

Estimation – Operations with Whole Numbers

STRAND: Computation and Estimation

STRAND CONCEPT: Practical Applications-Rational Numbers and Proportional Reasoning

SOL 5.4

Remediation Plan Summary

Students will practice mentally estimating and calculating, using the basic operations of addition, subtraction, multiplication, and division.

Common Misconceptions

Students often want to find the exact solution to a problem. They don't understand how an estimate is an acceptable solution.

Materials

- Missing Numbers Square activity sheet
- At the Mall Game Board
- Copies of the attached game cards, cut apart (enough for each pair)
- Counters
- Memo: What I Remember exit slip

Introductory Activity

- Have students practice various problem-solving strategies by completing the "Missing Numbers Square" worksheet. When they are finished, lead a discussion of the *methods* they used to find the missing numbers. As the students offer their strategies, list them on a chart for display throughout this lesson.

Plan for Instruction

1. Begin the activity by giving students the opportunity to share what kinds of things they like to shop for at the mall. Ask them how they use math when shopping, and discuss their responses. Tell the students that they will be playing a game similar to Bingo that will give them helpful practice in *estimating* necessary calculations when they go shopping.
2. Give each student a copy of the attached "At the Mall Game Board" handout. Decide what will constitute a winning Bingo game board—traditional row, column, or diagonal; four corners; postage stamp; etc.—and explain it to the students. Pair the students, and give each pair a stack of the attached "At the Mall" game cards and some counters. Have the pairs of players decide which person is Player 1 and which person is Player 2.
3. Each pair of players shuffles the game cards and places the stack face down. Player 1 draws the top card, solves the problem, using estimation or mental calculation, and announces the solution to Player 2. If the solution is on the game board (all solutions are on the board),

AR Remediation Plan – Practical Applications-Rational Numbers and Proportional Reasoning

Player 1 places a counter on that number on his/her game board. If the solution reached is not on the board, the solution is wrong, and Player 1 gives the game card to Player 2 for solving.

4. If Player 2 solves the problem correctly, he/she places a counter on that number on his/her game board. If Player 2 does not solve it correctly, the pair must ask the teacher to review with both players the calculations used and discuss the errors.
5. Player 2 draws the next card and follows the same procedure.
6. The game continues in this manner until one player achieves Bingo.

Pulling It All Together (Reflection)

Have students complete the “Memo: What I Remember” exit slip. Allow students time to share what they have written with their partners.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

Virginia Department of Education 2018

Name: _____

Missing Numbers Square

In the square below

- the numbers in each row add up to totals on the right
- the numbers in each column add up to the totals at the bottom
- the six missing numbers are whole numbers, 0 through 9.

Fill in the missing numbers, doing the calculations in your head. You may use a number more than once.

—	—	3	9	20
0	6	9	—	18
1	5	—	—	11
—	9	3	5	23
9	26	19	18	17

At the Mall Game Cards

The mall is having a special “Buy 2, Save \$20!” sale on tennis shoes. How much will 2 pairs of tennis shoes cost during this sale?	Sandra is going to a dance. She has \$60 and wants to buy a new dress. How much change will she get back?
Mrs. White has 3 children. Each of her children needs a new pair of jeans. How much will she spend?	The city basketball coach wants to buy each of his 9 team members a new sweat suit. How much money will the coach need?
Tommy plans to buy one pair of jeans, one T-shirt, and one belt. How much money will he spend?	Devon plans to buy 2 pairs of jeans. How much will he spend?
How much money will Ben save if he buys one pair of shorts instead of one sweat suit?	The mall is having a sale on sweat suits – <i>Buy 2 sweat suits and save \$10 off the total cost!</i> How much would it cost to buy 2 sweat suits during this sale?
Mr. Jones has \$40 and needs to buy a belt and 2 pairs of socks. How much change will he receive?	Jenna needs a new skirt, a new blouse, and a belt. How much money will she need to buy all the items?
Josh plans on buying a new outfit, but he wants to spend as little as possible. Should he buy jeans and a T-shirt or shorts and new tennis shoes? What is the cost of the least expensive combination?	Mary Anna is going to tennis camp. She needs to buy 4 pairs of socks, 1 pair of tennis shoes, and 2 T-shirts. How much money will she spend on these items?
Travis is on the cross country team at his school. He buys 5 pairs of tennis shoes during one year. How much money does Travis spend on tennis shoes?	Which costs more: one dress OR one skirt and one blouse? How much does the more expensive outfit cost?
Mrs. Davis is buying her two boys one pair of new jeans each, but she is spending only \$50 of her own money. How much will each of her sons need to pay for his jeans?	Kayla is going to the beach and wants to buy 5 new T-shirts. How much money will she need to spend?
Marcus wants to buy a new pair of tennis shoes. He has \$27. How much more money does he need?	Mrs. Johnson is buying herself a new sweat suit and a new pair of tennis shoes. How much money will she spend on these items?
Lisa bought one new pair of jeans and one blouse. She took \$80 to the mall. How much change did she receive?	Michael buys a sweat suit and one pair of socks. How much money does he spend?
Matt gets \$10 per week allowance. If he saves his money for 5 weeks, how much money will he have after buying a new pair of tennis shoes?	Ellen wants to buy a new skirt and belt, but she has only \$37. How much more money does she need to buy both of these items?

AR Remediation Plan – Practical Applications-Rational Numbers and Proportional Reasoning

Ms. Daniels needs new clothes for work. She buys 2 skirts, 4 blouses, and 1 belt. How much money does she spend?	Mariah bought a pair of shorts instead of a dress. How much money did she save?
Alex got \$50 for her birthday. She bought one new pair of jeans. How much of her birthday money does she have left?	

Name: _____

At the Mall Game Board

Jeans:	\$36	Skirt:	\$29
T-shirt:	\$15	Socks:	\$12
Blouse:	\$28	Tennis shoes:	\$45
Belt:	\$16	Sweat suit:	\$34
Dress:	\$42	Shorts:	\$21

\$79	\$46	\$51	\$72	\$58
\$306	\$16	\$18	\$75	\$11
\$8	\$108	\$0	\$123	\$225
\$21	\$73	\$5	\$14	\$67
\$186	\$13	\$57	\$70	\$18



Name: _____

Memo: What I Remember

What did I learn today?

What did I do well?

What am I confused about?

What do I need help with?

How will I use this skill in real life?
