Week 1: Mathematics - Real Numbers: Foundations

Subject: Mathematics | Grade: 10 | Generated: 7/23/2025

Ø=ÜÚ Lesson Overview Subject: Mathematics Grade: 10 Week: 1 Curri
Objectives To introduce students to the concept of Real Numbers, specifically Euclid's Division Lemma and Algorithm.To enable students to understand and apply the Fundamental Theorem of Arithmetic.To develop problem-solving skills for finding HCF and LCM using both Euclid's Algorithm and Prime Factorization.To relate mathematical concepts to real-life situations and cultural contexts.To foster critical thinking and logical reasoning through ma
Lesson Breakdown Monday - Introduction to Real Numbers & Euclid's
Objectives: Students will be able to define Real Numbers.Students will be able to state Euclid's Division Lemma.Students will be able to apply the lemma to simple n
minutes): **Warm-up (5 min):** 'Number Sort' - Students classify giv
À) into rational and irrational categories, briefly recalling Grade 9 c
(15 min):** Introduction to Real Numbers as a comprehensive set. Explain Euclid's Division Lemma: 'Given positive integers a and b, there exist unique integers q and r
r **Interactive Activity (15 min):** 'Division Game' - In pairs, students pick two numbers and apply Euclid's Division Lemma, stating 'a', 'b', 'q', and 'r'. Teacher circulates to provide immediate feedback.**Wrap-up (5 min):** Quick recap of Euclid's Division Lemm
Materials: Whiteboard/BlackboardMarkers/ChalkNCERT Mathematics Textbook (Grade 10)Worksheet with numbers for 'Number Sort' and 'Division Game' Ø=U
Mathematics Textbook, Chapter 1: Real Numbers, Section 1.2 (pages 2-4). Practice question 1 (i), (ii) from Exercise 1.1. Ø=ÜÖ NCERT Reference: NCERT Mathematics (
Numbers, Section 1.2: Euclid's Division Lemma (pages 2-4) Ø=ÜË Tea
'remainder always being less than the divisor' aspect of the lemma. Connect the abstract concept to a tangible, relatable example from daily Indian life. Tuesday - Euclid
Objectives: Students will be able to understand the concept of Euclid's Division Algorithm.Students will be able to apply the algorithm to find the HCF of two given positive integers.Students will be able to solve word problems involving HCF using this method. Ø<ßª Ac
Warm-up (5 min): Review of Monday's concept using a quick 'True/False' on Euclid's Division Lemma statements.**Concept Explanation (20 min):** Explain how Euclid's Division Lemma is used repeatedly to find the HCF (Highest Common Factor) of two positive integers, forming Euclid's Division Algorithm. Demonstrate step-by-step with an example like HCF(135, 225). Relate HCF to finding the largest common grouping in a practical scenario, e.g., 'A florist has 135 marigolds (genda phool) and 225 roses. What is the maximum number of identical bouquets he can make without any flowers left over?' (leading to HCF).**Collaborative Activity (10 min):** 'Algorithm Challenge' - Students work in small groups (3-4) to solve a given HCF problem using Euclid's Division Algorithm (e.g., HCF(867, 255)). Each group presents their steps.**Wrap-up (5 min):** Discuss common pitfalls and correct understanding of the algorithm.
Whiteboard/BlackboardMarkers/ChalkNCERT Mathematics Textbook (Grade 10)Worksheets with HCF problems for group activity Ø=ÜÝ Homework: Solve NCERT Exerci
Question 2. Think about why the algorithm works. Ø=ÜÖ NCERT Refere
(English) - Chapter 1: Real Numbers, Section 1.2: Euclid's Division
Teaching Notes: Emphasize the iterative nature of the algorithm. Connect it to finding the largest common measure, a concept often used in Indian crafts or construction (e.g., finding the largest tile size for a floor). Wednesday - The Fundamental Theorem of Arithmet
be able to define prime and composite numbers.Students will be able to state the Fundamental Theorem of Arithmetic.Students will be able to find the prime factorization of composite numbers. Ø<ßª Activities (40 minutes): **Warm-up (5 min):** Quick recall of pri
students to list prime factors of a small composite number (e.g., 12).**Concept Explanation (20 min):** Introduce the Fundamental Theorem of Arithmetic: 'Every composite number can be expressed (factorised) as a product of primes, and this factorization is unique, apart from the order in which the prime factors occur.' Explain its significance using prime factorization examples. Emphasize 'uniqueness' by showing different orders lead to the same set of prime factors. Use an example like 'Counting the number of lights (diyas) for Diwali. If we have 140 diyas, how can we arrange them in groups (prime factors)? 140 = 2 × 2 × 5 × 7. This factorization is unique.'**Interactive Activity (10 min):** 'Factor Tree Challenge' - Students, individually or in pairs, draw factor trees for various composite numbers (e.g., 156, 3825, 5005) to find their prime factorization. Discuss findings.**Wrap-up (5 min):** Summarize the theorem's importance. Discuss