GOOD YEAR BOOKS

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Welcome to *Baseball Math,* an activity and project book that connects mathematics skills to one of your students' most engaging interests. Assignments range from one-page skill reviews to projects designed to involve groups of students for several weeks. Throughout, the emphasis is on how and why—the essence of problem solving—as well as on communication and reasoning. Many activities include Challenge Problems, and numerous open-ended questions enhance critical thinking skills. Although the intended grade-level range of the book is 4 through 8, no levels are assigned to specific activities. Abilities and aptitudes vary widely from grade to grade and from student to student. The Table of Contents includes a listing of the Common Core State Standards skills developed in each activity and project.

Classroom teachers, as well as researchers, know that most youngsters prefer academic involvements that combine work and play. A study funded by the Alfred P. Sloan Foundation found that sixth-grade students benefited from instruction that linked such interests as art, hobbies, and sports to math and science assignments. This would not have surprised John Dewey, who wrote that "experience is most rewarding when it involves the seemingly contradictory traits of rigor and playfulness."

The lore and numbers of baseball lend themselves perfectly to contextualized, real-world instruction. In the Morrison Elementary School in Philadelphia, Paula Goldstein posed this problem to her students: "On June 10, 1944, Joe Nuxhall pitched two-thirds of an inning for the Cincinnati Reds. But he had to get permission first from his high school principal. Joe was only fifteen years old, and was the youngest player ever to appear in the major leagues. How many outs did he record that day?"

In the pages that follow, your students will project the value of their baseball card collections, compute averages, compile statistics, design a ballpark, compete in a fantasy baseball league, and much more. Activities in the first section are brief, one-page assignments; the projects in the second section are more extended and well suited to small- and large-group participation. In this latter section, assignments range from estimating players' future performance statistics to a classroom presentation of the poem "Casey at the Bat." Cooperative learning strategies are modeled in many of the projects.

You can use the activities and projects for review, reinforcement, and enrichment.

Mathematics is a means of investigation, a way of solving problems, and a way of thinking. It is connected to everything. Baseball activities and projects provide a

Introduction

meaningful and motivating context for mathematics instruction. As Dewey proposed, the traits of rigor and playfulness need not be contradictory.

Acknowledgments

Randy Souviney, an old friend, read an early version of this book and offered some very helpful suggestions for improvement. A new friend, Jack Coffland, read a subsequent draft and provided some finishing touches. Publishing friends Bobbie Dempsey, Jenny Bevington, and Tom Nieman inspired and supported me during their tenures at Good Year Books, exemplifying the sort of author-publisher relationship that all authors cherish. And heartfelt thanks to my wife Nancy Jennison, a former staff developer, who added cheerful encouragement and essential expertise to this edition.

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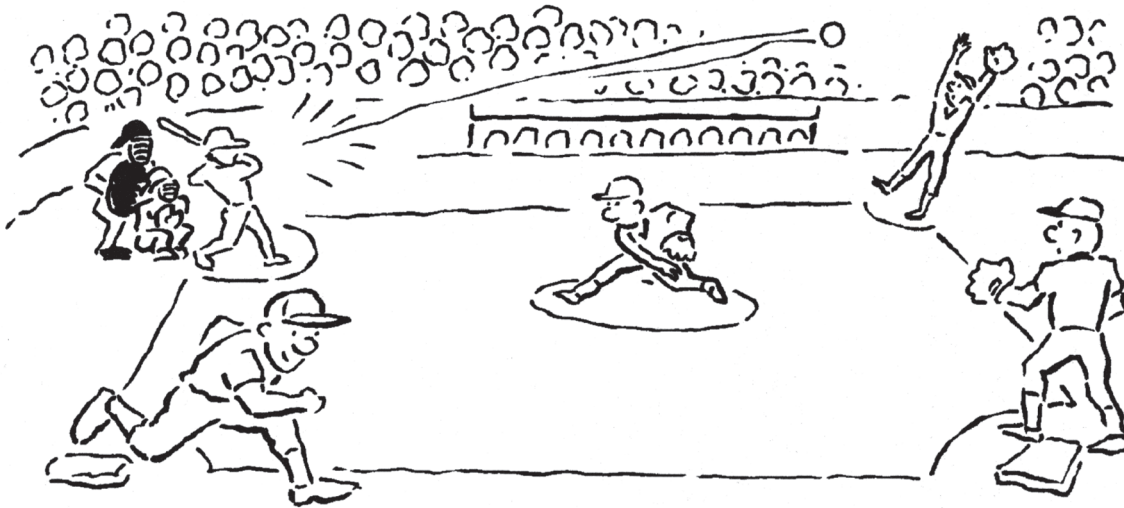Sugar, Bert. *Bert Sugar's Baseball Hall of Fame*. Philadelphia, Running Press, 2009

Contents

Activities

Activities

Place Hitters

The Valdez family went to a baseball game in June. Circle the most sensible answers to the questions below. Explain why the other choices are not.

