

Name \_\_\_\_\_

## Unlocking Secrets: The Connection Between Prime Numbers and Cryptography

### Open-Ended Response Answer Key

1. Possible drawbacks or limitations of using prime numbers in cryptography may include the potential for advances in factoring algorithms to weaken the security of encryption methods based on prime factorization.
2. Prime numbers are particularly well-suited for encryption methods like RSA because of their unique properties, such as being difficult to factor into their prime factors and providing a foundation for creating encryption keys with strong security guarantees.
3. Advances in computing technology may impact the security of encryption methods based on prime numbers by potentially enabling faster and more efficient factoring algorithms, thereby reducing the effectiveness of prime-based encryption schemes.
4. Using large prime numbers in RSA encryption for securing communication over the internet ensures that encrypted messages remain confidential and protected against unauthorized access or decryption attempts, thus preserving the privacy and security of online communication.

