



Khaitan Public School, Sahibabad

Class: VII	Subject: Mathematics	Day:1	Time duration:40 min
Name of the lesson/ unit	Algebraic Expressions		
Topic/lesson	Framing expressions, Identifying terms, factors and coefficients of Algebraic expression		
Learning Objective	To be able to know how algebraic expressions are formed, how they can be combined, how we can find their values and how they can be used.		
Expected learning outcomes:	Students will be able to - Recall and define algebraic expressions. - Recall and define the variable , constant of algebraic expression. - Frame algebraic expression and identify its factors. - Identify numerical and other coefficient of expression.		
Common misconception (if any):	- Writing coefficient in place of numerical coefficient. - Writing terms instead of factors of terms.		
Prerequisite knowledge:	Knowledge of formation of simple algebraic expressions like $x + 3$, $y - 5$, $4x + 5$.		
Assessment of qualifying knowledge:	Form expressions using statements -verbal test		
Transaction methodology			
Starter/ warm up: <u>Peer Work (Collaborative Work)</u> (5 Min)	Teacher will ask 1. What is variable ? 2. What is constant ? 3. What are factors ? Teacher will record the answers on the board.		
Questioning & discussion(Verbal) Book work (<u>Individual work</u>) :5min	<u>Students will do some questions of Exercise in Book on their own.</u> Teacher will collect responses and use their previous knowledge of algebra.		

Questioning followed by Explanation on the board:10 min (Explanation & Discussion among peers)	Here we have an equation that says $4x - 7$ equals 5, and all its parts: $ax^2 + bx + c$ x is a variable , a and b are coefficients, c is a constant A Variable is a symbol for a number we don't know yet. It is usually a letter like x or y. A number on its own is called a Constant. A Coefficient is a number used to multiply a variable ($4x$ means 4 times x, so 4 is a coefficient) Variables without a number have a coefficient of 1 (x is really $1x$) An algebraic expression is a mathematical phrase that can contain ordinary numbers, variables (like x or y) and operators (like add,subtract,multiply, and divide). Eg. $4xy + 7$, $2x + 3y - 2$ A term is a product of factors . The term $4xy$ in the expression $4xy + 7$ is a product of factors x , y and 4. Factors containing variables are said to be algebraic factors.
<i>Demonstration by the teacher on the board, followed by students work in Notebook (Individual work) N.B :5 min</i> <i>Independent work followed by discussion on board, students will be called on board to solve the questions(Individual work) N.B:10 min</i>	<u>Book exercise</u> Book exercise.
Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	Write terms, factors, numerical coefficient and coefficient of x in $4xy - 2y^2z$.
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII Filpped video

Class: VII	Subject: Mathematics	Day:2	Time duration:40 min
Name of the lesson/ unit	Algebraic Expressions		
Topic/lesson	Like and unlike terms, Addition of like terms		
Learning Objective	To be able to know how algebraic expressions are formed, how they can be combined, how we can find their values and how they can be used.		
Expected learning outcomes:	Students will be able to • Differentiate between like and unlike terms. • Identify and classify the terms (monomials , binomials , trinomials, polynomials). • Add like terms.		
Common misconception (if any):	• Identifying unlike as like terms • Adding unlike terms • Multiplying the terms instead of adding.		
Prerequisite knowledge:	Knowledge of formation of simple algebraic expressions like $x + 3$, $y - 5$, $4x + 5$.		
Assessment of qualifying knowledge:	Form expressions using statements -verbal test		
Transaction methodology			
Starter/ warm up: Questioning(Verbal) & Peer Discussion (Collaborative Work) (5 Min)	Teacher will discuss the given problem and ask students to give answer. Sarita has some marbles. Ameena has 10 more. Appu says that he has 3 more marbles than the number of marbles Sarita and Ameena together have. How do you get the number of marbles that Appu has?		
Questioning & discussion(Verbal):5 min	Teacher will ask 1. What is like and unlike terms. 2. What is polynomials ? In algebra, like terms are terms that have the same variables and powers. The coefficients do not need to match.		

board:5 min (Explanation & Discussion among peers) <i>Demonstration by the teacher on the board, followed by students work (Individual work)</i> N.B :10 min <i>Independent work followed by discussion on board, students will be called on board to solve the questions(Individual work)</i> N.B:10 min	Unlike terms are two or more terms that are not like terms, i.e. they do not have the same variables or powers. Any expression with one or more terms is called a polynomial. One term expression is called a monomial , two term expressions is called binomial , and three terms expressions is called trinomial. <u>Book exercise</u> <u>Book exercise</u>
Closure/ Plenary(Think Pair and Share) <u>Collaborative Work</u> book: (5 Min)	How much is $21a^3 - 17a^2$ less than $89a^3 - 64a^2 + 6a + 16$?
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII Filpped video Activity-explore the possible combinations of variables and constants using different operations to form algebraic expressions in various contexts.Example-perimteter,area



