

Class: VII	Subject: Mathematics	Day:1	Time duration:40 min
Name of the lesson/ unit	Ch-1 Integers		
Topic/lesson	Addition and subtraction of integers.		
Learning Objective	To be able to solve the problems based on integers.		
Expected learning outcomes:	- To understand the difference between operations of integers and nature of integers. - Define integers and apply commutative, associative property. - Recall addition and subtraction of integers. - Understand and apply the properties in integers (Closure under addition and subtraction, commutative, associative, additive identity and additive inverse)		
Common misconception (if any):	- Putting the incorrect sign while doing addition and subtraction of integers. - Confusion in operations and nature of integers - Doing reverse operation Knowledge of signs		
Prerequisite knowledge:	Knowledge of Types of integers		
Assessment of qualifying knowledge:	Oral questions based on types of integers		
Transaction methodology			
Starter/ warm up: Questioning(Verbal) (10 Min)	What are integers? Give some examples. a) What are the properties of whole number? Name them. b) Give their examples. c) Let us try to apply properties of whole numbers in integers		
Demonstration and explanation by teacher on board followed by NB work of students- 5 min	Teacher will give all the properties of integers under addition and subtraction and will ask examples- <i>“Before that teacher will clarify, -1 should not be pronounced as minus 1, it is negative 1 similarly +1 as positive 1 to clear the difference between operations and nature of integers and on that basis teacher will explain $+1-1 = +1 + (-1) = 0$ or $-1+1=0$ i.e., negative integer and positive integer when added will give 0 which means nothing or we cancel it ”.</i> Closure:- If a and b are two integers, then $a + b = c$, where c is always an integer. $(+5) + (+3) = (+8)$, $(-5) + (-3) = (-8)$, $(+5) + (-3) = (+2)$, $(-5) + (+3) = (-2)$ Commutative:- If a and b are two integers then $a + b = b + a$		

Peer discussion-5 Mins <u>Independent work</u> <u>followed by the board</u> <u>work-10 Min</u> Note book work Questioning & discussion(Verbal) :5 Min	$(-6) + (+8) = (+2)$, $(+8) + (-6) = (+2)$ Associative:- If a, b and c are three integers then $(a + b) + c = a + (b + c)$ $(7 + (-4)) + (-5) = (+3) + (-5) = (-2)$, $7 + ((-4) + (-5)) = 7 + (-9) = (-2)$ Additive identity:- If a is an integer, then $a + 0 = 0 + a = a$ $(-3) + 0 = (-3)$ Additive Inverse:- For every integer a, there exists another integer (-a) such that $a + (-a) = 0$, a is the additive inverse of (-a) and (-a) is the additive inverse of a. <i>Collaborative work-Students will discuss Questions of book with their peers, comprehend them and solve .</i> Teacher will collect responses and discuss the following questions on the board. Q. How you will add if both the integers are negative ? Q. Are Integers closed under addition and subtraction ? Q. Are Integers closed under multiplication and division? Teacher will write 2 examples on the board-
Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	<i>Teacher will collect the responses and discuss the correct answers</i>
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII



Khaitan Public School,Sahibabad

Class: VII	Subject: Mathematics	Day:2	Time duration:40 min
Name of the lesson/ unit	Ch-1 Integers		
Topic/lesson	Multiplication of Integers		
Learning Objective	To be able to solve the problems based on integers.		
Expected learning outcomes:	- To be able to understand the concept of Integers via activity. - To be able to implement their learnings to enhance their practical approach. - To develop their inference skills.		

	To multiply and divide integers using counters
Common misconception (if any):	- Doing reverse operation - Knowledge of signs
Prerequisite knowledge:	Knowledge of Types of integers
Assessment of qualifying knowledge:	Oral questions based on types of integers
Transaction methodology	
Starter/ warm up: Questioning(Verbal) (5 Min)	- What are integers? - What may be the nature of integers? Ans: Negative or Positive - What are the basic operations of integers? - What are the properties of integers multiplication and division?
Activity guidelines by teacher (10 mins) Collaborative work- 10 mins Teacher modelling and explaining/pedagogy Probing & Inquiring- (8 mins) Peer discussion and book work:2 min	An activity using +ive and –ive counters will be done to make the concept of multiplication of integers more clear. Teacher will explain with examples - - Multiplying two unlike signs results in a negative sign $(+5) \times (-6) = (-30)$, $(-7) \times (+8) = (-56)$ $(+) \times (-) = (-)$ $(-) \times (+) = (-)$ - Multiplying two like signs results in positive sign $(+5) \times (+4) = (+20)$, $(-8) \times (-6) = (+48)$ $(+) \times (+) = (+)$ $(-) \times (-) = (+)$ - When even number of negative integers are multiplied, the product is always positive $(-6) \times (-5) \times (-2) \times (-1) = (+30) \times (-2) \times (-1) = (-60) \times (-1) = (+60)$ - When odd number of negative integers are multiplied, the product is always negative $(-3) \times (-4) \times (-2) = (+12) \times (-2) = (-24)$ <i>Students will do book work and teacher mentor the learners on the way.</i>
Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	- Product of two positive integers is a _____ Integer. - Product of two negative integers is a _____ Integer. - Sum of one negative integer and one positive integer is a - negative integer if numerical value of _____ integer is greater. - positive integer if numerical value of _____ integer is greater
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII

