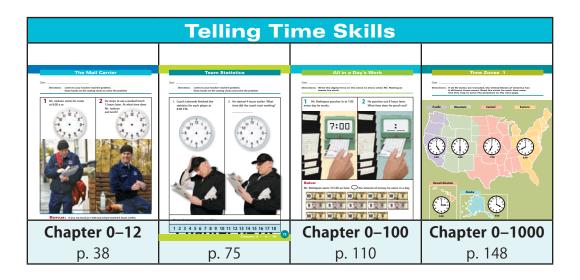


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# Introduction

Attainment's Explore Math books are designed to give students as many visual cues as possible to solve word problems. The books include a Teacher's Manual with suggested lessons for each workbook page and a Student Workbook. Many of the word problems include addition and subtraction computations, fractions, as well as problems that simulate everyday or real-life situations. There are six chapters in the books, starting with vocabulary words and ending with fractions. The chapters are organized so that the teacher can select workbook pages that are specific to individual student needs. Four of the chapters, 0–12, 0–18, 0–100, and 0–1000 are arranged using a similar format. If a teacher has students at different academic levels, she can assign pages that cover a concept but are at different levels of difficulty. For example, using the time telling pages in each chapter, one student may need to solve time to the hour in Chapter 0–12 and another may need to solve time problems using elapsed time to the hour.



The following is a chart to help the teacher find pages in the student workbook that follow similar skills in order to help address the various academic abilities of students found in a special education classroom.

Skill	Chapter 0-12	Chapter 0-18	Chapter 0-100	Chapter 0-1000
matching	p. 18	p. 54	p. 91	pp. 128–129
maps	pp. 19–20	p. 55	pp. 92	pp. 130–131
addition	pp. 21–28	pp. 56–61	pp. 94–99	pp. 132–137
missing addends	pp. 29–30	pp. 62, 63, 66	p. 100–101	pp. 138–139
subtraction	pp. 31–35	pp. 67–74	pp. 102–109	pp. 140–143
time (clock)	pp. 36–38	pp. 75–78	pp. 110–113	pp. 144–146 pp. 148–149
time (calendar)	pp. 39–43	X	X	p. 147
money	pp. 44–45	pp. 79–81	pp. 114–117	pp. 150–151
graphs	pp. 46–49	pp. 82–85	pp. 118–123	pp. 152–153
math riddles	pp. 50–51	pp. 86–87	pp. 124–125	pp. 154–155

#### The Teacher's Manual

The Teacher's Manual has lesson plans for all of the worksheets in the Student Workbook. Each lesson plan has a Materials list that tells what worksheets and other items are used for that lesson.

These lesson plans allow the teacher to teach the skill before assigning the worksheet. Most of the lessons take about fifteen to twenty minutes to teach. Teachers should preview the lessons before introducing the worksheet. **Some lessons incorporate more than one worksheet because they cover the same skill.** The teacher can assign all of the worksheets in the lesson or spread the lesson over several days.

The Teacher's Manual has an Answer Key to all of the worksheets.

#### The Student Workbook

There are six chapters in the Student Workbook. The directions will need to be read by the teacher; the pictures on the page are clues to help the student solve the word problems.

When reading the directions, point out important words that can help the student figure out how to solve the problem, e.g., "altogether" or "how many were left." The teacher does not need to start at the beginning of the book and move sequentially through it to the end.

The **Vocabulary Chapter** consists of vocabulary words and worksheets to practice using the words found in the directions on the worksheets. The exercises in this chapter are designed to give students practice using important math words. Students can cut out and use the vocabulary word cards (pp. 6–9) as a word bank. If you need extra vocabulary word cards, make them by printing out from the PDF CD or by photocopying cards in the Appendix, pp. 161–166.

Chapters 0–12, 0–18, 0–100, and 0–1000 all follow a similar format. The format starts with a matching exercise, then some map work followed by addition and subtraction word problems. There are measurement problems, telling time problems (which focus mostly on elapsed time), money problems, and graphs to plot and interpret. At the end of each chapter are math riddles that involve learning how to predict an outcome, or use clues to solve a math riddle.

**Number lines** are at the bottom of the pages for Chapters 0–12 and 0–18. These number lines are a tool the students can use to solve the problems found in these two chapters. The **Hundreds Chart** at the beginning of Chapter 0–100 serves the same purpose. Students will need a **calculator** to solve or check the problems found in Chapter 0–1000.

