

Selected questions from NCERT Exemplar.

Month - July
TIME - Mid Term

Teacher's Activity	Student's Activity	Teacher's observation and Remedial
Teacher will write different set of numbers and ask the students to recognise various patterns explain the concept with examples explain the concept and conduct the related activity. (Annexure 5) give them extra similar questions to solve	Students will find out the pattern in each case if any and complete the given series calculate the nth term of an AP using the formula solve various problems given in the exercise and perform the activity(Annexure 5) use the concepts and formulas learnt to solve different problems	Teacher will write his/her observations after the completion of the topic.

Teaching Aids: Smart board, Text book, Graph paper, Worksheets, Internet

Methodology/Innovative Methods: Digital technology, Interactive, Lecturing, Note giving, Questioning, Discussion

Interdisciplinary Links: Drawing and Painting, Architecture, Fashion designing

HOD

Coordinator

Vice- Principal

Principal

ACTIVITY NO. - 5

Subject	Mathematics
Class	X
Chapter/Unit	Arithmetic Progression
Topic	Sum to n terms
Time	20 minutes
Nature of Activity	Individual

What will I learn (Learning Outcome)?

The sum of first n odd natural numbers, $1 + 3 + 5 + \dots + (2n - 1) = n^2$.

Skills: Applying, Analyzing and Creating

What I have to do?

To verify that the sum of first n odd natural numbers = n^2 by paper activity.

What do I require?

Squared paper, coloured paper, sketch pens, geometry box, glue stick.

What do I need to know?

Natural number system, Formula to find the nth terms of an AP i.e., $a_n = a + (n - 1)d$, Area of squares and rectangles.

➤ **Teacher's Activity**

Teacher will revise Number System and the concept of A.P and nth term of an A.P.

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

Let us consider the sum of first 6 odd natural numbers i.e. $1 + 3 + 5 + 7 + 9 + 11$.

- 1) Take a squared paper of size 6 units X 6 units (Take $n = 6$).
- 2) Paste it on a white sheet.
- 3) Color the first square starting from the top left corner.
- 4) Next, color 3 squares surrounding the first colored square in the step 3 above with different color.
- 5) Now color 5 squares surrounding the squares colored in the step 4 above with different color.
- 6) Continue the same process till all the squares are colored.
- 7) Put a dot on each colored square.

What have I observed?

no.	color	No. of squares	Sum of all the squares starting from extreme left	n^2
1	red	1	1	1^2
2	blue	3	$1 + 3$	2^2
3	green	5	$1 + 3 + 5$	3^2
4				
5				
6				

What have I learnt?

$$1 + 3 + 5 + 7 + 9 + 11 = \underline{\hspace{2cm}}.$$

What am I curious to learn?

Perform the steps above to find $1 + 3 + 5 + 7 + 9 + 11 + 13 + 15$.

Let me evaluate myself

1) Find the 22nd term of the A.P: 8, 3, -2, ...

2) Determine an A.P. whose third term is 16 and seventh term exceeds the fifth term by 12.

3) If the 8th term of an A.P. is 37 and the 15th term is 15 more than the 12th term, find the A.P.
Hence find the sum of first 15 terms of the A.P.
