

Pre-Content/Content /Post-Content	Learning Outcomes/Objectives	
PRE-CONTENT - Number system and Integers - Realise the requirements of negative numbers CONTENT - Comparison of Integers - Number Line - Operations on integers - Addition - Subtraction - Multiplication - Division - Properties of Integers - Brackets - Types and order of removal - Simplification POST-CONTENT - Problem Solving	Students will be able to ✓ recall all the number systems, integers and will identify the need of negative numbers ✓ compare integers ✓ locate integers on the number line ✓ apply different operations on integers ✓ explore different properties of integers and will be able to justify them with the help of examples ✓ simplify problems ✓ calculate faster and will be able to solve problems based on it	Students will be able to ✓ recall number system ✓ visualise the requirement of negative numbers in view of real world ✓ compare and order integers ✓ represent integers on the number line ✓ identify different operations on integers and will be able to simplify them ✓ explore the properties and will be able to justify them with the help of suitable examples ✓ solve the problems ✓ acquire problem solving skills and will be able to solve various problems

Home Work /Assignments:

1. NCERT Exercise/solved examples given as home task.
2. Extra questions from the help book.

Teacher's Activity	Student's Activity	Teacher's observation and Remedial
Teacher will help them recall various number system and integers by asking questions based on their previous knowledge. tell how to compare two integers. show the location of various integers on the number line. explain how to apply operations on integers and instruct them to perform the activity on multiplication of integers via hands on activity. Annexure 1 discuss about the different properties of integers. give problems on simplification give application-based questions.	Students will recall the learnt facts about various number system and realize the need of negative numbers. compare and order integers in ascending or descending order. draw number line and locate integers on it. solve questions based on integers using different operations and perform the activity as per the given instructions and write their observations. Annexure 1 appreciate the properties and will be able to justify them with the help of examples. solve those problems simplify and solve application-based problems on integers.	Teacher will write his/her observations after the completion of the topic.

Teaching Aids: Smart board, ICR.

Methodology/Innovative Methods: Discussion, Brain storming, Activity oriented.

Interdisciplinary Links: Linked with Art and Real life problems like shopping bills.

HOD

Coordinator

Vice-Principal

Principal

Subject	MATHEMATICS
Class	VII
Chapter/Unit	Integers
Topic	Multiplication of integers
Time	30 minutes
Nature of Activity	Individual

What will I learn (Learning outcome)?

To compute multiplication of integers.

Skills: - Creating, Precision, Accuracy, Calculating

What I have to do?

To compute multiplication of integers using unit squares of different colours.

What do I require?

Cardboard, white paper, yellow and green grid paper, color pens [yellow and green], adhesive, ruler and scissors.

What do I need to know?

Concept of Mathematical Operations

Teacher's Activity

Teacher will discuss about various concepts of mathematical operations.

How will I proceed?**Student's Activity**

- Take a cardboard of a convenient size and paste a white paper on it.
- Now take a yellow grid paper and cut out sufficient number of square pieces of unit squares.

Here each yellow square represents an integer '+1' as shown in Figure (i).

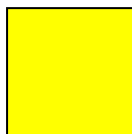


Figure (i)

- Now take a green grid paper and cut out sufficient number of square pieces of unit squares.

Here each green square represents an integer '(-1)' as shown in figure (ii)



Figure (ii)

(I) For two positive integers, say 3×4

4/8

- d) Draw 7 [= 3+4] yellow edges of unit length on the cardboard as shown in Figure (iii).

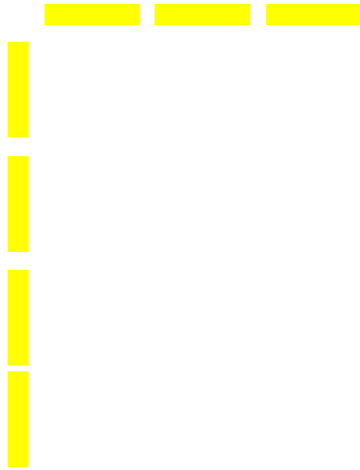


Figure (iii)

- e) Complete the rectangular shape using yellow unit squares as shown in Figure (iv).

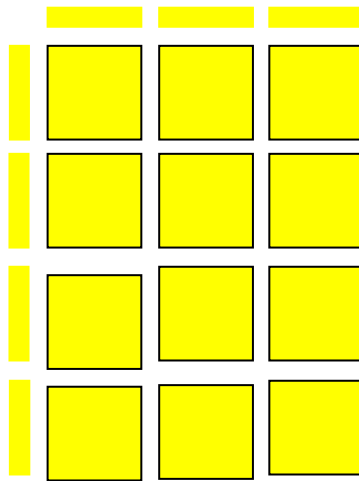


Figure (iv)

(II) For one positive and one negative integer, say $(-3) \times 4$

- f) Draw four yellow edges and three green edges each of unit length as we have to multiply (-3) by 4 as shown in Figure (v)

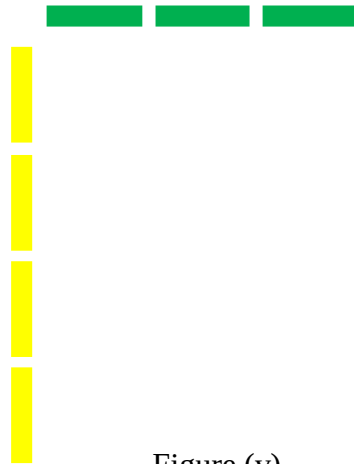


Figure (v)