1. What was the cost of a ticket to the game?

   $4.00 $40.00 $200.00

2. How many hours did the game last?

   3   30   300

3. How many baseball caps were sold by one vendor?

   70   700   7000

4. How much did Mr. Valdez pay for a baseball cap?

   $15.00 $35.00 $350.00

5. How many runs were scored in the game?

   9   90   900

6. How many pitchers appeared in the game?

   5   50   500

7. A trumpet player played the National Anthem before the game. How many minutes did the performance last?

   3   30   300

8. How many players sat in the home team's dugout?

   15   25   40

Card Profits

Terry buys and sells baseball cards. She bought a Derek Jeter card for 40¢ and then sold it for 60¢. A month later she bought the card back for 75¢ and then sold it a second time for 90¢.
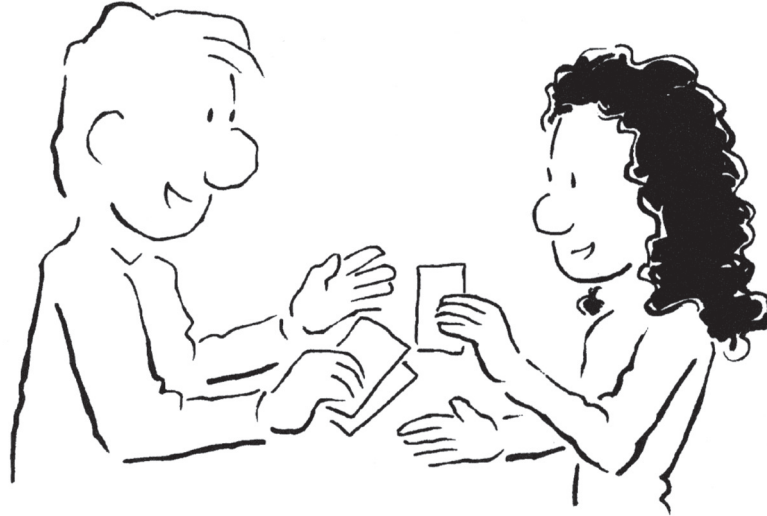
1. When Terry bought the card for 40¢ and sold it for 60¢, did she make or lose money?

   _____

   How much? _____

2. When Terry bought the card back for 75¢ and sold it for 90¢, did she make or lose money?

   _____

   How much? _____

3. How much money did she make or lose in all?

   _____

4. If Terry bought a card for 30¢, sold it for 50¢, and then bought it back for 70¢, how much would she have to sell it for to make a total of 50¢?

