



Einstein

PUBLIC SCHOOL

Nurturing a better tomorrow

SUMMER VACATION HOLIDAY HOMEWORK-2026

Class-IX

Subject- Mathematics

Chapter 1: Number Systems

MCQs

1. Which of the following is a rational number? (a) $\sqrt{2}$ (b) π (c) $\frac{3}{7}$ (d) $\sqrt{5}$
2. The decimal expansion of a rational number is: (a) Always non-terminating (b) Always terminating (c) Either terminating or non-terminating recurring (d) Non-recurring
3. Which of the following is irrational? (a) 0.25 (b) $\frac{2}{5}$ (c) $\sqrt{7}$ (d) 3
4. The value of $\sqrt{81}$ is: (a) 7 (b) 8 (c) 9 (d) 10
5. A number whose decimal expansion neither terminates nor repeats is called: (a) Whole number (b) Rational number (c) Irrational number (d) Integer

Fill in the Blanks

1. Every whole number is a _____ number.
2. The decimal expansion of $\frac{1}{8}$ is _____.
3. π is an _____ number.
4. The square root of 49 is _____.
5. Rational numbers can be expressed in the form _____.

Short Answer Questions

1. Define rational and irrational numbers with examples.
2. Represent $\sqrt{5}$ on the number line.
3. Write any five irrational numbers.
4. State whether 0.121212... is rational or irrational.
5. Convert 0.375 into fractional form.

Long Answer Questions

1. Explain the laws of exponents with suitable examples.
2. Prove that $\sqrt{2}$ is an irrational number.
3. Locate $\sqrt{3}$ and $\sqrt{7}$ on the number line.
4. Express the following in exponential form: 64, 125, $\frac{1}{16}$.

Activity Work

1. Collect examples of rational and irrational numbers from daily life.
2. Draw a colorful number line and represent $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, and $\sqrt{7}$.

Chapter 2: Polynomials

MCQs

1. A polynomial with two terms is called: (a) Monomial (b) Binomial (c) Trinomial (d) Constant
2. The degree of the polynomial $5x^3 + 2x^2 + x + 7$ is: (a) 1 (b) 2 (c) 3 (d) 4
3. Which of the following is a constant polynomial? (a) $x + 1$ (b) 7 (c) x^2 (d) $2x$
4. The zero of the polynomial $x - 5$ is: (a) 0 (b) 5 (c) -5 (d) 1
5. The expression $3x^2 - 7x + 2$ is a: (a) Linear polynomial (b) Constant polynomial (c) Quadratic polynomial (d) Cubic

polynomial

Fill in the Blanks

1. A polynomial having three terms is called a _____.
2. The degree of a constant polynomial is _____.
3. The polynomial $x^2 + 2x + 1$ is a _____ polynomial.
4. The zero of $x + 4$ is _____.
5. A polynomial of degree 3 is called a _____ polynomial.

Project Work

Prepare a project on "Applications of Number Systems and Polynomials in Daily Life". Include examples from banking, measurements, architecture, and computers.

Instructions for Students

1. Complete the assignment neatly in your notebook.
2. Use separate sheets for activity work.
3. Submit after summer vacation.
4. Revise all NCERT exercises from Chapters 1 and 2.

Subject- Computer

SR.NO	SUBJECT	TOPICS	ACTIVITY	MATERIAL REQUIRED
1.	A.I.	<ol style="list-style-type: none">1. Share a minimum of five ideas about Smart Home and write them on the sheet.2. How do you think Artificial Intelligence can help you as you go about your daily life? Write them on the sheet.	<p>Create a project on A4 paper that covers the following topics:</p> <ul style="list-style-type: none">• Introduction to AI• Types of AI• Purpose of AI• Uses of AI• Advantages and disadvantages of AI• Applications of AI	<p>Instructions for file:</p> <ol style="list-style-type: none">1. Take portfolio folder.2. Prepare a title page including school name, your name and class & section.3. Insert an acknowledgement page.4. Write the steps and paste screenshots for each activity on a separate page. Search on Below AI Project for Development <ul style="list-style-type: none">• Emotion recognition:• Chatbot
		3.		

Subject- English

Section A – Literature

Chapter 1: How I Taught My Grandmother to Read

1. Why was the grandmother eager to learn reading and writing?
2. How did the author help her grandmother become literate?
3. Describe the bond between the grandmother and the author.
4. What message do you get from the story?
5. Write the character sketch of the grandmother in about 100 words.

