

## Algebra/Geometry Institute Summer 2010

Faculty Name: Norman Snerling

School: Clarksdale High School

Grade Level: Transition to Algebra



- 1 Teaching objective(s): 1d. To identify prime and composite numbers and to find the greatest common factor.  
Students will distinguish between prime and composite numbers and find the prime factorization of a whole number.
- 2 Instructional Activities
  1. Students will use a dictionary and text book to define the following terms for today's bell ringer: factor, prime numbers, composite number, prime factorization, greatest common factor.
  2. Teacher will discuss terms and explain what a factor is and give some examples.
  3. Teacher will explain the difference between a prime number and a composite number. (i.e. prime number has only two factors –one and the number itself, composite number has more than two factors)
  4. Students will factor the following numbers to determine if the numbers are prime or composite. (i.e. 83, 37, 91, 36)
  5. Teacher will use the factor tree model to illustrate the prime factorization of numbers.
  6. Teacher will guide students through practice problems.
  7. Students will find prime factorization of the following numbers. (i.e. 24, 36, 100, 63)
  8. Teacher will walk around to observe students understanding of concepts.
  9. Teacher will discuss the answers.
  10. Students will participate in prime number bingo activity.
  11. During this activity, the students will be given clues and the student must determine what the clues mean and mark their answer on their bingo card using the counting circles.
  12. The activity will continue until someone wins.

13. Homework worksheet will be passed out and students will explore finding the greatest common factor of two numbers.

### 3 Materials and Resources

Overhead

Transparencies

Dictionary

Bingo Activity Sheets and Clue Sheet

Counting Circles

Markers

Resources:

Prentice Hall Mississippi Transition to Algebra—Pearson and Prentice Hall (2009) page 52- 56.

National Library of Virtual Manipulatives

[http://nlvm.usu.edu/en/nav/frames\\_asid\\_202\\_g\\_3\\_t\\_1.html](http://nlvm.usu.edu/en/nav/frames_asid_202_g_3_t_1.html)

### 4 Assessment

Students will be assessed by homework.

Students participation in activity/game.

Students will participate in board activity the next day.

Independent Practice: Factoring Answer Key

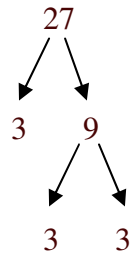
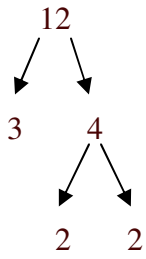
$$83 = 1, 83$$

$$91 = 1, 7, 13, 91$$

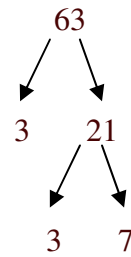
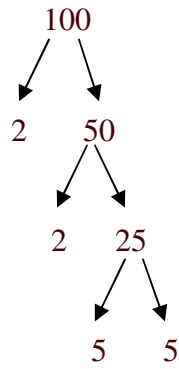
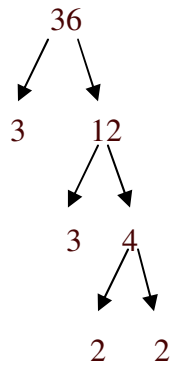
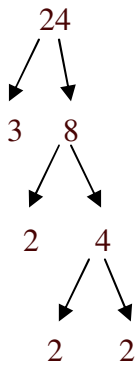
$$37 = 1, 37$$

$$36 = 1, 2, 3, 4, 6, 9, 12, 18, 36$$

Guided Practice:



Answer Key: Independent Practice



$3 * 2 * 2 * 2$

$3 * 3 * 2 * 2$

$2 * 2 * 5 * 5$

$3 * 3 * 7$

# Prime Bingo Activity

## Prime Bingo Activity

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	67	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

## PRIME BINGO CLUES

A prime number greater than 15 and smaller than 20	A one-digit composite number less than 9
This number's prime factors are $2^2 \times 3^2$	A two-digit composite number less than 15 but greater than 12
A two-digit composite number	A two-digit prime number greater than 31 but less than 41
This number's prime factors are $2^2 \times 3$	Prime factor of this number are $3^2$
A one-digit prime number	This number's prime factors are $2^4$
A two-digit composite number	A two-digit composite number greater than 10
A prime number greater than 35	A prime number less than 14
This number's prime factors are $2 \times 5 \times 5$	A number that is neither prime or composite
This number's prime factors are 3 and 5	A one-digit composite number less than 5
A two-digit composite number greater than 20 but less than 24	This number's prime factors are 3 and 7
A prime number greater than 30 and smaller than 35	A two-digit composite number less than 40
This number's prime factors are $2^2 \times 5^2$	A two-digit composite number less than 25 but greater than 12
A two-digit composite number	A two-digit prime number greater than 39 but less than 45
This number's prime factors are $2^4 \times 3$	Prime factor's of this number are $5^2$
A two-digit prime number greater than 50	This number's prime factor is 2
A two-digit composite number	A two-digit composite number greater than 60
A prime number greater than 60	A prime number less than 80
This number's prime factors are $2 \times 3 \times 5$	A number whose prime factor are $2 \times 5 \times 7$

This number's prime factors are 3 and 7	A two-digit composite number less than 87
A two-digit composite number greater than 90 but less than 100	This number's prime factors are $3 \times 3 \times 7$

## Homework Sheet

Determine which number in each set is a prime number.

- |       |       |       |       |       |
|-------|-------|-------|-------|-------|
| 1. 21 | 2. 43 | 3. 10 | 4. 51 | 5. 91 |
| 37    | 32    | 2     | 83    | 49    |
| 28    | 15    | 18    | 81    | 75    |
| 9     | 6     | 25    | 72    | 27    |

Find the prime factors of the following numbers.

- |       |       |       |       |        |
|-------|-------|-------|-------|--------|
| 6. 36 | 7. 55 | 8. 96 | 9. 33 | 10. 62 |
|-------|-------|-------|-------|--------|

Explore:

Find the greatest common factor of the following.

- |           |            |           |             |
|-----------|------------|-----------|-------------|
| 1. 15, 18 | 2. 49, 105 | 3. 35, 80 | 4. 225, 120 |
|-----------|------------|-----------|-------------|



## Homework Sheet Answer Key

1. 37            2. 43            3. 2            4. 83            5. 91

### Prime factors

6.  $36 = 2 \times 2 \times 3 \times 3$

7.  $55 = 5 \times 11$

8.  $96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

9.  $33 = 3 \times 11$

10.  $62 = 2 \times 31$

### Greatest Common Factor

1. 6  
2. 7  
3. 5  
4. 15