Lesson 60: Solving Routine and Non-routine Problems Involving Percentage Using Appropriate Strategies and Tools

Week 2

Objective: Solves routine and non-routine problems involving percentage using appropriate strategies and tools.

Value Focus: Thriftiness

Prerequisite Concepts and Skills

- Identifying the base, percentage and rate in a problem.
- Finding the percentage in a given problem.

Materials: strips of cartolina, flash cards

References: K to 12 Curriculum Guide, LM Math Grade 5 pages
Lesson Guide in Elementary Mathematics Grade 6 p. 316-319
Workbook in Mathematics 6 Third Quarter, Rubio, May Ester M. p. 16-18
Workbook on Math (Grade 6), Cayanan, Remedios p.140

Instructional Procedure:

A. Preliminary Activities

1. **Drill**
Have a drill on identifying the missing/ unknown part of the problem: the base, rate and percentage.

2. Review

A. Checking of Assignment
B. Review the steps in solving word problems.
Ask: What are the steps in solving a problem?
In what steps will the following questions fall?

- What is asked?
- What are the given facts?
- What is the process to be used?
- What is the number sentence?
- Show the solution and complete answer.

3. Motivation

How much money do you spend in school every day? Do you save some of it for future use? Why did you do it? Share your experience. Let the pupils realize the importance of being thrifty.

B. Developmental Activities

1. Presentation

> Reyes family has a monthly income of P 15 850. They allotted 40% of for food, 25% for education, 15% for water and electricity fare, 8% for transportation, 7% for miscellaneous expenses and 5% for savings. How much money is allotted for their savings?

Ask:

- What is asked in the problem?
- What are the given facts?
- What is the operation to be used?

2. Performing the Activity

Ask the pupils to work in groups in solving the problem.

P 15 850
x 5%

Step 1:
Arranged the numbers vertically.

P 15 850
x 0.05

Step 2:
Move the decimal point of 5% twice from right to left.

P 15 850
x 0.05
79 250
000 00
+ 0 000 0
P 0 079 2.50

Step 3:
Multiply the numbers following the steps in multiplication.

P 792.50 – amount allotted for savings by the Reyes family.

Ask: Why does Reyes family allotted a certain amount as savings?
Is it a good thing to save money?

Say: Let us have another problem.

> 50% of 60 is 25% of a number? What is the number?

Ask: What is asked in the problem?

What are the given facts?
Is there a word clue that can help you solve the problem?
Can you name the operation to be used to solve the problem?

Say: There are times some problems can be solved in other ways. Try to solve the problem. Ask the pupils to group into five. Let the groups discuss the problem and think of ways of solving it. The pupils may use "Guess and Test Strategy," "Drawing Pictures," and others.

Have the groups present and explain how they got the answer to the problem.

Ask: What is the answer to the problem? (120)
How did you solve the problem?
Let the pupils get their LM and study ***Explore and Discover*** on pages ___ of LM Math Grade 5.
Group the pupils into two. The first group will solve problem number 1, while the second group will solve problem number 2.

3. Processing the Activities

After the group presented and checked their work, call on the leader to relate what they have done to solve the problem.

Ask:

- Which of the two problems is easier to solve?
- In which problem did you enjoy solving? Why?
- How many operations did you use to solve problem 1?
- What operation is it? How did you solve it?
- What is your number sentence? What is your final answer?
- What about problem number 2?
- How were you able to solve it? Do you have a number sentence to solve it?
- Did you work in group cooperatively?
- When your group solved the problem easily, how did you feel?

4. Reinforcing the Concept and Skill

a. Class Activity

Say: Let us solve more problems.
Ask pupils to do the exercises by pairs under ***Get Moving*** on page ___ 69 of LM Math Grade 5. Check the pupils' answer.

Allow pupils to answer exercises A and B under ***Keep Moving,*** pages ____ and LM Math Grade 5. Check the pupils' answer.

5. Summarizing the Lesson

Lead the pupils to generalize as follows:

The steps in solving routine problems involving percentage are:

- Understand – Know what is asked, what are given.
- Plan – Know the operation. Write the number sentence.
- Solve – Write the correct units/ label your answer.
- Check and Look back – Review and check your answer.

To solve non-routine problems involving percentage, keep in mind:

- Read and analyze the problem carefully.
- Tell what is asked and what are given.
- Then, use other strategies like act out the problem, listing/table method, guess and test, drawing/ making a diagram, using patterns, working backwards, etc. to solve.

6. Applying to New and Other Situations

a. Group Activity

Divide the class into two groups. Let them choose a leader and a secretary. Give each group an activity with problems written on it. Then, let each group post their work on the board. The leader will report to the class the solution and answer to it.

Activity Card 1

Problem 1: A 50-item test was given to a group of 40 Grade Six pupils. 85% of them have a score of 30 and above? How many pupils got a score of 30 and above?

Problem 2: In shelves with 600 books, 30% are Mathematics books. If 25% of these Mathematics are for Grade 5 pupils, how many books are used by Grade 5 pupils?

Activity Card 2

Problem 1: From 420 pupils who joined the field trip, 35% are Grade 5 pupils. How many pupils are not Grade 5 pupils?

Problem 2: Kate has a certain amount of money on his wallet. She spent 25% of it for her snacks during recess and 10% for her fare. If she has P 32.50 left on his wallet. How much money she had at first?

Let the pupils answer Exercise A under ***Apply Your Skills*** on page ____, LM Math Grade 5. Check the pupils' answer after the given period of time.

C. Assessment

A. Directions: Solve the following percentage problems.

1. On their family budget, Mariano family allotted 45% for the education of their children. If the family has a monthly income of P 13, 540.00, how much is allotted for the education of their children?

2. If 25% of 80 is 10% of a number? What is number?

3. A regular fare of P 8.00 is implemented in a public jeepney. Students are given a 12.5% discount. If the jeepney drivers have 12 student passengers, how much discount are given to all 12 student passengers?

4. A group of 150 students are asked as to their favorite pets. 36% chose cat as their favorite, 48% chose dog, 12% chose birds and 4% chose fish. How many students chose birds as their favorite pet?

5. Jenny has a monthly allowance of P 4, 800.00. She allotted 60% of it for his studies. From this 60%, she allotted 25% of for his books. How much is allotted for books?

D. Home Activity

Remediation

A. Solve the following problem.

1. Of the 40 members of Mathematics club, 35% are also member of Science Club. How many members of the club are also members of Science Club?

2. In a group of 200 teachers, 72% are right-handed. Of these numbers 25% are musically inclined. How many teachers are musically inclined?

3. There are 580 pupils enrolled as Grade Six pupils in Labangan Elementary School. If 15% of them are members of Pantawid Pamilyang Pilipino Program, how many pupils are not members of the Pantawid Pamilyang Pilipino Program?

Enrichment

6. Mario has a collection of 450 compact discs. He bought 64% of them and the rest were gifts from family and friends. How many discs did he buy?

7. Justin has a stamp collection of 5 200 stamps from all over the world. If 15% of his stamps are from the United States, how many U.S. stamps does he have?

8. Eighty – five percent of the grade seven class plans to enroll in the same school. If there are
340 students going to high school, how many plan to enroll in the same school?
9. Cristine's grade in English increased by 16% . If her last grade is 82, by how many is her
increase ?

10. Tony's salary increased by 30%. If his last salary is P 12 500, by how much is his increase?