

# Prime or Composite

## Purpose

Students will be able to describe and identify prime and composite numbers.

## Materials

*For the teacher:* chalkboard, chalk

*For each student:* copy of Black Line Master (BLM) *Prime or Composite*, 2 colors of markers or crayons

## Activity

### A. Introduction

1. Assist students in investigating numbers like 6, 7, 10, 11, 17, and 27 and help them figure out what numbers will divide into them without remainders.
2. Explain that some numbers (e.g., 7, 11, 17) can be divided exactly only by 1 and the number, but other numbers (e.g., 6, 10, 27) have other exact divisors.
3. Introduce the names *prime* and *composite* by telling students that *prime* numbers are like 7 because only 1 and 7 can divide into it and not leave a remainder, and *composite* numbers are numbers like 6, because 1, 2, 3, and 6 can divide into it and not leave a remainder.
4. Ask: "Is 10 prime or composite? Is 11 prime or composite? Is 27 prime or composite?"

### B. Student Activity

1. Hand out the BLM *Prime or Composite*, and have students identify which of the numbers are prime and which are composite.
2. Ask students to use two different colors of markers or crayons, one to color in the prime numbers and the other to color in the composites. Direct students to indicate on the paper what color belongs to prime and what color belongs to composite.
3. Once they have colored each number in the grid, have students count the squares of the blocks that have the same color.
4. Help students to notice that the prime numbers are in groups of 3, 13, and 7 boxes (all prime numbers) are in rectangles of 1 by 3, and the composite numbers are in groups of 20, 9, 4, 12, 15, and 8 boxes (all composite numbers).



### INCORPORATING TECHNOLOGY

Help students research on the Internet Web sites about prime numbers (e.g., Math Forum: [www.mathforum.org/dr.math/faq/faq.prime.num.html](http://www.mathforum.org/dr.math/faq/faq.prime.num.html)). For example, have students look for twin primes and an explanation of what they are. Have students list 10 pairs of these twin primes.


Standards Link  
5.7.9


## Questions for Review


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### Basic Concepts and Processes


During the activity, discuss the following questions with your students:


 How do you decide whether a number is a prime number?

 Is this number prime or composite?

 On the grid, what are the shapes of the prime numbers?

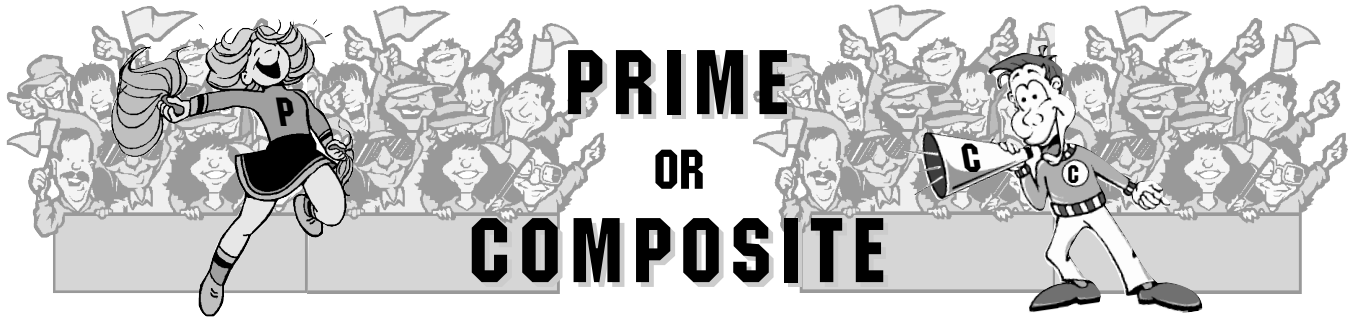
 Why do you think that is?

 What do you notice about the shapes of the composite numbers?

 Why do you think that is?

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Name: \_\_\_\_\_



Use your pictures to write about how the patterns of the primes looked different from the patterns of the composite numbers.

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10	20	30	35	55	2	52	54	56	
15	25	42	16	18	3	62	64	66	
70	80	21	22	27	5	72	74	76	
85	75	24	36	40	7				73
41	43	47			11	9	21	33	79
			48	15	13	44	55	66	83
			26	28	17	77	88	99	89
					19	26	36	46	67
100	200	300			23				59
400	500	600			29	28	38		53
105	205	305			31	58	68		
110	220	330			37	12	22		
440	550	660			61	24	34		

Color for prime



Color for composite



# PRIME OR COMPOSITE

## Teacher Directions

Have students decide which of the numbers in the grid are prime and which are composite, and then color each number the appropriate color.

## Answer Key

The prime numbers are all in lines (rectangles that are composed of 3, 13, and 7 boxes) and the composite numbers are in wider rectangles that represent composite numbers (20, 9, 4, 12, 15, and 8 boxes) in the composite number rectangles.

10 c	20 c	30 c	35 c	55 c	2 p	52 c	54 c	56 c	
15 c	25 c	42 c	16 c	18 c	3 p	62 c	64 c	66 c	
70 c	80 c	21 c	22 c	27 c	5 p	72 c	74 c	76 c	
85 c	75 c	24 c	36 c	40 c	7 p				73 p
41 p	43 p	47 p			11 p	9 c	21 c	33 c	79 p
			48 c	15 c	13 p	44 c	55 c	66 c	83 p
			26 c	28 c	17 p	77 c	88 c	99 c	89 p
					19 p	26 c	36 c	46 c	67 p
100 c	200 c	300 c			23 p				59 p
400 c	500 c	600 c			29 p	28 c	38 c		
									53 p
105 c	205 c	305 c			31 p	58 c	68 c		
110 c	220 c	330 c			37 p	12 c	22 c		
440 c	550 c	660 c			61 p	24 c	34 c		