Class: VII	Subject: Mathematics	Day:3	Time duration:40 min
Name of the lesson/unit	Ch-1 Integers		
Topic/lesson	Properties of multiplication of integers.		
Learning Objective	To be able to solve the problems based on integers.		
Expected learning outcomes:	- Understand and apply the properties of multiplication of integers (closure, commutative, multiplication by zero, multiplicative identity, associative, distributive) - Analyze and compute the product using suitable properties in the questions. - Simplify using distributive property - Evaluate using convenient grouping		
Common misconception (if any):	- Not using the correct property or solving without using the properties. - Simplifying without using appropriate property - Applying distributive law incorrectly - Knowledge of signs		
Prerequisite knowledge:	Knowledge of Types of integers		
Assessment of qualifying knowledge:	Oral questions based on types of integers		
Transaction methodology			
Starter/ warm up: Questioning(Verbal) (10 Min)	a) What are the properties of addition and subtraction of integers? b) What is commutative property? c) What is associative property ? d) Let us try to apply these properties in multiplication.		
Teacher modelling and explaining/pedagogy - 5min (NB)	Teacher will discuss about following properties: Distributive property:- If a, b and c are three integers, then $a \times (b + c) = a \times b + b \times c$ $(-6) \times (7 + 5) = (-6) \times (12) = (-72)$, $(-6) \times 7 + (-6) \times 5 = (-42) + (-30) = (-72)$ Multiplication by zero:-If a is an integer, then $a \times 0 = 0$ and $0 \times a = 0$ $(-7) \times 0 = 0$, $0 \times (-7) = 0$ Multiplicative identity:- If a is an integer, then $a \times 1 = a$ and $1 \times a = a$ $(-9) \times 1 = (-9)$		
Summarizing the properties by students in notebook- 5 min	Teacher will ask students to prove properties of multiplication through one example for each – Closure, Commutative, Associative		

Peer discussion-5 Mins <u>Independent work followed by the board work-10 Min</u> Note book work	<i>Collaborative work-Students will discuss Questions with their peers and comprehend them.</i> <u>Students will do Questions independently .</u> Teacher will discuss the solution on the board by calling individually students on the board.
Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	Q. $(-1)^{\text{odd}} = \underline{\hspace{2cm}}$. Q. $(-1)^{\text{even}} = \underline{\hspace{2cm}}$. Q. $\underline{\hspace{2cm}}$ is the additive identity whereas $\underline{\hspace{2cm}}$ is the multiplicative identity.
Home Learning	From book Assignment will be given
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Class: VII	Subject: Mathematics	Day:4	Time duration:40 min
Name of the lesson/ unit	Ch-1 Integers		
Topic/lesson	Division of Integers		
Learning Objective	To be able to solve the problems based on integers.		
Expected learning outcomes:	• Division of integers. • Co-relate multiplication and division of integers • Compute quotient of two integers with correct sign • Differentiate between properties of multiplication and division • Analyze a given situation and apply the suitable operation required • Comprehend a word problem • Verify properties of division		
Common misconception (if any):	• Not using the correct sign • Getting confused in the operation needed • Not able to comprehend the given situation • Reciprocating wrongly • Knowledge of signs • Dividing zero by a number		

Prerequisite knowledge:	Knowledge of Types of integers
Assessment of qualifying knowledge:	Oral questions based on types of integers
Transaction methodology	
Starter/ warm up: Questioning(Verbal) (7 Min)	Q.1-What is the reverse operation of Addition? Q.2- What is the reverse operation of subtraction? Q.3- What is the reverse operation of multiplication? Q.4- For $5 \times 3 = 15$, what are the corresponding division facts?
Teacher modelling and explaining/pedagogy (Questioning and discussion)-8 min	• Division involving two like signs gives a positive sign • $(+)/(+)= (+)$; $(-)/(-)= (+)$ • $(15)/(3)= (5)$; $(-12)/(-4)= (3)$ • Division involving two unlike signs gives a negative sign • $(-)/(+)= (-)$; $(+)/(-)= (-)$ • $(-15)/(3)= (-5)$; $(12)/(-3)= (-4)$ Q.- Name the properties of Multiplication. Q.- What will be the quotient if $(-8)/(2)$? Q.- What will be the quotient if $2/(-8)$? Q.- Are the results same? Q.- What do you infer?(Integers are not closed under division) Q.- Verify commutative property for division of (-15) and (5). Q.- Can we say that division is commutative?(Division is not commutative for integers) Q.- If division is not commutative for integers, can it be associative?(No, Integers are not associative) Q.-Can you divide any integer by 0?(Not possible) Q.- What will be the quotient , if 0 is divided by any integer?(0) Q.- If you divide any integer by 1, what will be the quotient?(Same integer) • Integers are not closed under division • Integers do not possess the commutative property • Associative property does not apply to the division of integers • When any integer a is divided by 1, result will be the same integer. $a/1 = a$
Summarizing Properties on board by teacher and followed by NB work by Students- 5 min	
Guided practice- Peer work by students in NB-5 Min	<i>Students will discuss Questions and will do in notebook after peer discussion.</i>
Independent work followed by the board work- 10 Min	Teacher will discuss the solution on the board by calling individually students on the board
Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	Students will draw content map of the chapter by discussing with partners.
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