PRIME NUMBERS LESS THAN 100

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Subject

Mathematics

Prepared By

[Instructor Name]

Grade Level

4

Overview

This lesson plan covers teaching content for;

1. Identifying prime numbers less than 100
2. Finding factors of a given whole number
3. Expressing whole numbers less than 100 as a product of prime factors.

Objectives

Students should be able to;

1. Identify prime numbers less than 100
2. Find the factors of a given whole number
3. Express whole numbers less than 100, as product of prime factors

Activity Starter/Instruction

1. Play 'What is my number?' with the pupils, focusing on questions that involve multiples and divisibility of 2, 3, 4, 5, 6 and 9.
2. Ask the pupils questions such as 'My number is divisible by 3 and it is less than 20, what could my number be?',
3. 'My number is a multiple of both 4 and 10 and is more than 70, but less than 100, what is my number?'
4. 'My number is a three-digit multiple of 4 (or 3, 6, 9), what could it be?' and 'Is 2 853 a multiple of 6? How do you know?'

Guided Practice

Day 2/ Lesson 2: 15 Mins

1. Explain the concept of a factor and how it relates to the process of multiplication.
2. Explain that when two numbers are multiplied they produce a product.
3. When we find the factors of a number, it is the reverse process of finding the product. In other words, the product is broken up into

Teacher Guide

Day 1/ Lesson 1: 15 Mins

1. Explain that a prime number has only two factors, i.e. 1 and itself.
2. Also emphasize that 1 is not a prime number as prime numbers all have 2 factors.
3. The Sieve of Eratosthenes is a useful and fun resource that can be used to enhance pupils understanding of what a prime number is. (See additional resources).
4. Let the students know the difference between factors and multiples.
5. Explain that these two terms are easily confused, but **factors** are numbers that can be divided evenly into the given number, while **multiples** are the results of multiplying that number by another.

Guided Practice

Day 3/ Lesson 3: 15 Mins

1. Use the example from the previous lesson when you found the factors of 30.
2. Take any pair of factors e.g. 15 & 2 and ask pupils which of these 2 numbers are prime.

Materials Required

-Table of factors chart

- Number chart

- Sieve of Eratosthenes

Additional Resources

- https://byjus.com/maths/prime-numbers/
- https://whatis.techtarget.com/definition/prime-numb
- https://www.mathsisfun.com/prime_numbers.html
- https://www.smartickmethod.com/blog/math/operat and-algebraic-thinking/divisibility/prime-numbers-siev eratosthenes/

Additional Notes

the 2 constituents that were multiplied together originally.

4. Explain how 30 can be broken down into its factors. Pay careful attention to explaining that 30 can have more than 1 set of factors.
5. Explain carefully that multiples and factors are related. If a number is a multiple of x then x is a factor of that number.
6. Look at a simple multiplication statement such as 4 × 5 = 20 and explain it in terms of multiples and factors: 20 is a multiple of 4 and a multiple of 5, and 4 and 5 are both factors of 20.
7. Repeat for 24 ÷ 6 = 4: 24 is a multiple of 4 and of 6, and 4 and 6 are factors of 24.
8. Write more statements on the board and ask the pupils to explain them in terms of factors and multiples.

Assessment Activity

1. Make sure that pupils have a good understanding of prime factors.
2. Revise multiplication tables or put up charts of multiplication tables around the classroom.

They should be able to identify 15 as not prime.

3. Now ask them to find the factors of 15 and to state whether those factors are prime.
4. Point out that by using prime factors 30 can be obtained by multiplying 2, 3 and 5. Thus there are three prime factors instead of the 2 we worked with in the previous lesson.

Assessment Activity

1. Check that pupils understand the meaning of prime numbers. If pupils are experiencing difficulty, ask them to make a number square containing the numbers 1–100 and to circle all the prime numbers
2. Ask pupils to find all the prime numbers between 100 and 150. Can they find primes up to 200?

Summary

1. Ask for volunteers to share their answers to the problems assigned.
2. As the problems are reviewed in front of the class, have the students check their answers for accuracy.