Chapter 2: Bharat: Our Land

1. Why is India called a land of diversity?
2. Mention any five features that make India unique.
3. What values does the poem/chapter teach us?
4. Explain the title Bharat: Our Land.
5. Write a paragraph on “Unity in Diversity”.

Activity Work

- * Learn and write 10 new words from each chapter with meanings.
- * Draw or paste pictures related to Indian culture and heritage.
- * Prepare a short speech on “Importance of Education”.

Section B – Grammar

Tenses

1. Fill in the blanks with correct forms of verbs:
She ___ (go) to school every day.
They ___ (play) football yesterday.
I ___ (complete) my homework before dinner.
We ___ (watch) a movie now.

He ___ (live) in Delhi since 2020.

2. Change the following sentences as directed:

Present Indefinite to Past Indefinite

Past Continuous to Future Continuous

Present Perfect to Simple Past

3. Make one sentence each using:

Present Continuous

Past Perfect

Future Perfect

Determiners

1. Fill in the blanks using suitable determiners:

___ students were absent today.

I have ___ milk left in the bottle.

She bought ___ umbrella yesterday.

There are ___ apples in the basket.

___ book on the table is mine.

2. Underline the determiners in the following sentences:

Many children participated in the competition.

This pen belongs to my brother.

Few people understood the question.

3. Write five sentences using different determiners.

Section C – Writing Skills

Diary Writing

Write a diary entry on any one topic:

1. Your experience of summer vacation.

2. A memorable rainy day.

3. Your first day in a new class.

Notice Writing

Draft notices on the following topics:

1. School cleanliness drive.
2. Independence Day celebration.
3. Lost and found notice for a school ID card.

Project Work

1. Make a colourful chart on “Kinds of Tenses”.
2. Collect information about any famous Indian personality and write 150 words about them.
3. Read an English newspaper daily and note five new words every day.

Instructions:

- * Complete the work neatly in a separate notebook.
- * Use blue/black pen only.
- * Decorate the project work creatively.
- * Submit the homework after summer vacation.

Subject- Social Studies

“Learning today for a better tomorrow.”

Decoration Ideas:

- Use blue and green shades for climate chapter pages.
- Use the tricolor theme for the democracy chapter.
- Add charts, borders, stickers, and handmade drawings.
- Paste newspaper cuttings related to climate change, elections, and economy.

INDEX

S.No Topic Page No.

1 Learning Objectives _____

- 2 Atmosphere and Climate ____
- 3 Democracy ____
- 4 Building Blocks of Economic Development ____
- 5 Project Work ____
- 6 Crossword & Quiz ____
- 7 Reflection Section ____

LEARNING OBJECTIVES

After completing this homework, students will be able to:

- Understand climate and weather patterns.
- Analyze the importance of democracy in modern society.
- Explore the role of economic development in daily life.
- Improve research and presentation skills.
- Develop creativity through activities and projects.
- Connect classroom learning with real-life situations.

CHAPTER 1: ATMOSPHERE AND CLIMATE

Interesting Facts

- The Earth's atmosphere protects us from harmful UV rays.
- Climate change is increasing global temperatures every year.
- India experiences six major seasons according to traditional classification.

Subject Enrichment Activities

Activity 1: Climate Poster

Create a colorful poster on:

“Save Earth, Save Climate”

Include:

- Causes of global warming
- Effects of pollution

Ways to reduce climate change

Activity 2: Weather Report

Observe the weather for 7 days and complete the table:

Day	Temperature	Humidity	Weather Condition
-----	-------------	----------	-------------------

Monday

Tuesday

Write 5 lines about weather changes you observed.

MAP & DIAGRAM BASED QUESTIONS

1. Draw and label the layers of atmosphere.
2. Show major climatic zones of the world on a world map.
3. Draw the water cycle neatly.

CASE STUDY – 1

Saumya noticed that summers are becoming hotter every year in her city. Trees are being cut rapidly for buildings and roads. People use more air conditioners and vehicles than before.

Questions:

1. What environmental problem is shown here?
2. Mention two causes of rising temperature.
3. Suggest two ways to reduce this problem.
4. How can students help protect the environment?

CASE STUDY – 2

A coastal village experiences heavy rainfall and floods every year. Farmers face crop damage and loss of income.

Questions:

1. Which climatic condition is affecting the village?
2. How does climate affect agriculture?
3. Suggest two safety measures during floods.
4. Name one government effort to manage disasters.

