

Name
Math
Third Grade

Unit Title: Multi-step Problem Solving

Goals:

- Use appropriate strategies for solving multi-step problems
- Identify useful and irrelevant information
- Use manipulatives appropriately to assist in problem-solving

NCTM Standards:

- Apply and adapt a variety of appropriate strategies to solve problems
- Monitor and reflect on the process of mathematical problem solving

State Standards:

- 3.1.3 Solve problems, compute fluently, and make reasonable estimates

Prerequisite Knowledge:

- Students must be able to add and subtract values of money with regrouping
- Students must know some multiplication facts (1's, 2's, 5's, and 9's)
- Students must know value of money

Lesson Title and Objectives: "Clarence Goes Shopping"

- To use appropriate strategies for solving the problems posed by the poem "Clarence"
- To identify useful and irrelevant information within the problem
- To use manipulatives appropriately to illustrate various aspects of the problem
- To reflect upon each group's use of strategies and how effective they were in solving the problem.

Materials/Media:

- Copies of poem "Clarence" and pencils for each group—Group members will be able to circle, cross out, or underline information in the poem.
- Wipe boards and markers—Group members will work as a group to solve addition, subtraction, and multiplication problems
- Base ten blocks—Group members will use manipulatives to illustrate the numbers represented in the poem and to verify if answers are reasonable.

- Index cards with 1, 2, 5, and 9 written on them; Index cards with each item purchased on them; Index cards with \$1, \$5, \$10, and \$20 on them—Students will draw a number card, an item card, and a money card to create new problems to solve.

Instructional Plan:

- Set: Ask students if they like to go shopping. Ask about commercials they've seen on TV. (3 minutes)
- Questions:

Questions Students May Ask	Questions I Will Ask
How do I get started?	Can you find what information is useful and what is not based on what you are trying to solve?
Should I add or multiply?	What is the best strategy? Could you do both, then decide which will be better next time?

- Instructional Procedures:
 - Read the poem (1 minute)
 - Identify the problem to be solved (1 minute)
 - Allow students to fill in dollar amounts (less than \$10.00) for each item purchased (3 minutes)
 - Ask students to determine how much money Clarence spent—multi-step problem-solving (5 minutes)
 - Ask students to demonstrate how they solved the problem—use manipulatives if necessary (3 minutes)
 - Ask students to give a value to new and old parents; then solve for how much more he spent and how much he earned (3 minutes)
 - Ask students to pretend they are Clarence's banker. How much money did he need? How many \$20's; \$10's; \$5's? (3 minutes)
 - Ask students to take turns as groups to create new problems by drawing a number card, an item card, and a money card. Each group will solve the problem. The group that draws the card will share the strategies they used to solve the problem. (10 minutes)
- Closure:

If you were Clarence what would you have bought? How many would you buy?
How much money do you think would need? (5 minutes)

Assessment:

Did they eliminate unnecessary information?

Did they identify important information?

Did they recognize and use an effective strategy?

Extensions/Additional Activities:

Students can re-write "Clarence." They can buy whatever they want, but they have to sell something that will give them enough money for their purchases.

Accommodations:

- Teacher will provide a list identifying how students should be grouped so that each student is allowed the opportunity to participate and to learn from each other.
- Teacher and MTSU Student will be available to assist and monitor each group.
- Manipulatives will be available and their use will be encouraged throughout the lesson.