Algebra/Geometry Summer Institute 2006

Stock Market Fractions

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Grade Level: 5^{th}-7^{th}

1. Teaching Objectives

- The student will solve real-life problems involving addition and subtraction of mixed numbers. (1c, e)

2. Instructional Activities

- Before class begins, copy the discussion questions onto an overhead transparency or a PowerPoint slide to show during the discussion portion of the activity.
- Bell-ringer: choose 3 students to work the problems below at the board while the rest of the class completes them at their seats. Discuss solutions as a class (6 minutes)
  1.) $5\frac{1}{2} - 2\frac{1}{3}$ 2.) $5 - 3\frac{1}{6}$ 3.) $4\frac{1}{2} - 2\frac{2}{3}$
- Ask the students to raise their hands if they like to make money without doing any work. The teacher should then ask students to raise their hands if they like to lose money without spending it. Say, "The American Stock Exchange allows people to buy *shares* of businesses like Coca-Cola and commodities like gold. Each *share* is worth an amount of money (or points) that changes each day. Sometimes shares will 'close up' or increase and *shareholders* will make money and sometimes they will 'close down' or decrease and shareholders will lose money. Today we will model the stock exchange as a way of practicing addition and subtraction with whole and mixed numbers." (6 minutes)
- Activity. (25 minutes)
  i. Divide the class into groups of 4 comprised of 2 teams of 2. Give each team one copy of the "'Stock Up' and Win!" worksheets (Attachment 1) and directions (Attachment 2), 3 dice, and 1 two-sided counter.
  ii. Read the directions for the game aloud. Complete the directions for "Day 1" as a class, monitoring each group. Ask for questions.
  iii. Instruct students to complete the activity in their groups. Monitor student progress.
- Post-game discussion: discuss the following questions as a class. (6 minutes)

1. Which teams won the game? Which had the highest total?
2. What strategies did teams employ to win?
3. What is the relationship between dollars and cents and the mixed numbers that we explored today?
4. What did the addition and subtraction represent during the game?
5. In what ways did the game model real-life?
6. In what ways was the game unlike real-life?

3. Materials and Resources

- Materials
  i. "'Stock Up' and Win!" worksheets- 1 per pair (Attachment 1)*
  ii. "'Stock Up' and Win!" directions- 1 per pair (Attachment 2)*
  iii. Dice (3 per group of 4)
  iv. Two-sided counters (1 per group of 4)
- Resources: *Mathematics in Action, Teacher's Edition Part I* (MacMillan/McGraw-Hill, 1993)

*Worksheets created by Lauren Zarandona. Directions adapted from *Mathematics in Action, Teacher's Edition Part I*.

4. Assessment

- Observe student participation and work during the game and during the post-game discussion.
- Grade "Stock Up and Win!" worksheets.
- Problem-solving assessment: Students may work with their team member to solve and explain the answer to the following question.
  i. Jacob bought one share of stock for $50 and plans to sell the stock when it is worth $60. On the first day the stock closed $+5\frac{1}{2}$, on the second it closed $-2\frac{1}{3}$, on the third day it closed $+4\frac{1}{5}$, and on the fourth day it rose exactly enough for Jacob to sell it. How much did the stock rise on the fourth day? Explain how you arrived at your answer.

Attachment 1

"Stock Up" and Win! Data Collection Sheet

How far will $100 get you in the stock market?

Team member names:

_____

	Previous Total	+/–	Mixed #	= New Total (Show work!)
Day 1	$100			
Day 2				
Day 3				
Day 4				
Day 5				
Day 6				
Day 7				

Attachment 2

"Stock Up" and Win!

Materials

- Three dice
- One 2-colored counter
- One data collection sheet per team of 2

Directions

1. Divide into two teams of two. Write the names of team members on the data collection sheet.

2. Each team will roll the dice and use the numbers on the faces to write a mixed number.
   - For example, a roll of 3, 6, and 1 can be written as $6\frac{1}{3}$, $3\frac{1}{6}$, or $1\frac{3}{6}$.

Write the number in the space provided.

3. Flip the two-colored counter.
   - If the counter is yellow, add.
   - If the counter is red, subtract.

Write the operation in the space provided. Both teams should use the same operation.

4. Solve the problem. Write the solution in the space provided. Show your work neatly on lined paper.

5. Repeat steps 2-4 until the end of "Day 7." The winner is the team with the higher total.

"Stock Up" and Win!

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