

Name \_\_\_\_\_

## Exploring Numbers: Unraveling the Mystery of Composite and Prime Numbers

### Open-Ended Response Answer Key

1. Possible answers may include: Using prime numbers in encryption algorithms for secure communication, using composite numbers in manufacturing processes that require precise measurements, and using both types of numbers in financial transactions and calculations.
2. Composite and prime numbers are essential in cryptography for creating encryption keys and ensuring data security. Prime numbers, in particular, play a crucial role in encryption algorithms due to their unique properties.
3. Despite their simplicity, prime numbers hold great significance in mathematics, particularly in number theory and cryptography. Mathematicians study prime numbers to uncover patterns, explore their distribution, and solve complex mathematical problems.
4. Factorization helps identify whether a number is composite or prime by breaking down the number into its factors. If the number has more than two factors, it is composite. If it has exactly two factors, it is prime.

