

# Table of Contents

<b>Introduction</b>	3	<b>Unit 3: Bar Graphs (Horizontal) (cont.)</b>	
How to Use This Book	4	Introducing the Graph	38
Parent Letter	6	Data in the Real World	39
		What Do You Notice?	41
<b>Unit 1: Tally Marks and Tally Charts</b>		Graph It!	42
Introducing the Chart	7	What Does the Graph Show?	43
Unit Vocabulary	8	Use Your Own Data	44
Data in the Real World	9	What Does the Data Show?	45
What Do You Notice?	11	Bar Graphs (Horizontal) Assessment	46
Graph It!	12		
What Does the Graph Show?	13	<b>Unit 4: Circle Graphs</b>	
Use Your Own Data	14	Introducing the Graph	47
What Does the Data Show?	15	Unit Vocabulary	48
Tally Chart Assessment	16	Data in the Real World	49
		What Do You Notice?	51
<b>Unit 2: Picture Graphs</b>		Graph It!	52
Introducing the Graph	17	What Does the Graph Show?	53
Unit Vocabulary	18	Use Your Own Data	54
Data in the Real World	19	What Does the Data Show?	55
What Do You Notice?	21	Circle Graph Assessment	56
Graph It!	22		
What Does the Graph Show?	23	<b>Unit 5: Line Plots</b>	
Use Your Own Data	24	Introducing the Plot	57
What Does the Data Show?	25	Unit Vocabulary	58
Picture Graph Assessment	26	Data in the Real World	59
		What Do You Notice?	61
<b>Unit 3: Bar Graphs (Vertical)</b>		Graph It!	62
Introducing the Graph	27	What Does the Graph Show?	63
Unit Vocabulary	28	Use Your Own Data	64
Data in the Real World	30	What Does the Data Show?	65
What Do You Notice?	32	Line Plot Assessment	66
Graph It!	33		
What Does the Graph Show?	34	<b>Appendix</b>	
Use Your Own Data	35	What's Wrong with This Graph?	67
What Does the Data Show?	36	Templates	72
Bar Graph (Vertical) Assessment	37	Answer Key	77

# Introduction

## Why Teach Data Analysis Skills?

Data is all around us. But data analysis can be difficult for teachers to teach. Most core curriculum programs have only a few lessons about data and graphs. As a result, teachers do not have a wealth of content to use to teach these skills.

With *Data Science and Data Literacy*, students are given strong problem-solving strategies that they will use in their daily lives and in their future careers. This book will provide students with frequent opportunities to master and retain data analysis skills in a structured, user-friendly manner.

*Data Science and Data Literacy* will teach students how to read data in graphs, how to create their own graphs based on data that is meaningful to them, and how to analyze and interpret data in graphs.

## About the Book





This book is divided into units that correspond to the type of graph used. Each unit has a real-world theme about which students will gather data. All surveys, problems, and graphs in that unit are centered around the theme. These themes include favorite foods, pets, and book genres.

























Each unit is presented in the following sequence:

- 🕒 an introduction to the type of graph covered in the unit
- 🕒 a unit vocabulary page with terms students will need to know for the unit
- 🕒 a real-world situation presented in the form of data and a graph, with questions that students answer to analyze the given data
- 🕒 data provided for students to create their own graphs and interpret the results
- 🕒 a final activity in which students create their own survey, collect data, and analyze the information gathered

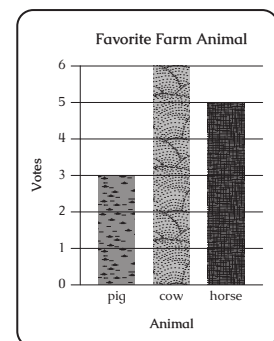
The book concludes with an appendix, which provides the following:

- 🕒 a section on spotting misleading data that gives information about ways graphs can be used to show deceptive or incorrect information; students will become data detectives, ready to recognize these techniques on social media or elsewhere in their daily lives
- 🕒 full-size blank templates of graphs from each unit that students can use to collect and record a variety of data
- 🕒 an answer key for each unit in the book