The **Fractions Chapter** covers fractions of whole objects or fractions of sets. Again the teacher should select the pages which are appropriate for the students in the class.

# **NTCM Standards**

Attainment's Explore Math Workbook is aligned to many NCTM Standards.

#### **Number and Operations**

Students use their knowledge of numbers and operations to solve everyday or real-life problems. They learn how to use whole numbers and fractions. They develop an understanding that fractions are parts of a whole and parts of a set.

#### **Algebra**

Students use pictorial representations to solve conventional problems. Students learn to analyze patterns and complete them.

#### Measurement

Measurement activities teach students important, everyday real-life skills. Students learn to solve problems that include, length, width, capacity, weight, temperature, money, and time.

#### **Data Analysis**

Students learn to plot and to interpret information found on graphs. Students learn to ask questions or make predictions based upon the data presented.

## **Problem Solving**

Students learn to apply math computational skills to real-life situations and word problem formats. They learn to use a variety of strategies to solve the word problems.

#### **Communications**

Students learn to use mathematical language and apply it to pictures, graphs and math computations. They are encouraged to discuss, read, and write to express mathematical ideas found in word problems.

#### **Connections**

Students discover that mathematical ideas are connected and can be applied to real-life situations. Students are encouraged to use these concepts when relating findings to each other.

# Chapter 1 Vocabulary



## Objective

S. will read and define a set of vocabulary words.

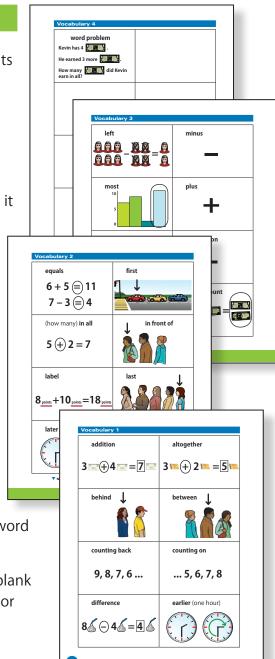
#### **Materials**

- selected Word Card(s) (referenced in student workbook, pp. 6–9
- dry board
- markers
- manipulatives

#### **Procedure**

- 1. Select a set of math vocabulary words for the students to learn.
- 2. Present one word at a time. Write the new word on the dry board.
- 3. Pointing under the word, read the word.
- 4. Next, point to the word and tell the students to read it with the teacher.
- 5. Demonstrate the meaning of the word using manipulatives.
- 6. Call on student volunteers to read the word independently and to define the word using the manipulatives.
- 7. Write the new word in a list of previously learned words, using the new word more than once.
- 8. Tell student volunteers to read the list of words.
- 9. Give a set of learned vocabulary Word Cards to each student to read and define.
- 10. If a student misses a word more than once, use the word as a new word to introduce in the next lesson.
- 11. When proficient, tell the students to use one of the blank cards and to define the word using their own words or illustrations.

Assign selected vocabulary Word Cards.



## **Objective**

Objective: S. will read a word(s) and state whether to add or subtract.

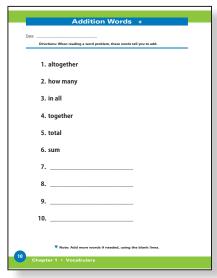
#### **Materials**

- selected Word Cards
- dry board
- markers
- teacher-made word problems on the board, with important math words underlined
- student word charts, pp. 10–11:
   Addition Words and Subtraction Words

#### **Procedure**

- 1. Point to and read the words on the Addition Words chart.
- 2. Lead students through the list again.
- 3. Tell students that each time they see one of the word(s) in a problem, they need to add.
- 4. Point to a problem. Read it. Point to the underlined word. Ask students what this word tells them to do.
- 5. Continue with other addition word problems.
- 6. When firm, introduce the Subtraction Words.
- 7. Follow the same procedure.
- 8. Tell students to use the charts to help them solve the word problems found in their workbook.
- 9. Blank lines are for words that either students or the teacher may want to add.

**Note:** Post **Addition Words** and **Subtraction Words** (photocopy or print out) to allow for easy student reference.



