Factoring M&M's Activity

Directions: <u>By yourself</u>, count the number of M&M's you have and then respond to the following prompts. As you group your M&M's, group them into groups of equal value. Demonstrate your group values as discussed previously. Consider the following questions and complete the tables below.

- What is your total number of M&M's? (Do not eat any please).
- Into how many equal groups of M&M's can you divide your total number of M&M's without any remainders? (You may or may not use each of the boxes.)

_____ x _____ = _____	_____ x _____ = _____	_____ x _____ = _____

- Can you divide these groups any further? Why or why not?

Directions: Now, <u>with a partner</u>, count the combined number of M&M's you have together and then respond to the following prompts. As you group your M&M's, group them into groups of equal value. Demonstrate your group values as discussed previously.

- What is the number of combined M&M's?
- Into how many equal groups of M&M's can you divide your total number of M&M's without any remainders?

_____ x _____ = _____	_____ x _____ = _____	_____ x _____ = _____

- At what number can you only divide your M&M's into groups that have 1 M&M each? Please make a rule for your discovery and be prepared to share it with the class.

Please fill out the following tables according to the class data and discussion.

Total # of M&M's	Possible Equal Groups	Total Number of M&M's	Possible Equal Groups
11			
27			
36			
121			
51			
2			

- Why are all of the factors we get the same for some of the numbers? What are they?

- Can a number be prime and composite? Please explain why or why not.

Complete the following chart, using your definition, and label which numbers are primes.

Number	Factors
39	
85	
93	
57	

Number	Factors
43	
42	
2	

MINI EXPERIMENT #1

- Explain in your own words what a prime number is. Then please give three examples of a prime number:

a. The first example as a number between 1-10

b. The second example as a number between 10-20

c. The third example any number between 1 to infinity

Brain-storming Rubric

Students give a definition of a prime number.1 point
Students give an accurate definition of a prime number. 2 Points
Students give and example for each of the questions. 1 Point each (Total 3)
Total Points Possible: 6

Objective: Prime Numbers

Stage 1: Sorting and Categorizing

- Demonstrate what students will be doing in regards to the worksheet. Illustrate the factoring through factor trees but without naming them to the students.
- Making factor trees of numbers of M&M's
- Give each student a cup with a certain amount of M&M's with a worksheet to figure out if the number is prime; if not, to determine what are the multiples.
- Students amount of M&M's will vary to accommodate for the fourteen students in the class
- The students will then group into two groups of four and two groups of three and then compare their data.
- Then as a class we will share our data about prime numbers and composite numbers.

Stage 2: Reflecting and Explaining

- Student explains their reasoning for finding factors for composites and primes.
- Student is able to recognize pattern of prime numbers

Stage 3: Generalizing and Articulating

- The student distinguishes between composite and prime numbers
- Students come up with a definition of a prime number. This is generalized from definitions created in Stage 1.

Stage 4: Verifying and Refining

- Students test their definition against new problems involving prime and composite numbers.
- Mini experiment is given to make sure students understand the concept of prime numbers