

3

Factors and Multiples

LESSON PLAN

SPECIFIC OBJECTIVES

The students will

- ▶ know the factors and multiples and their characteristics.
- ▶ learn the rules of divisibility tests by 2, 3, 4, 5, 6, 8, 9, 10 and 11.
- ▶ understand the types of number, viz., even, odd, prime, composite, etc.
- ▶ know the prime factorisation by factor tree and division methods.
- ▶ calculate the HCF and LCM of two or more numbers.
- ▶ learn about the relationship between HCF, LCM and the two given numbers.
- ▶ understand the application of LCM and HCF in daily life.

CONTENTS EXPLAINED INSIDE THE CHAPTER

- ▶ Paper, a pen, a pencil, squared paper, coloured paper, a paper cutter, a dice, etc.

TEACHING AIDS

- ▶ Factors (pages 139–140)
- ▶ Multiples (pages 140)
- ▶ Divisibility Tests (pages 141–143)
- ▶ Types of Numbers (pages 144–146)
- ▶ Prime Factorisation (pages 146–147)
- ▶ HCF and LCM (pages 148–153)

TEACHING STRATEGY

- ▶ As the students have learnt about factors and multiples, the teacher should ask them to do the questions given in 'Let Us Recall' exercise.
- ▶ Again, the teacher should talk with them about the characteristics of factors/multiples. She should ask them to do exercise 3.1.

- Further, the teacher should explain the rules for divisibility tests by the numbers 2, 3, 4, 5, 6, 8, 9, 10 and 11 which will develop their idea of mental calculation. For text and exercise, she should go to pages 141–143.
- Thereafter, the teacher should talk with them about different types of numbers like even, odd, prime, composite, etc.
- Again, she should introduce prime factorisation of a number and develop the idea to factorise a number by factor tree method as well as division method. For text and exercise, she should go to pages 144–147.
- Thereafter, the teacher should explain them the HCF and its different methods. She may involve them in practising Maths Lab Activity for better understanding. For text and exercise, she should go to pages 148–150.
- Then, the teacher should talk about LCM and motivate them to calculate the LCM of given numbers using different methods. For text and exercise, she should go to pages 150–151.
- Also, she should teach them how to establish the relationship between HCF, LCM and the two numbers. She should take a few pairs of numbers and ask them to justify whether the relationship is correct or not.
- $\text{HCF} \times \text{LCM} = \text{Product of two numbers}$
- Again, she should discuss about the application of LCM and HCF in daily life. For text and exercise, she should go to pages 152–153.

EXPECTED LEARNING OUTCOMES

Students are able to

- list out the factors/multiples of the given numbers.
- understand the properties of factors/multiples.
- check whether the given number is divisible or not by a few special numbers like 2, 3, 4, 5, 6, 8, 9, 10 and 11.
- recognise different types of numbers.
- do prime factorisation of a number.
- calculate HCF/LCM of the given numbers.
- apply the idea of HCF/LCM to tackle the problems in daily life situations.

SUGGESTED ACTIVITY

➤ HCF Bingo Game

Aim: This is a fun variation of the game ‘Bingo’, perfect for practising HCF with the students.

Materials: 1 copy of the blank Bingo sheet for each child, a pen/marker for each child, chocolates or other treats for the winners (optional) or reward points.

BINGO SHEET			
1	5	9	13
2	6	10	14
3	7	11	15
4	8	12	16

Instruction for teacher:

- Make a copy of the blank Bingo sheet for each child. Sheets may be made in a square or a rectangular shape. Here is a sample of square Bingo sheet for 16 numbers.
- Instruct the students to fill in their sheets with numbers from 1 to 16. Ensure that they use a pen or a marker, so, they cannot change their numbers during the game.
- Make sure that each child has filled in his/her sheet.
- Play the game by calling out pairs of numbers and instructing the students to put a cross 'X' on the HCF of two numbers.
- Make sure to note down the numbers and their HCF as you call them out, so, you can use it to cross-check the students' Bingo cards when they have done his job.
- Give the students time to calculate the HCF each pair as you play the game. You might prepare the list of numbers beforehand so that you do not end up with the same HCFs for multiple pairs.
- The first student to cross out all four numbers in a row or a column wins the game.
- You can have multiple winners by creating categories like '1st row', '2nd row', 'blackout' (the first to cross out all 16 squares), etc.

After completing chapters 1–3, the teacher may use the materials of Periodic Test-1 to evaluate the students.