Subtraction Words -
Date  Directions: When reading a word problem, these words tell you subtract.
1. difference
2. how many are left
3. left
4. remain
5. remainder
6
7
8
9
10
▼ Note: Add more words if needed, using the blank lines.
Chapter 1 • Vocabulary

# Objective

S. will identify important position words in a math sentence.

## **Materials**

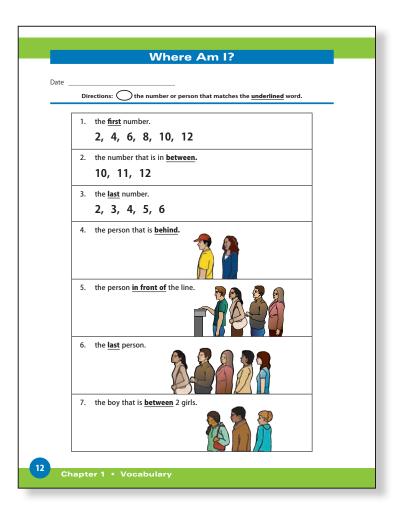
- small manipulatives
- selected Word Cards
- pencils
- student worksheet, p. 12: Where Am I?

#### **Procedure**

- 1. Place a set of manipulatives in a row in front of the students.
- 2. Hold up a vocabulary card, e.g., first.
- 3. Read the word and point to the manipulative that is first in the row.
- 4. Lead students through the task.
- 5. Call on individual students to point to the first manipulative.
- 6. Continue with each additional word and until students are firm.

Assign the worksheet:

Where Am I?

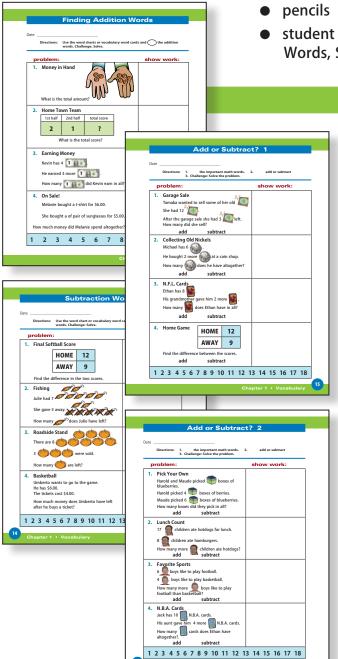


#### **Objective**

S. will solve word problems using key words in the problem.

# 

- dry board
- markers
- posted addition and subtraction words
- student worksheets, pp. 13–16: Finding Addition
   Words, Subtraction Words, Add or Subtract? 1 and 2