MCQs (Atmosphere and Climate)

1. Which gas is highest in the atmosphere?

a) Oxygen

b) Nitrogen

c) Carbon dioxide

d) Hydrogen

2. Ozone layer protects us from:

a) Rain

b) Dust

c) UV Rays

d) Heat

3. Weather means:

a) Long-term condition

b) Daily atmospheric condition

c) Earthquake

d) Climate zone

4. Which layer contains weather changes?

a) Troposphere

b) Mesosphere

c) Thermosphere

d) Exosphere

5. Global warming is caused mainly by:

a) Greenhouse gases

b) Oxygen

c) Snowfall

d) Winds

6. The hottest zone of Earth is:

a) Frigid Zone

b) Temperate Zone

c) Torrid Zone

d) Polar Zone

7. Which instrument measures rainfall?

a) Barometer

b) Rain Gauge

c) Thermometer

d) Hygrometer

8. Climate change affects:

a) Agriculture

b) Health

c) Water resources

d) All of these

9. Air pressure is measured by:

a) Rain Gauge

b) Thermometer

c) Barometer

d) Compass

10. Deforestation increases:

a) Rainfall only

b) Pollution

c) Snowfall

d) Soil fertility

ASSERTION–REASON

Q1

Assertion: Global warming is increasing rapidly.

Reason: Excess greenhouse gases trap heat.

- a) Both true and Reason explains Assertion
- b) Both true but Reason not explanation
- c) Assertion true, Reason false
- d) Assertion false, Reason true

SHORT ANSWER QUESTIONS

1. Differentiate between weather and climate.
2. What is global warming?
3. Explain the greenhouse effect.
4. Name layers of atmosphere.
5. Why is rainfall important?

CREATIVE WRITING

Activity 1

Write a diary entry imagining Earth speaking about pollution.

Activity 2

Prepare a newspaper article on “Climate Change in India”.

REAL-LIFE APPLICATION QUESTIONS

1. Why should we plant trees in cities?
2. How does climate affect our clothes and food habits?
3. Why should people use public transport?

CHAPTER 2: DEMOCRACY

Interesting Facts

- India is the world’s largest democracy.
- Citizens above 18 years can vote in India.
- Democracy gives equal rights to all citizens.

SUBJECT ENRICHMENT ACTIVITIES

Activity : Interview

Interview 5 adults and ask:

Why is voting important?

What qualities should leaders have?

Prepare a report.

CASE STUDY – 1

In a country, citizens are not allowed to criticize the government. Elections are controlled by military leaders.

Questions:

1. Is this a democracy? Why?
2. Which rights are missing?
3. What problems can arise in such a system?

CASE STUDY – 2

A village panchayat decides to build a library after discussing with villagers openly.

Questions:

1. Which democratic feature is shown?
2. Why is public participation important?
3. How does democracy improve local development?

MCQs (Democracy)

1. Democracy means:

- | | |
|-----------------|-------------------|
| a) Rule by army | b) Rule by people |
| c) Rule by king | d) Rule by judges |

2. India became a republic in:

- | | |
|---------|---------|
| a) 1945 | b) 1947 |
| c) 1950 | d) 1962 |

3. Voting age in India is:

- | | |
|-------|-------|
| a) 16 | b) 17 |
| c) 18 | d) 21 |

4. Fundamental Rights are given by:

- a) Parliament
- b) Constitution
- c) Court
- d) Army

5. Which is not a democratic feature?

- a) Equality
- b) Elections
- c) Dictatorship
- d) Freedom

6. Head of State in India is:

- a) Prime Minister
- b) President
- c) Governor
- d) Chief Justice

7. Democracy promotes:

- a) Fear
- b) Equality
- c) War
- d) Discrimination

8. Elections should be:

- a) Fair
- b) Free
- c) Regular
- d) All of these

9. Universal Adult Franchise means:

- a) Right to property
- b) Right to education
- c) Right to vote
- d) Right to travel

10. Constitution is:

- a) A law book
- b) Supreme law of country
- c) Election process
- d) Court order

ASSERTION-REASON

Assertion: Democracy is better than dictatorship.

Reason: It allows participation of citizens.

Options:

- a) Both true and Reason explains Assertion
- b) Both true but Reason not explanation
- c) Assertion true, Reason false

d) Assertion false, Reason true

SHORT ANSWER QUESTIONS

1. Define democracy.
2. Why are elections important?
3. Mention two merits of democracy.
4. What is the Constitution?
5. Explain equality in democracy.

CREATIVE ACTIVITIES

Activity 1

Design your own political party symbol and slogan.

