

**Grade:** 5

**Subject:** Mathematics **Duration:** 60 mins

**Unit Title:** Number

**Topic:** Types of Numbers

**Focus Question:** In what ways can sets be represented?

**Attainment target:** Model patterns, expressions and number relationships  
using concrete objects

**Specific Objectives:** By the end of the lesson students will be able to:

- Differentiate between prime numbers and composite numbers.
- Identify at least four prime numbers and four composite numbers.
- Formulate definition for the terms prime numbers and composite numbers.
- Explain the term factors of a number.
- Determine the factors of at least three prime numbers and three composite numbers.

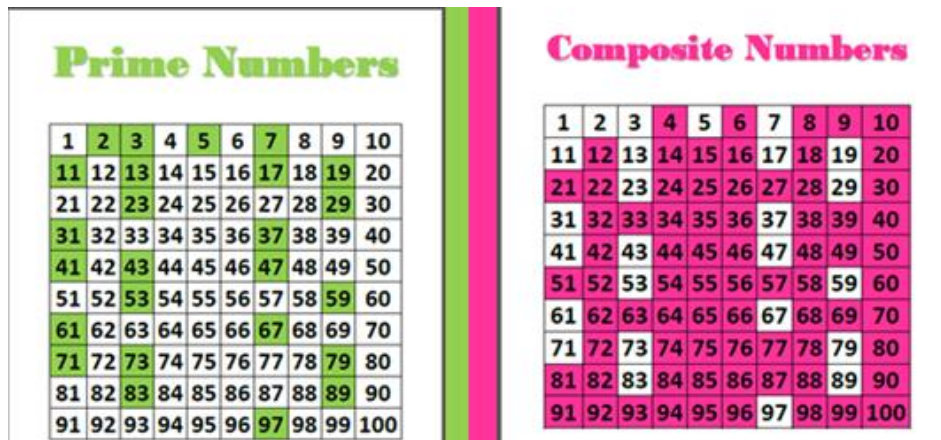
**Prior Learning:**

Students should already be able to identify even and odd numbers. Have knowledge of numbers that are divisible by 2 and remainders.

**Content:** Every natural number greater than 1 can be classified as either a prime number or a composite number.

Types of Numbers	Definition	Examples:
Prime Number	Numbers which have only two factors namely 1 and the number itself.	2, 3,5,7,11,13,17,19,23 and 29

Composite numbers	Numbers having more than 2 factors.	4, 6, 8, 9, 10....
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**Skills:** Analyze types of numbers and differentiate between the different types of numbers.

**Key Vocabulary/Concepts:** Prime number, composite number, factors, odd number, divide, evenly and group.

**Instructional Resources:** A hundred chart, crayons, Name cards, chart, counters, composite number cards and prime number cards.

## Procedure

### Engage

Students will:

1. Be placed in groups to complete tasks with hundred chart and some crayons.

100 Chart									
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	66	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

Then discuss the **rules of divisibility** for the first four prime numbers:

- A number is divisible by 2 if  
...
- A number is divisible by 3 if  
...
- A number is divisible by 5 if  
...
- A number is divisible by 7 if  
...

2. Shade in the number "1" square with the red crayon. The number "1" is neither prime nor composite.

100 Chart									
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	66	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

Procedure B:

1. The number "2" is the first prime number.
2. Shade in all the multiples of 2 with the orange crayon.
3. Why is "2" the only **even prime**?
4. What pattern formed by shading in all the multiples of two?
5. What set of numbers does this eliminate and why?

100 Chart									
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

Procedure C:

1. The number "3" is the first odd number.
2. Shade in all the multiples of 3 with the green crayon that have not been shaded in with the orange.
3. How can you describe the pattern formed by the green squares?

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	66	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

4. Which numbers are multiples of two and three?

100 Chart									
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	66	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

Procedure D:

1. The number "5" is the second odd number.
2. List all the multiples of 5, 10, 15...
3. Shade in all the multiples of 5 with the blue crayon that have not been shaded in with the orange or green.
4. How can you describe the pattern formed by the blue squares?
5. Which numbers are multiples of two, three, and five?