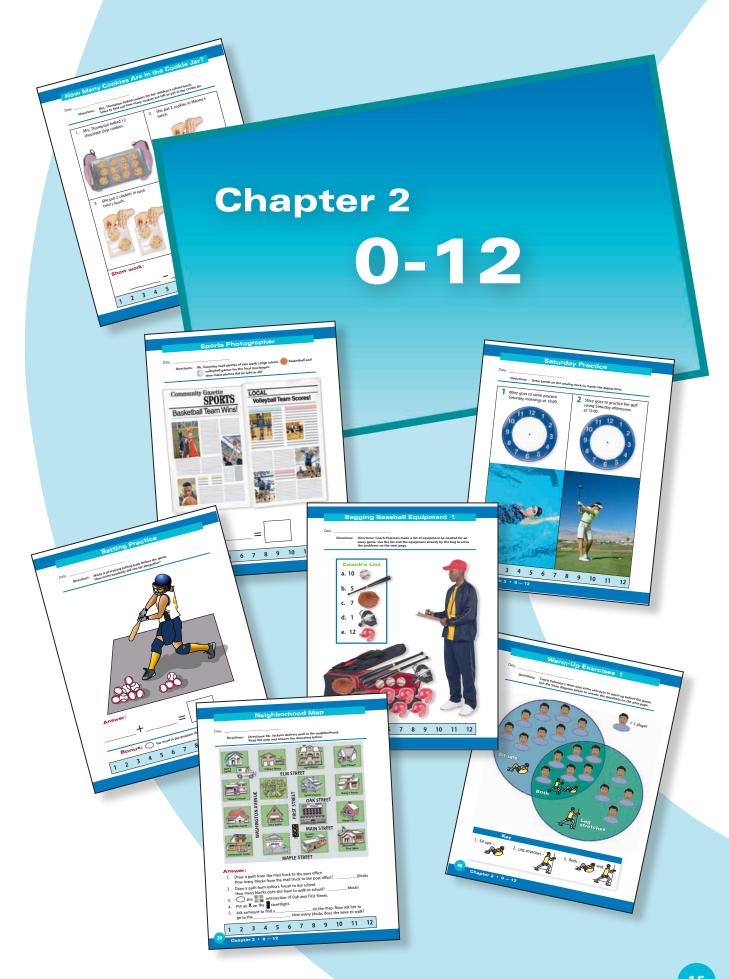


#### **Procedure**

- 1. Using the vocabulary cards, review reading the words.
- Write a teacher-made word problem on the board using some of the learned words.
- 3. Underline the important addition and subtraction words.
- 4. Read the word problem.
- 5. Ask individual students to read the underlined word and tell whether to add or subtract.
- Students can use word cards or the Addition and Subtraction word charts posted in the room or in their book to tell whether to add or subtract.
- 7. Continue until students are firm.

Assign worksheets:

Finding Addition Words, Subtraction Words, Add or Subtract? 1 and 2



## **Objective**

S. will match the number of bills to the total price of an item.

#### **Materials**

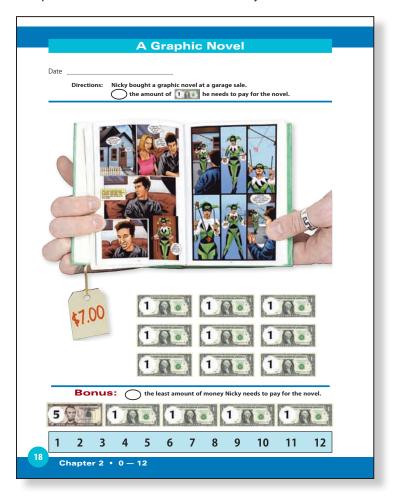
- sets of dollar bills to 12 dollars
- a variety of items with price tags on each
- pencils
- student worksheet, p. 18: A Graphic Novel

#### **Procedure**

- 1. Students are to imagine going to a garage sale.
- 2. Assign student pairs, one to be a customer and the other the seller.
- 3. The seller lays various items in front of the customer to "buy."
- 4. Give the customer a set of dollar bills up to twelve dollars to use to buy items.
- 5. The customer counts the money.
- 6. He selects an item to buy.
- 7. He decides if he has enough to buy the item selected.
- 8. If he has enough money, the customer counts the money that matches the price of the item and gives it to the seller. If the customer doesn't have enough, he selects another item.
- 9. The seller counts the money to be sure that it matches the price of the item selected.
- 10. Students reverse roles.
- 11. Continue until the students are firm.

Assign the worksheet:

**A Graphic Novel** 



## **Objective**

S. will locate objects on a map.

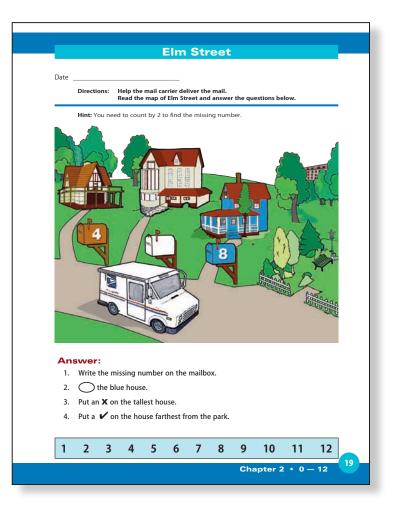
# **Materials**

- a teacher-made map of a street or hallway in a building, etc., with homes/rooms numbered by two, drawn on a dry board
- markers
- pencils
- student worksheet, p. 19: Elm Street

#### **Procedure**

- 1. Point to the map and tell students to brainstorm why maps are important.
- 2. Make a list of students' ideas.
- 3. Point out special features on the teacher-made map.
- 4. Ask individual students to find specific information using the map.
- 5. Continue until all the important features have been identified.
- 6. Write down the numbers 2–12 counting by two.
- 7. Students practice counting and writing numbers by two until proficient.
- 8. Erase addresses or room numbers in random order and tell student volunteers to write the correct address or room number on the map using their knowledge of counting by two.

Assign worksheet: Elm Street



## **Objective**

Using a map, S. will count how many blocks there are from one location to another.

