				X	X	X	X
Copy Spreadsheet cells using Ctrl, drag, and drop				X	X	X	X

continued