

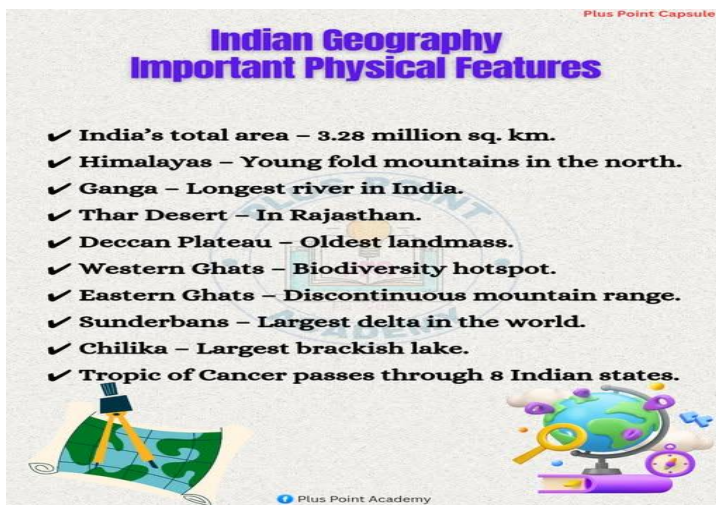
**URSULINE CONVENT SR. SEC. SCHOOL, GREATER NOIDA**

**HOLIDAY HOMEWORK (2026-2027)**

**CLASS IX**

**ENGLISH**

- A) In groups of six, prepare an interdisciplinary project on India's major geographical features. For each feature, describe the region, explain its importance in the lives of the people living there and mention the languages spoken in that region.  
(refer to the cues given below)



(REFER TO POEM BHARAT OUR LAND)

**B) ART-INTEGRATED ACTIVITY**

Identify any art or craft item from Arunachal Pradesh and make a project describing its features, materials, and process involved in making it, its usage, etc.

**C) Read the Novel 'How I taught my grandmother to read' by Sudha Murthy and write its Synopsis**

**D) Worksheets**

**Instructions for Students:**

1. Complete the worksheets on grammar and unseen passages
2. The worksheets will be shared in the respective WhatsApp groups.
3. Students must take a printout of the worksheets.
4. Literature worksheets must be done in your English Notebooks

# ARTIFICIAL INTELLIGENCE

## 1. AI and Culture – Folk Art Meets Tech

**Subjects Integrated: AI, Art, History**

**Activity:** Choose a traditional Indian art form (e.g., Madhubani, Warli, Gond).

Depict a modern AI theme using that art style (e.g., robots painted in Warli figures).

Research and explain the cultural art form and relate it to technological change.

## 2. Smart City Design – Model Making

**Subjects Integrated: AI, Social Science, Math, Art**

**Activity:**

Design a poster of a smart city digital tools.

Include features like smart traffic lights, AI waste management, or surveillance drones.

Use art to illustrate how AI improves urban life. Make a Business Idea Poster

Create a poster that gives the key details and catches the reader's eye.

## 3. Data Hunt

Look around your classroom for different types of data. Write down examples of both qualitative (descriptive) and quantitative (numerical) data you find.

- Qualitative: Colors of chairs, types of books, lunch choices.
- Quantitative: Number of students, height of desks, temperature in the room.

## 4. Activity on:

**AI Project Lifecycle**

**Choose one real-life problem and complete the table:**

Stage	Your Answer
Problem	
Data Needed	
How Data Will Be Collected	
AI Solution	

Stage	Your Answer
Improvement Ideas	

Examples:

- Waste management
- Water saving
- Smart classroom

### 5. ACTIVITY:

Considering the ethical challenges associated with generative AI, what are your thoughts on establishing guidelines or regulations to ensure responsible use of these technologies? How can we balance the potential benefits and risks?

## Mathematics

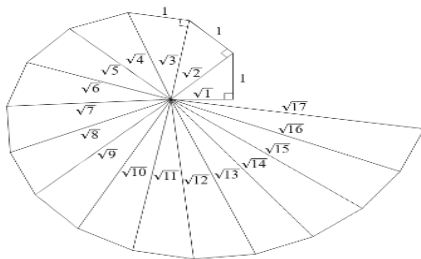
- NUMBER SYSTEM

Learning Outcomes Students are able to Represent real numbers on the number line 1.

1. ART INTEGRATED-ACTIVITY -SQUARE ROOT SPIRAL – Represent it on A -4 sheet

Instructions of Represent  $\sqrt{2}$   $\sqrt{3}$   $\sqrt{5}$   $\sqrt{7}$  and so on.....

A sample image for the spiral has been attached, use your creativity to create the square.



- POLYNOMIAL -

2. Make a 3D representation of the proof of the identity  $(x+a)(x+b) = x^2 + (a+b)x + ab$

Prepare a 3D representation of the following activities in the form of a model or pictorial representation. <https://youtu.be/uLvhiJFEhkk?si=6jajxQJl2OhMorNR>

- To interpret geometrically the factors of a quadratic expression of the type  $ax^2 + bx + c$ , (where the middle term can be split) using square grids, strips and paper slips etc.
- To verify the following algebraic identity:  $(x + y)^3 = x^3 + 3xy(x + y) + y^3$

3. Complete all the exercises of the chapters The World of Numbers and introduction to linear Polynomials from the Ganit Manjari book in your notebook.