## **Materials**

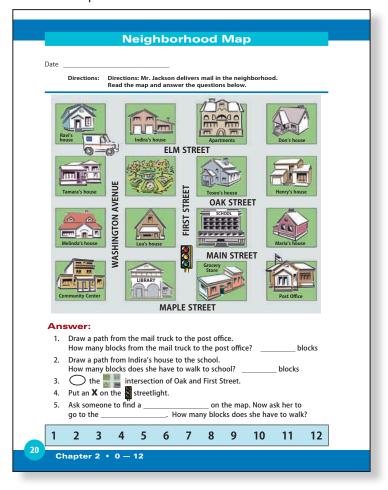
- a teacher-made map of a neighborhood on a dry board
- colored markers
- pencils
- student worksheet, p. 20: Neighborhood Map

#### **Procedure**

- 1. Review list of reasons why maps are important.
- 2. Point out special features of the teacher-made neighborhood map.
- 3. Ask individual students to find certain places on the map.
- 4. Demonstrate how to draw a path from one place to another.
- 5. Count how many blocks are walked to go from one place to another.
- Create scenarios where a student must draw a path from one place to another on the map.
- 7. The student counts the blocks that are walked.
- 8. Continue until the students are firm.

Assign the worksheet:

**Neighborhood Map** 



## **Objective**

S. will solve an addition word problem to twelve.

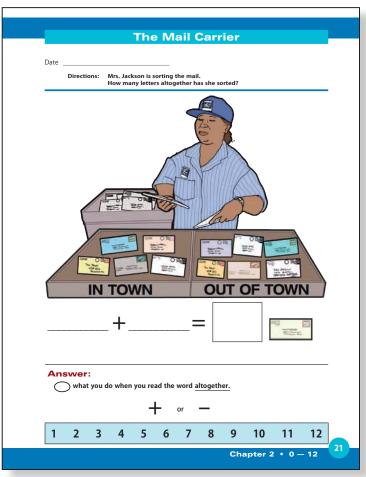
#### **Materials**

- teacher-made word problems
- dry board
- colored markers
- two small boxes
- a set of paper clips, coins, or other small manipulatives
- pencils
- student worksheet, p. 21: The Mail Carrier

#### **Procedure**

- 1. Write **altogether** on the board.
- 2. Write examples of word problems that students must solve to find out how many items there are altogether.
- 3. Tell students to circle the word altogether in the problems.
- 4. Lead students to discover that **altogether** means to add.
- 5. Place two boxes in front of the students.
- 6. Create several scenarios where students must count the manipulatives in each box and write an addition problem to solve how many items there are altogether, e.g., a bank clerk puts 6 coins in one box and 4 coins in another. How many coins are there altogether?
- 7. When firm, encourage students to create at least one problem using the same materials.

Assign the worksheet: The Mail Carrier



## **Objective**

S. will solve an addition word problem to twelve.

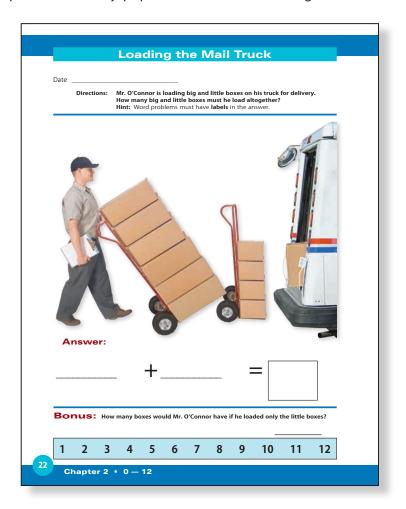
## **Materials**

- a set of paper clips, coins, or other small manipulatives
- pencils
- student worksheet, p. 22: Loading the Mail Truck

#### **Procedure**

- 1. Review with students the meaning of the word altogether when found in a math word problem.
- 2. Create several scenarios where students must count two sets of objects and solve to find out how many there are altogether, e.g., The teacher corrected 6 math papers and 3 spelling papers. How many papers were corrected altogether?
- 3. When firm, encourage students to create at least one problem, using the same materials.