   _____

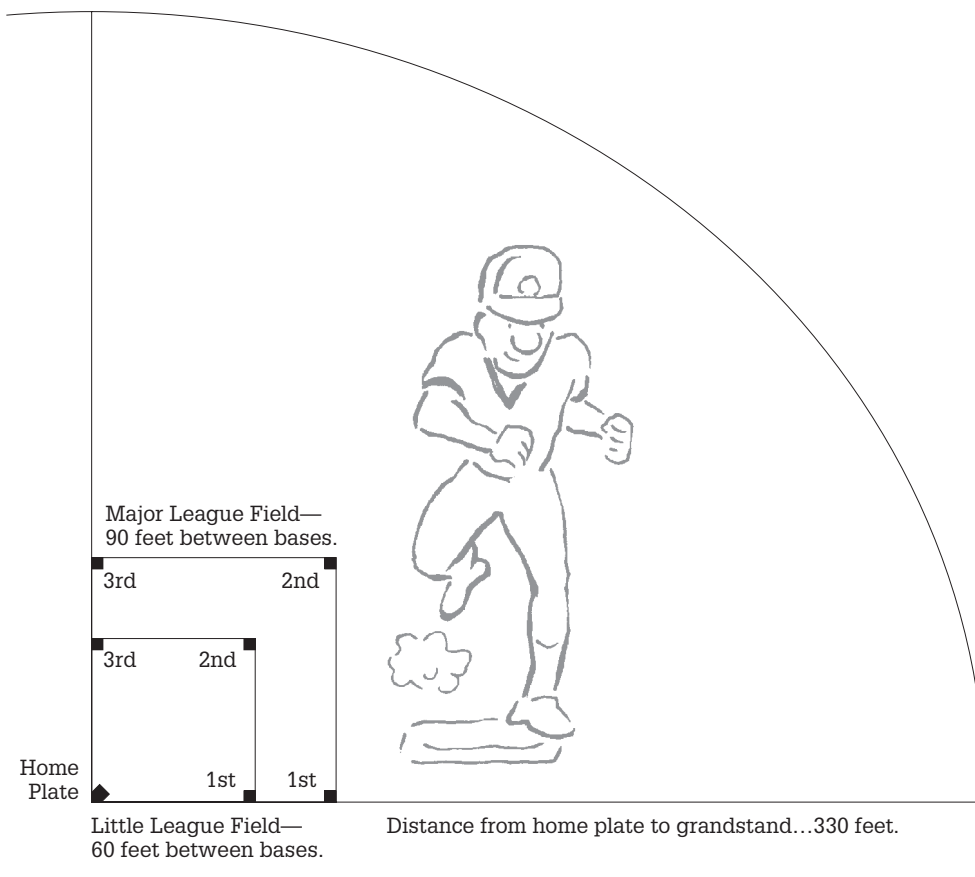# Circling the Bases

Major League Field—
90 feet between bases.

3rd   2nd

3rd   2nd

Home
Plate   1st   1st

Little League Field—   Distance from home plate to grandstand…330 feet.
60 feet between bases.

Solve the following problems.

1. What is the total number of feet a player would travel around the bases if he hit a home run on a major-league field?

   _____

2. What is the total number of feet a player would travel around the bases if she hit a home run on a Little League field?

   _____

Challenge problem

3. What is the difference in feet between first base and the grandstand on a major-league field?

   _____

   What is the difference expressed as a percentage?

   _____

Look at the prices of the items in the picture. How much change will you receive if you buy the following items with the following amounts of money?
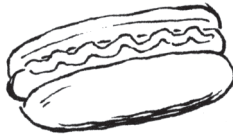
Scorecard $2.50   Popcorn $2.00   Soda $1.75   T-shirt $17.25   Baseball $7.50

Hot Dog $2.50   Pennant $4.50

1. Scorecard, change from $3.00.

   _____

2. Pennant, change from $10.00.

   _____

3. Hot dog, change from $5.00.

   _____

4. Soda, change from $2.00.

   _____

5. Hot dog and soda, change from $5.00.

   _____

6. Autographed baseball, change from $10.00.

   _____

7. Popcorn, change from $5.00.

   _____

8. Two hot dogs, two sodas, and one popcorn, change from $20.00.

   _____

9. T-shirt, change from $20.00.

   _____

10. Parking fee, at $4.00 an hour: 4 hours parking, change from $20.00.

    _____

Team Trip

Major-league baseball teams regularly travel from one city to another. The table below shows you how far some cities are from each other. Read down and then across to find the number of miles between any two cities.

	St. Louis	Atlanta	Houston	Boston	Chicago
Boston	1180	1084	1961		976
Chicago	296	715	1073	976	
St. Louis		582	780	1180	296
Atlanta	582		875	1084	715
Houston	780	875		1961	1073

1. Chicago and Houston

   _____

2. Chicago and Boston

   _____

3. St. Louis and Atlanta

   _____

4. Houston and Atlanta

   _____

5. Boston and St. Louis

   _____

6. How far would a team travel if it went from Houston to Atlanta and then on to St. Louis?

   _____

7. How far would a team travel if it went from Chicago to St. Louis and then on to Atlanta?

   _____

8. Which two cities are closest to each other?

   _____

   _____

9. Which two cities are the farthest from each other?

   _____

   _____

10. Which team should allow the most time for traveling?

    _____

    Why? _____

11. Which team travels the fewest miles in order to play the other team?

    _____