Activity 2

Write a speech on: "Why Democracy Matters"

CHAPTER 3: BUILDING BLOCKS OF ECONOMIC DEVELOPMENT

Interesting Facts

- Development includes education, health, and income.
- Sustainable development protects future generations.
- India is one of the fastest-growing economies.

SUBJECT ENRICHMENT ACTIVITIES

Activity 1: Family Budget

Prepare a monthly budget table for a family.

Expense	Amount
---------	--------

Food	
------	--

Education	
-----------	--

Electricity	
-------------	--

Activity 2: Market Survey

Visit a nearby market and note:

- Prices of 10 items

- Demand and supply changes

- Effect of inflation

CASE STUDY – 1

A village receives better roads, schools, and hospitals after a development project.

Questions:

1. What is development?
2. Which facilities improved quality of life?
3. Why are roads important for development?

CASE STUDY – 2

A factory increases production but pollutes the nearby river.

Questions:

1. Is this sustainable development?
2. What problems can pollution create?
3. Suggest eco-friendly solutions.

MCQs (Economic Development)

1. Economic development improves:

- | | |
|----------------|--------------------|
| a) Income only | b) Quality of life |
| c) Pollution | d) None |

2. Literacy means:

- | | |
|---------------|------------------------------|
| a) Employment | b) Ability to read and write |
| c) Income | d) Production |

3. Sustainable development protects:

- | | |
|-------------------|-----------------------|
| a) Forests only | b) Future generations |
| c) Factories only | d) Industries only |

4. Inflation means:

- | | |
|-------------------------|------------------------|
| a) Rise in prices | b) Fall in prices |
| c) Increase in rainfall | d) Population decrease |

5. Human resource includes:

- | | |
|-------------------|--------------|
| a) Machines | b) Buildings |
| c) Skilled people | d) Rivers |

6. GDP stands for:

- a) Gross Domestic Product
- b) General Development Plan
- c) Global Development Process
- d) Goods Distribution Program

7. Development should be:

- a) Harmful
- b) Sustainable
- c) Unequal
- d) Limited

8. Education helps in:

- a) Skill development
- b) Employment
- c) Better living
- d) All of these

9. Poverty affects:

- a) Health
- b) Education
- c) Living standard
- d) All of these

ASSERTION–REASON

Assertion: Education is important for development.

Reason: Skilled people increase productivity.

- a) Both true and Reason explains Assertion
- b) Both true but Reason not explanation
- c) Assertion true, Reason false
- d) Assertion false, Reason true

SHORT ANSWER QUESTIONS

1. Define sustainable development.
2. What is GDP?
3. Differentiate between developed and developing countries.
4. Why is education important?
5. Explain poverty briefly.

CREATIVE ACTIVITIES

Activity 1

Design a slogan on: “Save Resources for Future”

Activity 2

Make a collage showing economic development in India.

REAL-LIFE APPLICATION QUESTIONS

1. Why should we save electricity and water?
2. How does education help a country grow?
3. Why should industries reduce pollution?

CROSSWORD / QUIZ SECTION

Quick Quiz

1. Which gas causes global warming most?
2. Who is called the Father of Indian Constitution?
3. What is GDP?
4. Which layer protects us from UV rays?
5. What is the minimum voting age in India?

PROJECT WORK

Project 1: Climate Change Awareness Campaign

Prepare:

- Posters
- Slogans
- Awareness messages
- Newspaper cuttings

Project 2: Democracy Around Us

Collect:

- Election symbols
- Voting awareness posters
- Newspaper articles related to elections

Project 3: Economic Development Survey

Survey 10 people and ask:

- What does development mean to them?
- What facilities are most important?

Represent findings using pie charts/bar graphs.

COMPETENCY-BASED QUESTIONS

1. Why do some countries develop faster than others?
2. How can democracy help solve social problems?
3. What steps can students take against climate change?
4. Why is sustainable development necessary today?
5. How does public participation strengthen democracy?

PRESENTATION SUGGESTIONS

- Use colored sheets and borders.
- Draw neat diagrams using pencils and colors.
- Use headings with sketch pens.
- Paste relevant pictures and charts.
- Maintain cleanliness and proper handwriting.

INSTRUCTIONS

- Complete all work in a separate decorated file.
- Use blue/black pen for writing.
- Use colors only for headings and diagrams.
- Submit homework after summer vacation.
- Maintain neatness and creativity.
- Original work will receive appreciation.