Assign the worksheet: **Loading the Mail Truck** 



## **Objective**

S. will solve an addition word problem to twelve.

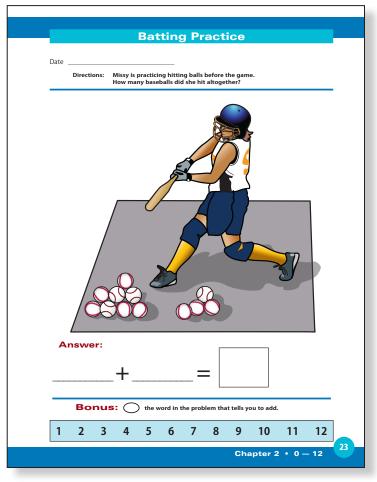
## **Materials**

- teacher-made word problems on the board with the word altogether in them
- a set of paper clips, coins, or other small manipulatives
- pencils
- student worksheet, p. 23: Batting Practice

#### **Procedure**

- 1. Write several word problems on the board.
- 2. Read the problems one at a time and ask student volunteers to find the word altogether in the problem. The student circles the word and states that the word altogether means to add.
- 3. Create several scenarios where students must count two sets of objects, and solve to find out how many there are altogether, e.g., Sara gave 6 sugar cookies to Derrick and 6 chocolate chop cookies to Mary. How many cookies altogether did she give away?
- 4. When firm, encourage students to create at least one problem using the same materials.

Assign the worksheet: **Batting Practice** 



## **Objective**

S. will solve an addition word problem to twelve.

#### **Materials**

- teacher-made word problems
- sports pages from a newspaper
- dry board
- colored markers
- pencils
- student worksheet, p. 24: Sports Photographer

#### **Procedure**

- 1. Write the words in all on the board.
- 2. Write examples of word problems that students must solve to find out how many items there are **in all.**
- 3. Lead students to discover that **in all** means to add.
- Using the newspaper photos, create several addition story problems that students must solve using the photos.
   Students must use addition words in all in the problem.
- 5. Encourage the students to use labels in their solutions to the problems.
- 6. Continue until students are firm.

Assign the worksheet: **Sports Photographer** 



## **Objective**

S. will solve an addition word problem to twelve.

#### **Materials**

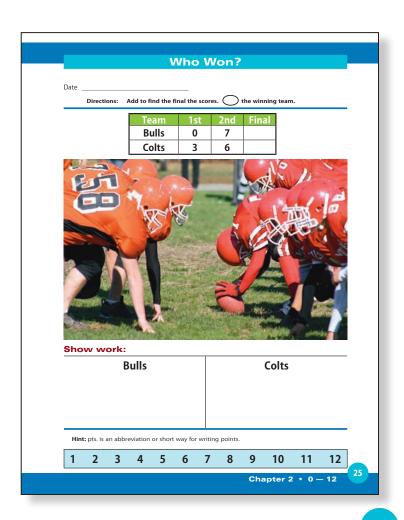
- teacher-made scoreboard on a white board or chalkboard
- markers/chalk
- pencils
- student worksheet, p. 25: Who Won?

#### **Procedure**

- 1. Talk about how scores can be made in a school football game.
- 2. Create different scenarios for scores.
- 3. Demonstrate how to solve to find the final score by adding the scores for the first and second half of a game.
- 4. Provide several examples where student volunteers have to add to find the final score for each team.
- 5. Students must tell what team won the game.
- 6. Emphasize that word problems need labels, and that a short way or abbreviation for writing point is **pt.**
- 7. Continue until students are firm.

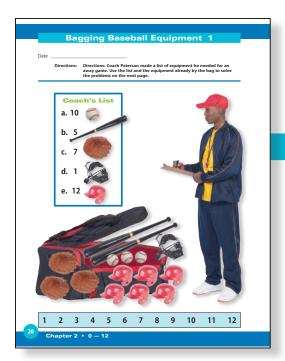
**Note**: Students could play a game such as bouncing a ball. Each student gets two chances to bounce the ball. Record the bounces. The student must stop when he misses a bounce. Add the first and second chances to find the total amount a student could bounce a ball. Compare results.

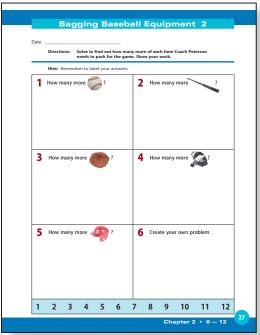
Assign the worksheet: Who Won?