Class: VII	Subject: Mathematics	Day: 3	Time duration: 40 min
Name of the lesson/unit	Algebraic Expressions		
Topic/lesson	Subtraction of Algebraic Expressions		
Learning Objective	To be able to know how algebraic expressions are formed, how they can be combined, how we can find their values and how they can be used.		
Expected learning outcomes:	Students will be able to Subtract the algebraic expressions.		
Common misconception (if any):	• Identifying unlike as like terms • Subtracting unlike terms • Multiplying the terms instead of subtracting. • Operating addition instead of subtraction.		
Prerequisite knowledge:	Knowledge of operations on integers		
Assessment of qualifying knowledge:	Teacher will ask $-(5-3) = -5 + \underline{\hspace{1cm}}$ $-(a-b) = \underline{\hspace{1cm}}$ The signs of algebraic terms are handled in the same way as signs of numbers. Board test		
Transaction methodology			
Starter Thani pair share - 10 mins	Teacher will give a question-In a garden, roses and marigolds are planted in square plots. The length of the square plot in which marigolds are planted is 3 metres greater than the length of the square plot in which roses are planted. How much bigger in area is the marigold plot than the rose plot? Students will share the answer after peer discussion. Teacher will collect responses.After this a flipped video will be shown.		
Lecture cum demonstration method-5 mins <i>Demonstration by the teacher on the board,</i>	Let us subtract $4n$ from $7n$. $\begin{aligned} 7n - 4n &= (7 \times n) - (4 \times n) \\ &= (7 - 4) \times n = 3 \times n = 3n \end{aligned}$ or $7n - 4n = 3n$ In the same way, subtract $5ab$ from $11ab$. $11ab - 5ab = (11 - 5) ab = 6ab$		

<i>followed by students work in Notebook (Individual work) N.B:10 min</i> <i>Independent work followed by discussion on board, students will be called on board to solve the questions(Individual work) N.B120min</i>	Book exercise Book exercise
Closure/ Plenary(Verbal) Peer discussion (Collaborative Work): (5 Min)	What is (a) $5n - 3n$ (b) $-6g - 4g$ (c) $5p - (-2p)$
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII Filpped video



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Class: VII	Subject: Mathematics	Day:4	Time min	duration:40
Name of the lesson/ unit	Algebraic Expressions			

Topic/lesson	Word problems of Addition and Subtraction of Algebraic Expression
Learning Objective	To be able to know how algebraic expressions are formed, how they can be combined, how we can find their values and how they can be used.
Expected learning outcomes:	Students will be able to • Frame algebraic expression • Comprehend the word problems in algebraic expression. • Solve the word problems in algebraic expression.
Common misconception (if any):	• Identifying unlike as like terms • Adding and subtracting unlike terms • Multiplying the terms instead of adding & subtracting . • Operating addition instead of subtraction and vice versa. • Wrong comprehension.
Prerequisite knowledge:	Knowledge of comprehension of simple word problems as mentioned below-
Assessment of qualifying knowledge:	Teacher will ask the following questions to the students verbally: 1. <i>What should be subtracted from 12 to get 8?</i> 2. <i>What should be taken away from 7 to obtain 5?</i> 3. <i>From the sum of 6 and 8 subtract 10.</i> 4. <i>From the sum of 4 and 9 subtract the sum of 3 and 5.</i>
Transaction methodology	
Questioning & discussion(Verbal) Peer work (Collaborative Work):5 min Demonstration by the teacher on the board, followed by students work in Notebook/ Workbook(Individual work) : 10 Min Discussion & Questioning followed by Guided	Teacher will ask the following questions: 1. Subtract $-15a$ from $20a$ 2. Rohan had $4x+2$ rupees. He spent $2x$ to buy pen . How much money is left with him now ? Teacher will discuss the keywords for addition and subtraction . <u>Book questions</u> Teacher will discuss the solution on the board. <u>Book questions</u> <u>Teacher will mentor the students and sit with LOW students to clear their doubts.</u>

<i>practice(N.B/Workbook)</i> <i>(Individual work) :15 Min</i> <i>Discussion in peer followed by explanation through Teacher and work done in Workbook</i> <i>(Collaborative work) :5 Min</i>	<i>(peer work)Book questions</i>
Closure/Plenary(Collaborative Work):(5 Min)	<i>Design a word problem involving addition and subtraction of algebraic expressions.(Peer work)</i>
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII Filpped video



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Class: VII	Subject: Mathematics	Day:5	Time min	duration:40
Name of the lesson/ unit	Algebraic Expressions			

Topic/lesson	Finding Value
Learning Objective	To be able to know how algebraic expressions are formed, how they can be combined, how we can find their values and how they can be used.
Expected learning outcomes:	Students will be able to Find the value of the algebraic expression for the given value of one variable.
Common misconception (if any):	- Substituting wrong value of variable. - Adding the base value and power instead of finding the value of exponents. - Operating wrong operation.
Prerequisite knowledge:	How to verify an equation
Assessment of qualifying knowledge:	Board test
Transaction methodology	
Starter- Video 5 mins	A flipped video will be shown.
Clearing doubts-5 mins <i>Demonstration by the teacher on the board, followed by students work in Book(Individual work) : 10 Min</i> Guided practice (Peer work) Collaborative Work N.B: 15 Min	Teacher will discuss HW question and its doubts . Teacher will collect the responses of starter and proceed the topic. <u>Book exercise</u> Teacher will discuss the solution on the board. <i>Students will discuss with their partner and will solve in notebook.</i> Book exercise Teacher will mentor the students and sit with LOW students to clear their doubts.

Closure/ Plenary (<u>Group Activity</u>) Collaborative Work: (5 Min)	<i>Draw chapter web of Algebraic expression on A4 size pastel sheet in group of 4 students.(Teacher will either provide pastel sheet or intimate students beforehand to bring colours and pastel sheets)</i>
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII Filpped video