Vegetable	Number of Students
peas 	
pumpkin 	
carrots 	
bell peppers 	

Pet	Votes
Cat 	     
Dog 	     
Fish 	     
Hamster 	 

Key: 😊 = 1 student



# Picture Graphs

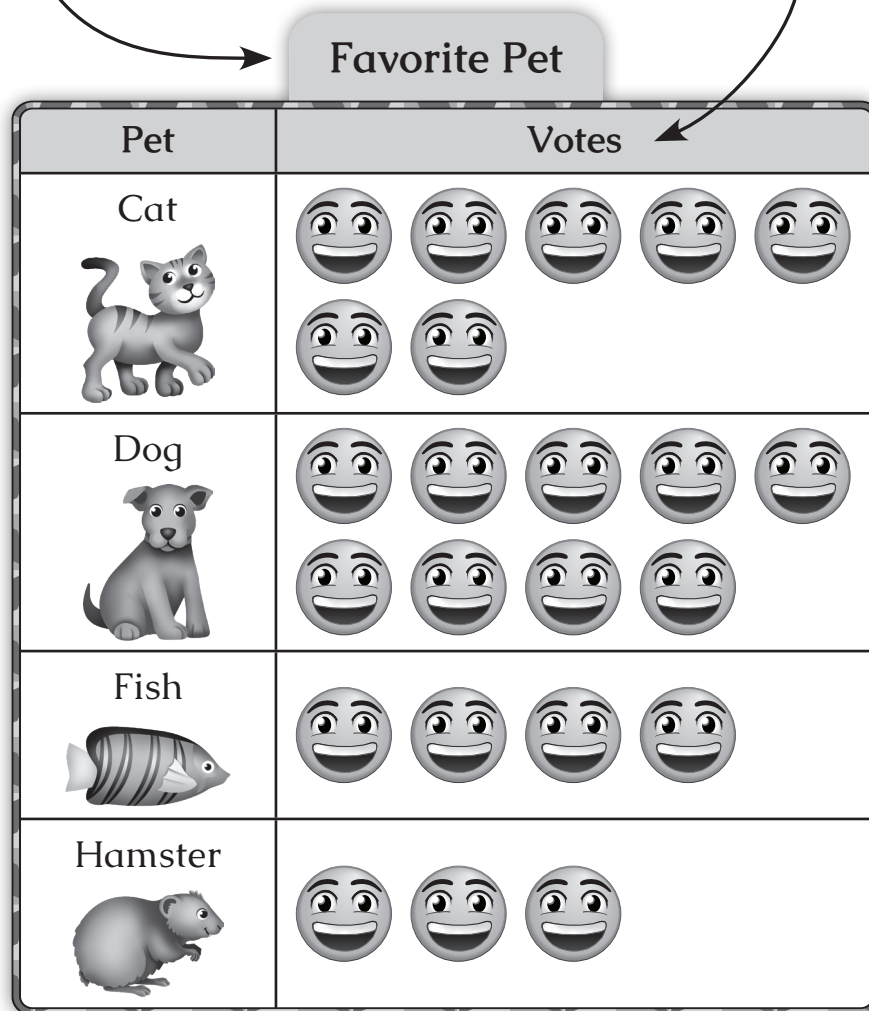
## Introducing the Graph

Picture graphs show data. They use pictures instead of numbers.

A picture graph has a main title. It also has a title for each column or row on the graph. A picture graph also has a key. This key tells what each picture means.

The title tells what the graph is about.

These titles tell what information is in each column. The first column tells the types of pets. The second column shows the number of votes for each pet.



Key:  = 1 vote

The key tells what each picture means. For this graph, each smiley face is one vote.

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

Date: \_\_\_\_\_

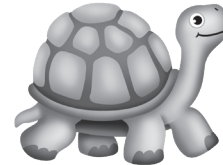
## What Does the Graph Show?

**Directions:** Look at the picture graph on page 22. Use it to answer the questions.

1. Which type of pet are the most students bringing?



2. Which type of pet are the fewest number of students bringing?



3. Which pet has 7 votes?



4. How many more students are bringing birds than lizards? \_\_\_\_\_

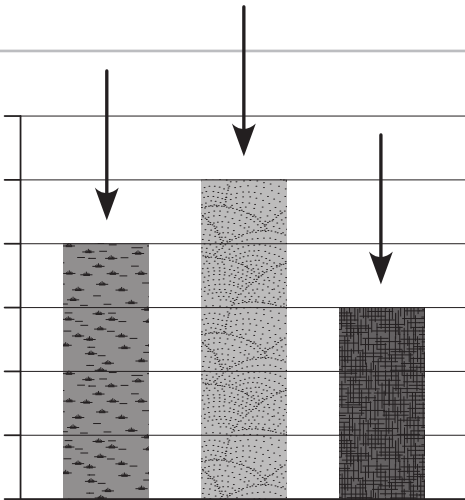
How do you know? \_\_\_\_\_

5. How many total students are bringing pets? \_\_\_\_\_

### Unit Vocabulary

**bars:**

rectangles showing  
data on bar graphs



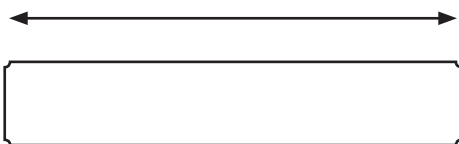
**data:**

a collection of information  
clearly shown as facts  
or numbers

- 18 books are histories
- 7 books are comic books
- 13 books are fiction
- 15 books are scientific

**horizontal:**

positioned from side to side



**label:**

a word or phrase that tells  
what a part of a graph is about

