Numbering Up and Down
Great Smoky Mountains National Park Quarter
## Grades Kindergarten and One

OBJECTIVES

Students will demonstrate an understanding of addition and subtraction. Students will demonstrate an understanding of number sentences and number stories.

MATERIALS

- 1 overhead projector or equivalent technology (optional)
- 1 overhead transparency (or photocopy) of each of the following:
    – "Great Smoky Mountains National Park Quarter" page
    – "Adding Up" worksheet
    – "How Many Left?" worksheet
    – "Operation: Log Cabin" worksheet
- Copies of the following:
    – "Great Smoky Mountains National Park Quarter" page
    – "Adding Up" worksheet
    – "How Many Left?" worksheet
    – "Operation: Log Cabin" worksheet
- 1 copy of an age-appropriate text on addition, such as:
    – *The Mission of Addition* by Brian P. Cleary
    – *Mission Addition* by Loreen Leedy
    – *Domino Addition* by Lynette Long
    – *If You Were A Plus Sign* by Trisha Speed Shaskan
- 1 copy of an age-appropriate text on subtraction, such as:
    – *The Action of Subtraction* by Brian P. Cleary
    – *Subtraction Action* by Loreen Leedy
    – *If You Were A Minus Sign* by Trisha Speed Shaskan
- 1 class map of the United States
- Class chart of math terms
- Chart paper
- Markers
- Pencils
- Scissors
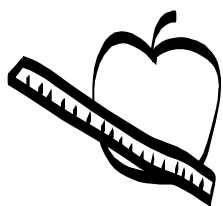
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PREPARATIONS

- Make an overhead transparency or equivalent of each of the following:
  - "Great Smoky Mountains National Park Quarter" page
  - "Adding Up" worksheet
  - "How Many Left?" worksheet
  - "Operation: Log Cabin" worksheet
- Make copies of each of the following:
  - "Great Smoky Mountains National Park Quarter" page (1 per student)
  - "Adding Up" worksheet (1 per student)
  - "How Many Left?" worksheet (1 per student)
  - "Operation: Log Cabin" worksheet (1 per student)
- Locate a text that gives basic information on addition (see examples under "Materials").
- Locate a text that gives basic information on subtraction (see examples under "Materials").
- Develop example number stories for demonstration.
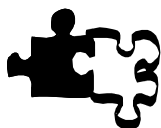- Create a class chart of math terms, such as: "how many are left," "all together" and "in all."

GROUPINGS

- Whole group
- Pairs
- Individual work

CLASS TIME

Three 20- to 30-minute sessions, total 60 to 90 minutes
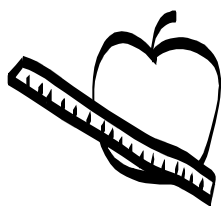
CONNECTIONS

- Mathematics
- Language Arts

NATIONAL STANDARDS/COMMON CORE

- (NS) Mathematics: Number and Operations: Understand numbers, ways of representing numbers, relationships among numbers and number systems. Understand the meanings of operations and how they relate to one another. Compute fluently and make reasonable estimates.

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- (NS) Language Arts: Use grammatical and mechanical conventions in written compositions.
- (CC) Mathematics: Operations and Algebraic Thinking: Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
- (CC) Language Arts-Literacy Conventions of Standard English:
  - L.K-1.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
  - L.K-1.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

TERMS AND CONCEPTS

- Quarter
- Obverse (front)
- Reverse (back)
- Great Smoky Mountains National Park
- Number sentences
- Number stories
- Operation
- "All together"
- "How many are left"
- "In all"

BACKGROUND KNOWLEDGE

Students should have a basic knowledge of:
- Numbers
- Addition
- Subtraction

STEPS

Session 1

1. Display and examine the "Great Smoky Mountains National Park Quarter" page. Locate this site on a class map. Note its position in relation to your school's location.
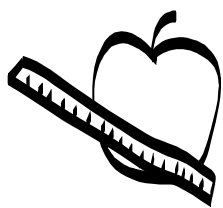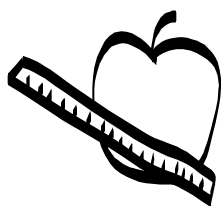
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2. Explain to the students that the United States Mint began to issue the quarters in the America the Beautiful Quarters® Program in 2010. By the time the program ends in 2021, there will be a total of 56 quarter designs. Each design will focus on a different national site—one from each state, territory and the District of Columbia.