### WORKSHEET OF POLYNOMIAL

1. Write the degree of the given polynomials: i)  $(2x + 4)^3$  ii)  $(t^3 + 4)(t^3 + 9)$
2. Write the coefficient of  $x^4$  and  $x$  in  $4x^3 - 5x^2 + 2x^4 + 3$ .
3. Find the zeroes of  $f(z) = z^2 - 2z$ .
4. Find the product using suitable identities:  $(4 + 5x)(4 - 5x)$ .
5. What is the value of  $k$  in polynomial  $x^2 + 8x + k$ , if  $-1$  is a zero of the polynomial?
6. Show that  $x + 1$  and  $2x - 3$  are factors of  $2x^3 - 9x^2 + x + 12$ .
7. If  $a^2 + b^2 + c^2 = 20$  and  $a + b + c = 0$ , find  $ab + bc + ca$ .
8. If  $9x^2 + 25y^2 = 181$  and  $xy = -6$ , find the value of  $3x + 5y$ .
9. Evaluate using identities: i)  $7.83 \times 7.83 - 1.17 \times 1.17$  ii)  $293^2 - 113^2$
10. Simplify:  $(x^2 + y^2 - z^2)^2 - (x^2 - y^2 + z^2)^2$
11. Evaluate using identities: i)  $(0.99)^2$  ii)  $117 \times 83$  iii)  $(a^2 - b^2)^2$
12. Simplify:  $(a^2 - b^2)^3 + (b^2 - c^2)^3 + (c^2 - a^2)^3$
13. Let  $P$  and  $Q$  be the remainders when the polynomials  $x^3 + 2x^2 - 5ax - 7$  and  $x^3 + ax^2 - 12x + 6$  are divided by  $x + 1$  and  $x - 2$  respectively. If  $2P + Q = 6$ , find the value of  $a$ .
14. If  $f(x) = 5x^2 - 4x + 5$ , find  $f(1) + f(-1) + f(0)$ .
15. By remainder theorem, find the remainder when  $p(y)$  is divided by  $g(y)$  i)  $p(y) = 4y^3 - 12y^2 + 5y - 4$  and  $g(y) = 2y - 1$  ii)  $p(y) = y^3 - 4y^2 - 2y + 6$  and  $g(y) = 1 - 3$

#### • LAB ACTIVITY

1. To make a square root spiral by paper folding method (Page No. 20 -21)
2. To factorize a quadratic expression  $ax^2 + bx + c$  and represent it geometrically, where  $a = 1$  (Page No. 37-39, only A to be done).
3. To explore the properties of diagonals of the following quadrilaterals
  - (a) A parallelogram
  - (b) A square
  - (c) A rectangle

(d) A rhombus

(Page No. 55 – 56)

4. To verify that the quadrilateral obtained by joining the mid-points of a quadrilateral is a parallelogram (Page No. 57-58)
5. To verify experimentally that the angle subtended by an arc at the Centre is double the angle subtended by it at any point on the remaining part of the circle (Page No. 59-60)
6. To verify experimentally that angles formed in the same segment of a circle are equal (page No. 61 – 62)
7. To verify midpoint theorem experimentally (Page No. 72-74 only A)
8. To find the area of a triangle experimentally (Page No. 78-79)
9. To find the area of a rhombus experimentally (Page No. 82-83)
10. To find the formula for curved surface area of a right circular cone experimentally (Page No. 84 – 85, Including working and demonstrations)

**Write objective, materials required, steps for the activity and observations if any.**

**Activity Manual : Saraswati Publications.**

## **SOCIAL SCIENCE**

### **ACTIVITY -1**

#### **MAP ACTIVITY MAP**

1. Major oceans and continents
2. Ancient civilization centres:
  - Mesopotamia
  - Egypt
  - Indus valley
  - China

The above map work should be done in physical and political maps of the world accordingly.

3. In the political and physical map of India mark the following.
  - State and capitals
  - Major mountain ranges

- Important rivers
- Coastal plains
- Desert regions.

#### **ACTIVITY-2**

##### **POSTER MAKING.**

Prepare a poster on the topic: **“IMPORTANCE OF VOTING”**

#### **ACTIVITY-3**

1. Draw a timeline showing stone age, bronze age and iron age.
2. Collect the pictures of early human tools and paste it in your notebook under the heading “Early humans and beginning of civilization”
3. Write about any two rulers/leaders who resisted foreign invasions.