REFLECTION SECTION – “WHAT I LEARNED”

- After completing the homework, write:

 1. Three new things you learned.
 2. Your favorite activity and why.

3. How this homework helped improve your thinking skills.

4. One topic you want to learn more about.

FINAL THOUGHT

“Education is not just learning facts, it is learning how to think.”

Happy Learning & Have a Wonderful Summer Vacation! ☺

Subject- Science

Chapter: Cell – The Building Block of Life

➤ General Instructions

- Use a separate notebook/file for holiday homework.
- Write neatly with proper headings.
- Draw diagrams with pencil and label them clearly.
- Complete all work independently.
- Decorate the cover page creatively.

Part A – Reading & Learning Work

❖ Learn and Revise the Following Topics:

- Discovery of cell
- Cell theory
- Types of organisms:
 - Unicellular
 - Multicellular
- Shape and size of cells
- Structure and functions of:
 - Cell membrane
 - Cell wall
 - Cytoplasm
 - Nucleus
 - Mitochondria
- Difference between:
 - Plant cell and animal cell
 - Prokaryotic and eukaryotic cell
- Osmosis and diffusion

Part B – Diagram Practice

❖ Draw and Label the Following Diagrams:

- Plant cell

- Animal cell
- Onion peel cell
- Prokaryotic cell (bacterial cell)

Part C – Written Assignment

❖ Very Short Answer Questions

1. Who discovered the cell?
2. Define cell.
3. What is the function of nucleus?
4. Name the powerhouse of the cell.
5. What is osmosis?
6. Which organelle contains chlorophyll?
7. Define unicellular organism.
8. What is the basic unit of life?
9. Name the jelly-like substance inside the cell.
10. What is the function of cell membrane?

❖ Short Answer Questions

- 1) Differentiate between plant cell and animal cell.
- 2) Explain the functions of mitochondria.
- 3) What is the importance of cell membrane?

Explain diffusion with an example.

- 1) Describe the structure of nucleus.
- 2) Differentiate between prokaryotic and eukaryotic cells.

❖ Long Answer Questions

- a. Explain the structure of a plant cell with labelled diagram.
- b. Describe different cell organelles and their functions.
- c. Explain osmosis with a simple experiment.
- d. Compare unicellular and multicellular organisms.

Explain cell theory.

Part D – Activity Work

Activity 1

Prepare a colourful chart/model on:

“Parts of a Plant Cell”

Part E– MCQ Practice

- 1) The basic structural and functional unit of life is:
 - a) Tissue
 - b) Organ

c) Cell d) Organ system

2) The powerhouse of the cell is:

a) Ribosome b) Mitochondria

c) Vacuole d) Nucleus

3) Cell wall is present in:

a) Animal cell b) Plant cell

c) Human cell d) Amoeba

4) The nucleus contains:

a) Food b) Water

c) Genetic material d) Air

5) Movement of water through a semipermeable membrane is called:

a) Diffusion b) Osmosis

c) Respiration d) Nutrition

Teacher's Message

1. If a body come to rest, its...

$u=0$ $t=0$. $V=0$. None .

Assertion-reason.

2. a .Both A and B are true and R is the correct explanation of A.

b.Both A and B are true but R is not the correct explanation of the A.

c.A is true but R is false.

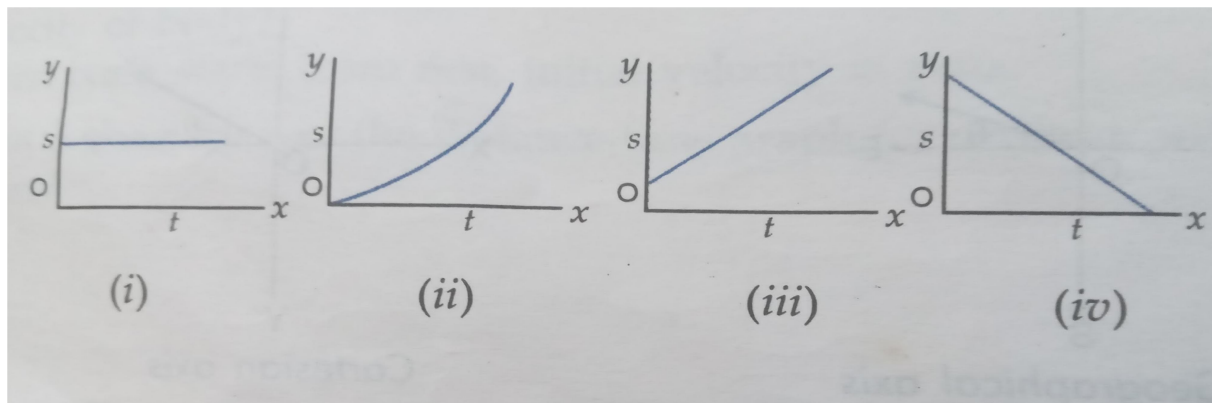
d.A is false but R is true.

