



Khaitan Public School, Sahibabad

Class: VII	Subject: Mathematics	Day:1	Time duration:40 min
Name of the lesson/ unit	Ch- 13, Exponents and Power		
Topic/lesson	Expressing in exponential form, Finding Value, expressing a number in exponential form, comparison, simplification		
Learning Objective	To use exponents to read, understand, compare& write very large numbers .		
Expected learning outcomes:	• Know the terms exponents, base and powers • Identify exponent and base. • Understand and explain the exponential form • Convert a number in exponential form and vice versa • Solve and compare exponential form • Express a numbers as product of powers of its prime factors		
Common misconception (if any):	• Multiplying base and power in place of expanding • Using composite numbers in place of prime numbers • Identifying greater number • Evaluating exponents with negative base • First performing the operation and then evaluating the powers		
Prerequisite knowledge:	Prime factorisation of the numbers,expanded form		
Assessment of qualifying knowledge:	Board test		
Transaction methodology			
Starter/ warm up: <u>Think pair share-5 min</u> <u>NB work</u>	<i>What is the formula of area of square?</i> <i>Can you write it in some other way?(If students do not answer side²)</i>		
Teacher modelling and explaining/pedagogy Explanation through teacher : 5 Min	Teacher explains the exponents and powers using example 5 ⁴ where 5 is called base and 4 is the exponent. It is read as 5 is raised to the power 4. Then teacher will ask students what is 5 multiplied by itself 10 times,100 times, n times? Can we write in expanded form? Why should we prefer writing in exponential? <i>Collaborative work-Asking students to frame 2 examples of exponents and</i>		

Peer Discussion-5 mins	<i>powers. Each Student will discuss example from the exponents with their partner and will write the base and power in NB.</i> <i>Teacher to supervise the students work.</i>
Demo by the teacher on the board followed by NB-5 mins	Teacher will demonstrate the working of book questions on board. Teacher will tell how to find the value of exponent.
Guided notebook practice-15 mins	<u>Independent work-Students will do some questions in notebook.</u> Students will be called to solve the questions on board one by one.
Closure/ Plenary: (5 Min)(Peer workIn NB)	Find five more such examples, where a number is expressed in exponential form. Also identify the base and the exponent in each case.
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII Filpped video Activity using folding a square paper can be done to show the power of exponents. One fold in the paper means 2 squares. Two folds in the paper means 4 sqaures .And so on.



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Class: VII	Subject: Mathematics	Day:2	Time duration:40 min
Name of the lesson/ unit	Ch- 13, Exponents and Power		
Topic/lesson	Simplification of integers in exponential form		
Learning Objective	To use exponents to read, understand, compare& write very large numbers .		
Expected learning outcomes:	• Evaluate when base is a negative integers • Know about scientific notation • Analyze and apply their understanding		
Common misconception (if any):	• Putting incorrect sign • Multiplying base and power • Not using prime factors		
Prerequisite knowledge:	Prime factorisation of the numbers,expanded form		
Assessment of qualifying knowledge:	Board test		
Transaction methodology			
Starter/ warm up: <u>Think pair share-5 min</u> <u>NB work</u>	<i>Which one is greater 2^3 or 3^2 ?</i> <i>Students will discuss and explain in the class.</i>		
Teacher modelling and explaining/pedagogy Explanation through teacher : 5 Min Peer Discussion-10 mins	Teacher will explain the concept of even and odd exponent power of a negative integer. $(-1)^{\text{odd number}} = -1$ $(-1)^{\text{even number}} = +1$ <i>Students will be asked to sit with their partner to discuss Book questions .</i>		
Guided work on the board followed by WB work (15 min)Independent work	<u>Independent work-Students will do some parts of Ex ercise in notebook.</u> Students will be called to solve the questions on board		

Closure : 5Min (NB) Collaborative work	Express 432 as product of prime factors .
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:3	Time duration:40 min
Name of the lesson/ unit	Ch- 13, Exponents and Power		
Topic/lesson	Laws of Exponents		
Learning Objective	To use exponents to read, understand, compare& write very large numbers .		
Expected learning outcomes:	To Understand & apply law of exponents		
Common misconception (if any):	Solving without using laws when specified use laws.Multiplying laws when it is to be added vice versa.		
Prerequisite knowledge:	Prime factorisation of the numbers,expanded form		
Assessment of qualifying knowledge:	Board test		
Transaction methodology			
Starter – Questioning -5 mins	Consider $2^3 \times 3^2$ Can you add the exponents? No! Do you see ‘why’?		
Involving students by giving the laws in advance-5mins	Teacher explains other laws of exponents to the students by giving examples on board. Students will note down all the laws in N.B. without examples (Students to leave 4-5 lines space after each law)		
Peer Discussion-5 mins	<i>Collaborative work-Asking students to frame 2 examples from each laws below the law itself. Each Student will discuss example from the laws with the partner and will write in NB.</i>		
Demo by the teacher on the board-10 mins	<i>Teacher to supervise the students work.</i> Teacher will demonstrate the working of following question on board. Teacher will ask –Which law to apply?And why?(LOW)		
Guided notebook practice-10 mins	Book exercise <u>Independent work-Students will do Book exercise.</u> <u>Teacher will first ask students which law to apply?Why?</u> If a child gives wrong answer teacher to inquire why he chose this law and clear the doubt,		

Closure/ Plenary: (5 Min) Recap	Teacher will ask-How will you identify which law to apply?
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII Filpped video

Class: VII	Subject: Mathematics	Day:4	Time duration:40 min
Name of the lesson/ unit	Ch- 13, Exponents and Power		
Topic/lesson	Expressing in exponential form, Finding Value, expressing a number in exponential form, comparison, simplification		
Learning Objective	To use exponents to read, understand, compare& write very large numbers .		
Expected learning outcomes:	To write very large numbers using exponents and vice versa		
Common misconception (if any):	Not using laws in simplification instead focusing on expansion.		
Prerequisite knowledge:	Prime factorisation of the numbers,expanded form		
Assessment of qualifying knowledge:	Board test		
Transaction methodology			
Starter/ warm up: Question by the teacher and discussion 5 Min	Sun is located 300,000,000,000,000,000 m from the centre of our Milky Way Galaxy. How can we read this number? Teacher to share its difficult to do so but we can by using exponents.		
Explanation by teacher-10mins	These numbers are not convenient to write and read. To make it convenient we use powers. Observe the following: $59 = 5.9 \times 10 = 5.9 \times 10^1$ $590 = 5.9 \times 100 = 5.9 \times 10^2$ $5900 = 5.9 \times 1000 = 5.9 \times 10^3$ $5900 = 5.9 \times 10000 = 5.9 \times 10^4 \text{ and so on.}$		
Peer discussion-5 mins	Discuss with your peer how to write the starter in exponential form.		

Guided NB practice- 15 mins	Book exercise
Closure- 5mins	Draw a content Map of the chapter in NB.
Home Learning	From book Assignment will be given
Resources	NCERT Book of Mathematics for Class VII Filpped video Activity-Take a English newspaper and find out very large numbers and now convert them into exponential form and vice versa.