100 Chart									
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	66	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

Procedure E:

1. The number "7" is the third odd number.
2. List all the multiples of 7, 14, 21...
3. Shade in all the multiples of 7 with the purple map pencil that have not been shaded in with the orange, green, or blue.
4. How can you describe the pattern formed by the purple squares?
5. Which numbers are multiples of two, three, five, and seven?

100 Chart									
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

Conclusion:

1. What are the numbers that have not been shaded in?
2. Why are these numbers prime?
3. How many prime numbers are there less than 100?
4. Why do you think that this method of finding prime numbers is called the sieve method?

61	62	63	64	65	66	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

### Explain

- i. After completing the activities, the students will explain according to the questions in the conclusion.
- ii. With teacher's guidance discuss to clear any misunderstandings.

### Explore and Explain

- i. Work in their groups to review the composite number cards and prime number cards given by teacher to identify the differences between the two sets of numbers.
- ii. Share their observations with the class as a representative from each group is selected using name cards by the teacher. For example:
  1. Each prime number can only be divided evenly by 1 and itself.
  2. Each composite number can be divided evenly by 3 or more numbers.
- iii. Select two of the prime numbers and two of the composite numbers from the cards given and try to find all the numbers that can divide the numbers that they selected evenly (without a remainder).
- iv. Share with the class the numbers that they selected and the factors they found for each of the numbers. For example:

1. Prime numbers- 3, 5 the number 3 can only be divided evenly by 1 and itself and the number 5 can only be divided evenly by 1 and itself.
2. Composite numbers- 4, 6 the number 4 can be divided evenly by 1, 2 and 4 and the number 6 can be divided by 1, 2, 3 and 6.
- v. Be attentive as their responses are recorded on the board.
- vi. Work together in their groups to formulate a definition for prime numbers and composite numbers based on their observations from the activities they were engaged in.
- vii. Share with the class the definition that they formulated after they have been randomly selected through name cards by the teacher. For example:  
  
A prime number is a whole number that can be divided by only 1 and itself while a composite number is a whole number that can be divided by 3 or more factors.
- viii. Read the definition from the chart then participate in a class discussion by asking questions about the concept explained and by providing responses to questions asked by the teacher about the concept. For example:  
  
A prime number is a number that is divisible by only two numbers (itself and 1).  
Such as -2, 3, 5, 7, 11, 13, 17, 19 etcetera. While a composite number is a number that can be divided by a number other than itself and 1. Such as 4, 6, 8, 9, 10, 12, 14, 15 etc.
- ix. Listen and ask clarifying questions as it is outlined to them that the numbers which we use to divide each number that we reviewed are called factors.  
  
Therefore, a prime number is a number that has only two factors (1 and itself) while a composite number has 3 or more factors including 1 and itself.



- x. Ask questions to clarify that prime numbers are not just odd numbers because two is an even number and it is also a prime number and 9 is an odd number which is not a prime number.

**Extend:** Allow the students to watch the video entitled “Prime and Composite Numbers” (<https://www.youtube.com/watch?v=TXDyU5f5WR8>) about prime and composite numbers and discuss the video to clear any misconceptions.

**Evaluation 1:** Students will:

- A. Draw a table on the board with one column being prime numbers and the other column being composite numbers. Give students a set of numbers and ask them to classify each number as prime number or composite number by placing them under the appropriate column of the table.

For example:

Complete the table below by placing the numbers under the correct column.

2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 43,

Prime Numbers	Composite Numbers
2	4
5	16

- B. Allow the students to write the sets for the following:
1. The set of prime numbers between 4 and 19.
  2. The set of composite numbers between 4 and 19.
  3. The set of prime numbers between 212 and 223
  4. The set of composite numbers between 212 and 220.

C. *You are planning a birthday party and you are very particular about seating arrangements. You can arrange the tables in any way as long as there is the same amount of people at each table. You have a total of 100 people coming to your party, how can you arrange the tables?*

*Your parents forgot to invite her favourite uncle, now bringing the total 101. Describe any problems and solutions.*

**Evaluation 2: Evaluation:** (Teacher):

Were students able to:

	0% - 50%	51% - 80%	81% - 100%
- Differentiate between prime numbers and composite numbers.			
- Identify at least four prime numbers and four composite numbers			

Out of Class:

Comments:

Areas of

strengths: \_\_\_\_\_

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Areas of weaknesses:

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Actions to be taken

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