

YEAR 7 MATHEMATICS LESSON PLAN: PRIME AND COMPOSITE NUMBERS

Lesson Title: Understanding Prime and Composite Numbers

Duration:

- 60 minutes

Learning Objectives:

By the end of this lesson, students will be able to:

1. Define prime and composite numbers.
2. Identify prime and composite numbers up to 100.
3. Explain the differences between prime and composite numbers.
4. Use the Sieve of Eratosthenes to identify prime numbers.

Materials Needed:

- Whiteboard and markers
- Prime and Composite Numbers handout
- Worksheets with number lists and problems

- Counters or small objects for grouping (optional)
- Calculators (optional)

Curriculum Links:

- **Number and Algebra:** Explore and describe number patterns, including the concept of prime and composite numbers.
 - **Mathematics Understanding:** Solve problems involving prime numbers and composite numbers.
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Lesson Structure:

Introduction (10 minutes)

1. Hook Activity:

- Start with a quick question: “What do you think makes a number special or different from others?”
- Discuss students’ responses to introduce the concept of prime numbers.

2. Define Prime and Composite Numbers:

- **Prime Numbers:** A prime number is a number greater than 1 that has no positive divisors other than 1 and itself. (e.g., 2, 3, 5, 7, 11).
- **Composite Numbers:** A composite number is a number greater than 1 that has more than two positive divisors. (e.g., 4, 6, 8, 9, 12).

3. Examples and non-examples:

- Write examples of prime and composite numbers on the board.
- Highlight the number 1 (neither prime nor composite) to clarify its unique status.

Guided Practice (20 minutes)

1. Prime Number Identification:

- Distribute the "Prime and Composite Numbers" handout with a list of numbers from 1 to 100.

- **Activity:** Students work in pairs to circle prime numbers in the list. Encourage them to discuss their reasoning.
- Review answers as a class and clarify any misunderstandings.

2. Sieve of Eratosthenes:

- Introduce the Sieve of Eratosthenes method for finding all prime numbers up to 100.
- Demonstrate the process:
 1. Write down all numbers from 2 to 100.
 2. Cross out multiples of each prime number starting from 2.
 3. Numbers that remain uncrossed are prime.
- Have students work through the method on a smaller range (2 to 30) in small groups or individually.

Independent Practice (15 minutes)

1. Worksheet Activity:

- Distribute worksheets with a mix of prime and composite numbers, including some blank spaces where students need to fill in prime numbers.
- Include questions that require students to classify numbers and explain why each number is prime or composite.

2. Assessment:

- Collect worksheets and check for understanding of prime and composite number identification.

Closure (10 minutes)

1. Review and Reflect:

- Recap the definitions and key points of prime and composite numbers.
- Discuss the practical uses of prime numbers and how they appear in various mathematical contexts (e.g., factors, prime factorization).

2. Exit Ticket:

- Ask students to write down one prime number and one composite number and explain the difference between them in one sentence.

Extension Activity (Optional)

• Prime Number Fun:

- Challenge students to find prime numbers in everyday life, such as in patterns or codes, and share their findings in the next lesson.

Differentiation:

• For Advanced Students:

- Introduce the concept of prime factorization and have them practice breaking down composite numbers into their prime factors.

• For Students Needing Extra Support:

- Use visual aids and interactive games to reinforce the concept of factors and multiples.

Homework:

- Assign a few exercises from the textbook or a worksheet where students identify and categorize numbers as prime or composite and explain their reasoning.
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This lesson plan incorporates interactive and varied activities to help Year 7 students understand the concepts of prime and composite numbers. It provides a structured approach to ensure that all students can grasp and apply these mathematical concepts effectively.