3. Tell the students that the front of a coin is called the "obverse" and the back is called the "reverse." Ask the students to share their ideas about the image on the quarter's reverse. If necessary, explain that the image depicts a historic log cabin found in the national park as well as a forest with a hawk circling above. Explain to the students that the Great Smoky Mountains are among the oldest in the world, between 200 million and 300 million years old—older than dinosaurs!

4. Have the students count the images that they see on the coin.

5. Introduce the students to a text on addition. Preview the text and illustrations and allow students to generate observations about addition.

6. Read the text. During the reading, attend to any unfamiliar vocabulary.

7. After the reading, discuss the elements of addition. Review the definition of addition as finding the total of two or more numbers. Give some examples and ask the students to share their own examples.

8. As a class, discuss number sentences and give the students some examples to solve (such as "three pencils plus four pencils equals…"). Encourage the students to share their own number sentences and record them on a class chart for the class to solve.

9. Display the "Adding Up" worksheet. Have the students create and solve their own number sentences using addition.

10. Allow time for the students to complete the assignment. Have them share with the class.

Session 2

1. Review the previous session's worksheets and charts and display the image of the coin.

2. Introduce the students to a text on subtraction. Preview the text and illustrations and allow the students to generate observations about subtraction.

3. Read the text. During the reading, attend to any unfamiliar vocabulary.

4. After the reading, discuss the elements of subtraction. Review the definition of subtraction as taking a number away from another. Give some examples and ask the students to share their own examples.

5. As a class, discuss number sentences and give the students some examples to solve (such as "five carrots minus three carrots equals…"). Encourage the students to

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share their own number sentences and record them on a class chart for the class to solve.

6. Display the "How Many Left?" worksheet. Have the students create and solve their own number sentences.

7. Allow time for the students to complete the assignment. Have them share with the class.

Session 3

1. Review the charts and worksheets from the previous sessions and display the image of the coin.

2. Examine the image. As a class, count the number of logs in the cabin, logs in one fence, windows, hawks and poles in the porch and record them on a class chart.

3. Use this list to tell the students some number stories. For example: "I used 13 logs to build my fence. Three logs cracked. How many logs do I still have left?" Tell the students they need to be sure to pay attention to whether they need to use addition or subtraction.

4. Distribute a copy of the "Operation: Log Cabin" worksheet to each student. Tell the students they will be working in pairs with the worksheets to create and write down a number story for each other to solve.

5. Have them cut out the images on the second page and use them as manipulatives to create their number stories. Then have each student solve their partner's story.

6. Allow time for the students to complete the assignment. Have them share with the class. Collect the worksheets.

ASSESSMENTS

- Take anecdotal notes about the students' participation in class discussions.
- Evaluate the students' worksheets and rubric for understanding of the lesson objectives.

ENRICHMENTS/EXTENSIONS

- Have students research another coin image, such as the 2012 El Yunque quarter at www.usmint.gov/kids/teachers/lessonPlans/atb/view.cfm?id=1201 and write their own number stories based on that image.
- Have students write number stories about the coin image using multiplication and division.
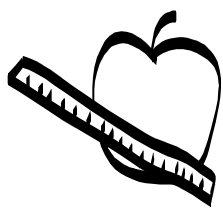
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- Have students write number stories using other coin images from the America the Beautiful Quarters® Program at www.usmint.gov/kids/coinNews/atb/.
- Have students use other coin images from the America the Beautiful Quarters Program at www.usmint.gov/kids/coinNews/atb/ for their manipulatives.
- Have students work in pairs to write more number stories and solve their partners' stories.
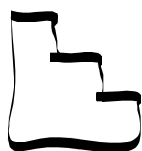
DIFFERENTIATED LEARNING OPTIONS

- Allow students to work in pairs.
- Allow students to use a scribe to complete their worksheets.
- Allow students to use pictures to illustrate their number stories.

Name _____

Adding Up

Directions: Create five number sentences using addition in the spaces below. Write them as numbers also.