#### **ACTIVITY-4**

**Prepare a report of the following natural disasters with pictures.**

- Earthquakes
- Volcanoes
- Landslides

#### **ACTIVITY-5**

##### **MUN TOPICS.**

##### **COMMITTEE: GENERAL ASSEMBLY**

**TOPIC: “ADDRESSING POVERTY AND UNEMPLOYMENT”.**

FOCUS ON THE FOLLOWING COUNTRIES:(INDIA, PAKISTAN, BANGLADESH, SRI LANKA)

PREPARE A SPEECH FOR 90 SECONDS AND WRITE AS AN ESSAY IN A4 SHEET. INDIVIDUAL PRESENTATION IS MANDATORY. STUDENTS CAN CHOOSE ANY ONE COUNTRY AND REPRESENT ON BEHALF OF IT.

NOTE: THE ABOVE-MENTIONED ACTIVITY SHOULD BE FOCUSED UPON UPCOMING MUN

**HINDI**

•A -4 sheet पर

पाठ्यपुस्तक पर आधारित किन्हीं दस मुहावरों को लिखकर वाक्य बनाए ।

किन्हीं पांच हिंदी शब्दों को भारतीय संविधान की आठवीं अनुसूची में सम्मिलित कुछ भारतीय भाषाओं में कैसे लिखा जाता है ? लिख कर दर्शाए

• (दो विद्यार्थियों का आपस में संवाद लिखिए ) हिंदी के नवीन पाठ्यक्रम के विषय पर संवाद ।

आज के समय में जब टेक्नोलॉजी का महत्व बढ़ता जा रहा है तब पुस्तकालय अपना महत्व क्यों खोता रहा है इस विषय पर अपने मित्र को पत्र लिखकर पुस्तक पढ़ने के लिए प्रोत्साहित कीजिए ।

देश प्रेम से संबंधित अन्य कविताएं पुस्तकालय, इंटरनेट से खोज कर पढ़िए और किसी एक कविता का कक्षा में वाचन भी कीजिए।

यात्रा वृत्तांत -अपनी किसी रोमांचक यात्रा के अनुभव सजीव ढंग से लिखिए ।

किन्हीं 'आठ निपात' शब्दों को A4 साइज शीट पर लिखकर उस पर आधारित एक-एक वाक्य बनाइए ।

पाठ्य पुस्तक( गंगा के पृष्ठ संख्या 187 )पर दी गई( प्रश्न संख्या 4) की रचनात्मक गतिविधि को एक मानचित्र पर करें ।

\*कला एकीकृत गततविधि (Art Integrated Activity \*) अरूणाचल प्रदेश की भौगोलिक स्थिति का वर्णन करते हुए वहां की जलवायु, पर्यावरण सीमावर्ती राज्य, भूमंडलीय ताप वृद्धि सूचनाओं को एकत्रित करके लिखिए ।

## SCIENCE

### PHYSICS

Topic - Motion in Sports\*\*

\*Objective:\* Explore motion in sports like football, basketball, cricket, athletics, javelin throw etc.

\*Instructions:\*

Choose 5 sport and analyze the types of motion involved.

Write about how understanding motion can improve performance in that sport.

Include examples of techniques used to enhance speed and efficiency.

### CHEMISTRY

Topic-Sublimation

Show the process of sublimation with the help of any three activities.

Write its application in our real life.

Topic- Simple distillation

Demonstrate an activity to separate the mixture of acetone and water along with a diagram.

### BIOLOGY

1. Show the movement of water(solvent) in and out of the cell kept in various types of solutions with the help of potato osmometer and record your observations in a tabular form and paste the pictures.
2. Study onion peel cells and human cheek cells record your observations, result, precautions and draw well labelled diagrams.

#### Art integrated activity

Create a visual of a traditional bamboo structure or 'APATANI' a rice - fish cultivation system in Arunachal Pradesh. Explain the physics of its stability using infographics or a layered diagram. Also explain Biological Nitrogen Cycle involved in this ecofriendly farming using flowcharts and pictures.

NOTE: All the work (Physics, Chemistry and Bio) should be done in one scrap book.

Complete the following worksheet in the biology notebook.

1. Who gave the statement, cells arise from pre-existing cells?
2. Who coined the term protoplasm?
3. Why invention of microscope helped in better understanding of living organisms?
4. What happens when grape is kept in hypertonic solution?
5. What are cytoplasmic projections in amoeba also known as?
6. Name two structures that help in movement of some unicellular organisms.
7. Define osmosis?
8. What is osmotic pressure?
9. Which human cell performs endocytosis?
10. Write down the site of membrane biogenesis in cell?
11. Define plasmolysis.
12. Who controls the activities in cell or where is the command centre of cell?
13. How does pickling helps in preservation of food?

14. What are the consequences of the following condition;
- (a) A cell having higher water concentration than surrounding.
  - (b) A cell having lower water concentration than surrounding.
  - (c) A cell having equal water concentration to its surrounding.
15. What will happen, if boiled potato is kept in concentrated sugar solution or salt solution and why?
16. Give difference between plant and animal cell.
17. Differentiate between prokaryotic and eukaryotic cell.
18. Write the difference between chromatin material, chromosome and chromatids.
19. Draw a neat labelled diagram of plant cell.
20. Draw a neat labelled diagram of animal cell?

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