## **Objective**

S. will solve a word problem to twelve.





#### **Materials**

- teacher-made list or inventory of objects
- sets of manipulatives which match the teacher list
- a paper bag
- dry board
- markers
- pencils
- student worksheets, pp. 26-27:
   Bagging Baseball Equipment 1 and 2

#### **Procedure**

- 1. Make a list on the board.
- 2. Place some items in the paper bag that match the teacher-made list.
- 3. Create a scenario where the items in the bag must total the number on the list, e.g., Point to the list and say, "The art teacher needs 10 paintbrushes." Count the paintbrushes in the bag. "She has 7 brushes; how many more brushes does she need to match the number on the list?" Count up from seven: "8, 9, 10." Say: "I counted three more brushes. Seven plus three equals ten. The art teacher needs 3 more brushes." Place the 3 brushes in the bag.
- 4. Lead the students through the problem.
- 5. Call on individual students to solve the problem.
- 6. Continue until all of the objects on the list have been used.

Assign the worksheets:

Bagging Baseball Equipment 1 and 2

## **Objective**

S. will solve a word problem using column addition.

## **Materials**

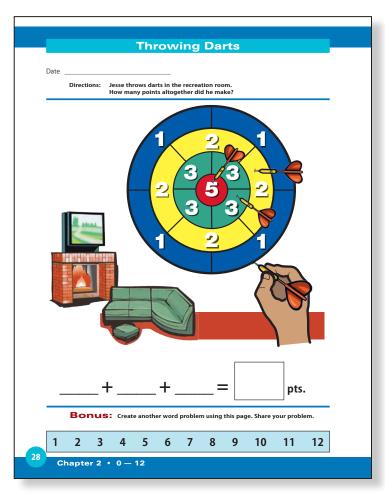
- teacher-made beanbag toss, magnetic dartboard, or other game-like board
- dry board
- markers
- pencils
- student worksheet, p. 28: Throwing Darts

## **Procedure**

- 1. Draw a beanbag or dartboard, or use a magnetic board.
- 2. Create several scenarios using the game board by shading the numbers until three numbers have been used.
  - For example: Margaret threw a dart and it landed on the number 3, the next dart landed on 5, and the final dart landed on 3. What was her total score? Add the three numbers to find the sum total.
- 3. Lead the students through the problem.
- 4. Continue until the students are firm.

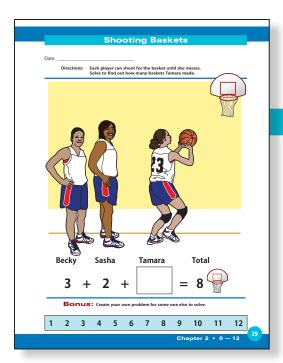
Assign the worksheet:

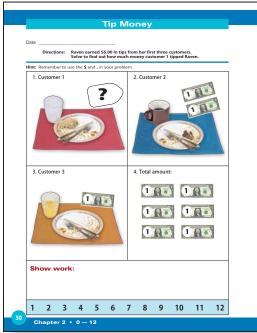
**Throwing Darts** 



## **Objective**

S. will solve a word problem using column addition with a missing addend.





## **Materials**

- teacher-made column addition problems with one missing addend
- dry board
- markers
- sets of dollar bills to 12 dollars
- pencils
- student worksheets, pp. 29-30:
   Shooting Baskets and Tip Money

#### **Procedure**

- Write several column addition problems on the board with a missing addend in each problem.
- 2. Point to a box with the missing addend.
- 3. Create a scenario for the problem.
- 4. Demonstrate how to solve the problem.
- 5. Lead the students through the process of solving the problem.
- 6. Continue until students are firm.

Assign worksheets:

Shooting Baskets and Tip Money

## **Objective**

S. will solve a subtraction word problem using money to twelve cents.

## **Materials**

- teacher-made list of items and prices for sale
- dry board
- markers, set of 12
- pennies
- pencils
- student worksheet, p. 31: Day-Old Bake Sale

## **Procedure**

- 1. Write a list of items and prices on the board.
- 2. Give a set of pennies to a student and ask her to count the pennies.
- 3. The student must "purchase" something from the list that does not exceed the amount of money in her hand.
- 4. The student purchases the item by giving the teacher the total amount of pennies needed to buy the item.
- 5. The student counts how much money she has left.
- 6. The student writes out the problem using cents as a label.
- 7. Repeat until the students are firm.

Assign worksheet:

Day Old Bake Sale

