

Number Sense: Prime and Composite Numbers¹

Grade level: 6



Objectives	After completing this lesson, student will be able to: <ul style="list-style-type: none"> • State whether a number is prime, composite, or neither • Explain why the number is prime, composite, or neither • Start a discussion on Facebook about the given math topic
Materials	student text book paper pencil calculator (<i>if needed</i>) Facebook account computer
Procedures	<p>Before beginning the assignment, students should have learned the following information:</p> <ul style="list-style-type: none"> • A prime number is an integer greater than 1 which has no factors besides 1 and itself. <p><i>(For example 5 is divisible evenly by only 1 and 5, therefore it is prime).</i></p> <ul style="list-style-type: none"> • The number 1 is NOT a prime because the definition states that the integer has to be greater than 1 • Two is the only even prime number, since every even number thereafter is divisible by 2 • A composite number is a nonprime integer. <p><i>(For example, 9 is a composite number because it is divisible evenly by 1, 3, and 9)</i></p> <ul style="list-style-type: none"> • Rules of testing whether a number is prime or composite: <ol style="list-style-type: none"> 1. If a number is even, unless it is 2 it is always composite 2. If a number's digits add up to a number which is divisible by 3, it is divisible by 3 and therefore

¹ <http://www.lessonplanspage.com/MathPrimeVsCompositeNumbers7HS.htm>

composite.

Example:

(246- $2+4+6=12$ $12/3=4$ therefore it is composite)

- When using rather large numbers:

Example: 2,321

1. Find the square root of the number

*(The Square root of 144 is 12 because $12*12=144$)
The Square root of 2,321 is 48.176...*

2. Remember that if the square root results in an integer it is automatically composite
3. If your number ends in a 0,2,4,5,6,8 it is NOT PRIME

2,321 ends in a 1, so we keep going

4. Add up the digits of your number, if the sum is divisible by 3, your number is composite

$$2+3+2+1=8$$

3 does not go into 8 evenly- onto the next step

5. Divide the number by all the prime numbers less than the square root (*you can skip 2, 3, and 5*)

*Since the square root of 2,321 is 48.176...
we need to try dividing 2,321 by primes less than 48
(7,11,13,17,19,23,29,31,37,41,43,47)*

Since 2,321 is divisible by 11, it is NOT prime and therefore composite.

6. If a number is not divisible by any of the prime numbers less than the square, it is PRIME, if it is, it's COMPOSITE

Finally, test the skills the students have learned:

- 1) 27
- 2) 22.31
- 3) $4/3$
- 4) 242
- 5) 1

To complete the assignment, the students must:

- 1) Answer the questions above and discuss them on Facebook.
- 2) Write a summary in their own words about prime and composite numbers on the student page.
Summary must be between 3 to 9 sentences.
- 3) Comment on at least 2 other students' summaries.