Example: Two logs plus three logs equals five logs.
(2 + 3 = 5)

1. _____

_____.

(_____ + _____ = _____)

2. _____

_____.

(_____ + _____ = _____)

3. _____

_____.

(_____ + _____ = _____)

4. _____

_____.

(_____ + _____ = _____)

5. _____

_____.

(_____ + _____ = _____)

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How Many Left?

Directions: Create five number sentences using subtraction in the spaces below. Write them as numbers also.

Example: Four logs minus three logs equals one log. (4 − 3 = 1)

1. _____

_____.

(_____ − _____ = _____)

2. _____

_____.

(_____ − _____ = _____)

3. _____

_____.

(_____ − _____ = _____)

4. _____

_____.

(_____ − _____ = _____)

5. _____

_____.

(_____ − _____ = _____)
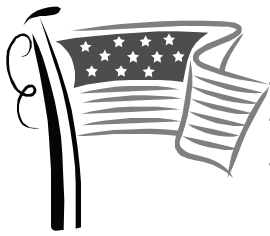
Name _____

Operation: Log Cabin
Page 1

Directions: Choose and cut out one column of pictures from page two then create a number story using those images.

| hawk | hawk | hawk | − | hawk | hawk |

Example: I saw three hawks. Two flew away. How many were left?
(3 − 2 = __)

_____

_____.

(_____ − _____ = _____)

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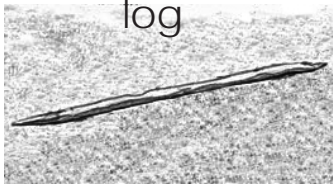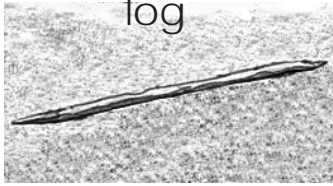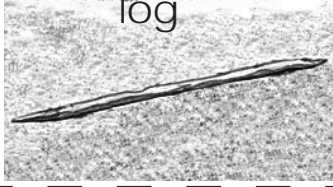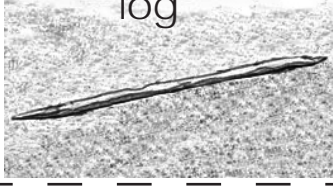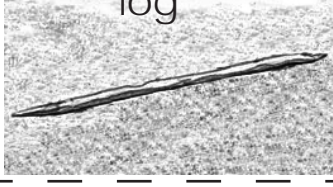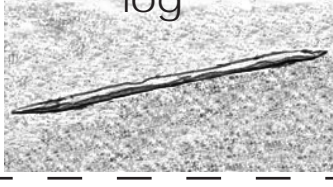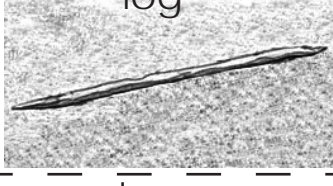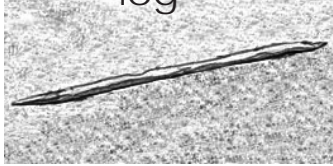
Name _____

Operation: Log Cabin
Page 2

log	hawk	forest	mountain
log	hawk	forest	mountain
log	hawk	forest	mountain
log	hawk	forest	mountain
log	hawk	forest	mountain
log	hawk	forest	mountain
log	hawk	forest	mountain
log	hawk	forest	mountain

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Great Smoky Mountains National Park Quarter

The United States of America

New Hampshire
Massachusetts
Rhode Island
Connecticut
New Jersey
Delaware
Maryland
Washington, D.C.
Vermont
Maine
New York
Pennsylvania
Virginia
West Virginia
North Carolina
South Carolina
Georgia
Florida
Michigan
Ohio
Indiana
Kentucky
Tennessee
Alabama
Mississippi
Wisconsin
Illinois
Missouri
Arkansas
Louisiana
Iowa
Minnesota
North Dakota
South Dakota
Nebraska
Kansas
Oklahoma
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Colorado
New Mexico
Washington
Oregon
Idaho
Nevada
Utah
Arizona
California
Hawaii
Alaska

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