Assertion. Speed =distance/time

Reason. The unit of speed metre.

Long type question.

3. What Can You Say about the motion of a body From the following distance time graphs?



Scrapbook / Chart Paper (Do any one)

- Prepare a scrapbook on "Mixtures Around Us". Paste/draw 8-10 common mixtures from home: tea, air, soil, lemonade, alloys. For each, write: Type of mixture, components, and one method to separate it. Add photos or real samples in zip pouches.
- Make a well-labelled flowchart on chart paper showing "Techniques of Separation" with real-life examples. Include: filtration, distillation, chromatography, centrifugation, separating funnel, sublimation. Use colored paper cutouts for each step.

Poster / Report / Creative Writing - (Do any one)

- Prepare a colourful poster on 'Pure Substance vs Mixture: Spot the Difference'. Use daily life examples. Make it catchy for middle school students.
- Create a working model of a water filter OR simple distillation setup using old plastic bottles, discarded cloth, sand, charcoal. Write 5 lines on principle used.
- Create a 12-line poem* titled 'The Great Escape: How Mixtures Break Up' on chart paper. Include at least 3 separation techniques in it.

- *Write a report* on "Industrial Applications of Separation Techniques" - Choose any 1: Petroleum refining, water purification plants, salt from seawater, or forensic chromatography. Add diagrams + why it matters to society.

Field Activity / Environmental Connection - (Do any one)

- Kitchen Chemistry : Visit your kitchen. Identify 3 mixtures. Actually separate 1 mixture using a home technique: e.g. tea leaves by filtration, cream from milk, salt-sand mixture. Click photos of before/during/after. Write observation + principle.

●Environmental Survey:

Collect water samples from 2 sources: tap, pond, rainwater, or AC outlet. Observe for impurities. Design a simple filtration plan for the dirtier sample. Click pics and write a 100-word report on "Why clean water is a mixture".

●Model Making – (Do any one)

Make an eco-friendly working model of any one:

1. Separating funnel using plastic bottles to show oil-water separation
2. Centrifuge using old CDs/motor to show sedimentation
3. Paper chromatography setup to separate ink colors/dye from flowers .
4. Make a 3-D model* of "Types of Mixtures" using clay/beads: homogeneous vs heterogeneous, with 3 examples each. Paste on cardboard base.

Note-All work should be neat, creative, and original.

Subject-Hindi

“सीखने की कोई सीमा नहीं होती, और छुट्टियाँ स्वयं को खोजने का सबसे अच्छा समय हैं।”

1. लेखन साहित्य

स्वरचित कहानी – विषय: ‘भविष्य की दुनिया’, ‘अन्याय के विरुद्ध’

कम से कम 250 शब्द

सामाजिक संदेश अनिवार्य है।

पुस्तक समीक्षा – किसी प्रसिद्ध लेखक की पुस्तक पढ़कर समीक्षा लिखें।

अनुच्छेद लेखन – ‘मेरी छुट्टियों के अनुभव और नई सीख’ विषय पर 150 शब्द लिखें।

2. व्याकरण

संज्ञा – पाठ 1 और 2 में से 20 संज्ञा शब्द छाँटें और उनके भेद लिखें।

उपसर्ग और प्रत्यय – 10-10 शब्द चुनें और अलग-अलग करके लिखें।

3. अनौपचारिक पत्र

अपने छोटे भाई/बहन को पत्र लिखकर ‘समय के सदुपयोग’ और ‘मोबाइल के सीमित प्रयोग’ का महत्व समझाइए।

4. स्मरण कार्य

पाठ 1 और 2 के प्रश्न-उत्तर और शब्दार्थ कंठस्थ करें।

5. परियोजना कार्य :

'एक भारत श्रेष्ठ भारत – मणिपुर'

ऐतिहासिक पृष्ठभूमि – स्थापना दिवस और इतिहास

संस्कृति – भाषा, मुख्य जातियाँ, लिपि, पारंपरिक वेशभूषा

कला एवं संगीत – मणिपुरी नृत्य, लोक कलाकार, पारंपरिक वाद्ययंत्र