- g) Complete the rectangle using Figure (v) with yellow unit square as shown in Figure (vi)

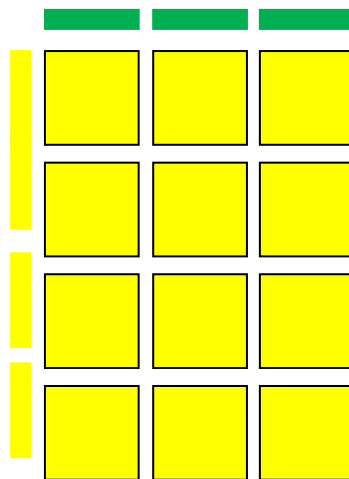


Figure (vi)

- h) Since one side of the rectangle has green edges, so invert each yellow square of Figure (vi) once as shown in Figure (vii).

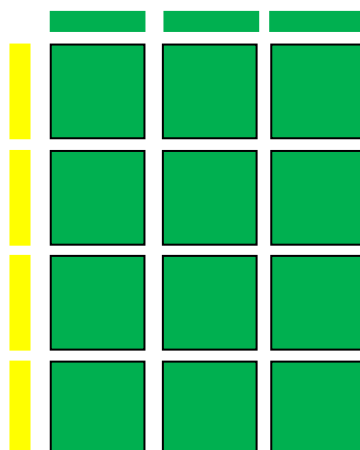


Figure (vii)

(III) For two negative integers, say, $(-3) \times (-4)$

- i) Draw 5 green edges each of unit length as shown in Figure(viii) as we have to multiply (-3) by (-4) .

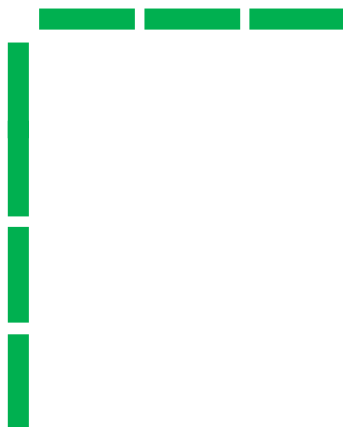


Figure (viii)

- j) Complete the rectangle in Figure (viii) using yellow unit square as shown in Figure (ix)

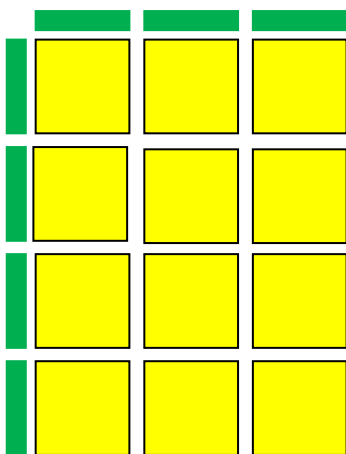


Figure (ix)

- k) Since two sides of rectangle in the Figure (ix) are having green edges, so invert the squares, two times as shown in Figure (x) and (xi).

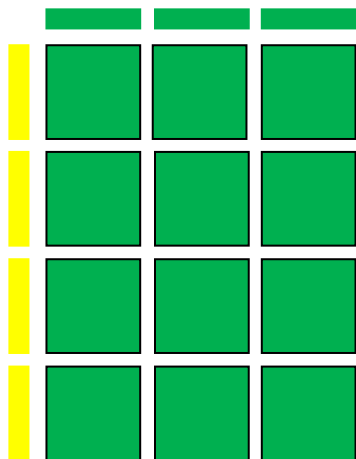


Figure (x)

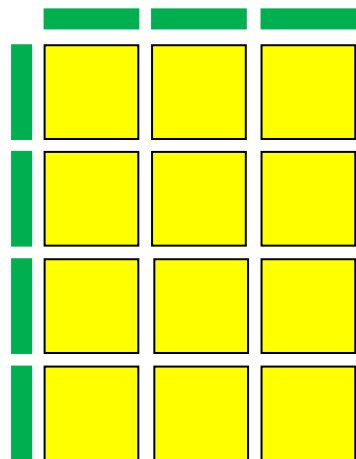


Figure (xi)

What have I observed?

- i) Number of yellow unit square in Figure (iv) is _____, so $3 \times 4 =$ _____.
- ii) Number of green unit square in Figure (vii) is _____, so $(-3) \times 4 =$ _____.
- iii) Number of yellow unit square in Figure (xi) is _____, so $(-3) \times (-4) =$ _____.

What have I learnt?

To _____ two given integers.

What am I curious to know?

Repeat the above activity to find other products such as $(-2) \times 5$, 2×5 and $(-2) \times (-5)$

Let me evaluate myself

1. What is the product of $(-200) \times (-5)$.

2. Using distributive property multiply (-205) by 102 .

3. What will be the sign of the product if we multiply 7 negative and 5 positive integers?

4. What will be the sign of the product if we multiply 6 negative and 5 positive integers?

5. What will be the sign of the product if we multiply 4 negative and 6 positive integers?
