



SUMMER HOLIDAYS

HOMework

— Fun • Learn • Explore —

Lord Jesus Public School

Vijay Park Gurugram - 122001

Phone No. 01242307725, 4077462,63

Class - 9th

Relax
Refresh
Recharge

Enjoy
Every Moment
• Make •
Beautiful
Memories



CLASS 9TH

BIOLOGY

INSTRUCTIONS:

STUDENTS ARE REQUIRED TO CHOOSE ANY 3 OUT OF THE LIST GIVEN HERE .

📌 Theme: Nutrition

Focus: Digestion, Balanced Diets, and Food Tests.

1. The "Interactive Human Gut" 3D Model

Instead of a flat drawing, create a 3D mechanical model of the digestive system using recycled materials.

The Idea: Use clear plastic tubing for the intestines and colored liquids to show how food (represented by a marble or small bead) moves through the alimentary canal via peristalsis.

The Innovation: Attach "Flap Tags" at each organ (Stomach, Pancreas, Liver) that, when lifted, reveal the specific enzymes produced (like Pepsin, Trypsin, or Lipase) and their functions.

2. A "Nutri-App" Prototype

Design a paper-based or digital UI/UX layout for a mobile app called "NutriScan."

The Idea: Create "screens" (on cardstock) that show how the app would analyze a typical teenager's meal.

The Innovation: Include a section on Deficiency Diseases. For example, a "Warning" screen showing symptoms of Scurvy or Rickets if the user doesn't log enough Vitamin C or D.

3. The "Kitchen Chemist" Lab Journal

Conduct actual food tests at home and document them like a professional scientist.

The Idea: Perform the Iodine test for starch (on potato/rice) or the Ruby-red test for fats (on butter/nuts).

The Innovation: Create a Scrapbook with "Before" and "After" Polaroid-style photos or sketches, including a table comparing the nutritional value of junk food vs. healthy snacks.

🌸 Theme: Pollination & Fertilization

Focus: Floral Structure, Agents of Pollination, and Seed Formation.

4. "The Great Pollinator" Board Game

Design a board game where players act as Pollen Grains trying to reach the Ovule.

The Idea: The board is shaped like a large Hibiscus flower. Players must navigate through the Anther, cling to a "Pollinator" (a bee or butterfly game piece), and travel down the Pollen Tube.

The Innovation: Add "Chance Cards" like "Strong wind! Move 3 spaces forward (Anemophily)" or "Heavy Rain! Pollen washed away, go back to start."

5. Dissection "Art" Display

Practice your botanical skills by performing a real dissection of a large flower (like Hibiscus or Datura).

The Idea: Carefully dissect the Sepals, Petals, Stamens, and Carpel.

The Innovation: Instead of throwing them away, press and dry the parts. Mount them on a high-quality black sheet, labeling the Stigma, Style, and Ovary with gold or silver ink. Surround the physical parts with a detailed drawing of the Fertilization process (the fusion of male and female gametes).

6. "The Life of a Seed" Stop-Motion Animation

If you're tech-savvy, create a short 30-second stop-motion video using clay (Plasticine).

The Idea: Show a pollen grain landing on a stigma, the growth of the pollen tube through the style, and finally the transformation of the Ovule into a Seed and the Ovary into a Fruit.

The Innovation: Use different colors of clay to represent the vegetative and generative cells within the pollen grain

Computer

1. Write a Java program to print "Hello World".
2. Write a Java program to add two numbers.
3. Write a Java program to find whether a number is even or odd.
4. Write a Java program to find the largest of two numbers.
5. Write a Java program to print the multiplication table of a number.
6. Write a Java program to calculate the factorial of a number.
7. Write a Java program to calculate simple interest.
8. Write a Java program to swap two numbers.
9. Write a Java program to find the sum of natural numbers.
10. Write a Java program to reverse a number.
11. Write a Java program to check whether a number is prime or not.

12. Write a Java program to find the sum of digits of a number.
13. Write a Java program to print Fibonacci series.
14. Write a Java program to check whether a number is palindrome or not.
15. Write a Java program to count the number of digits in a number.
16. Write a Java program to print all even numbers from 1 to 100.
17. Write a Java program to print all odd numbers from 1 to 100.
18. Write a Java program to find the average of three numbers.
19. Write a Java program to convert Celsius into Fahrenheit.
20. Write a Java program to find the area of a circle.

English

Class IX English Holidays HW

***Attempt Q4 and 5 of Practice Papers -3,4,5,6 and 7 in Total English.**

***Jot down atleast 30 smart phrases in English Language notebook.**

***Prepare yourself for Declamation to be held post Vacation in class on any one of the topics as per your Roll no.**

1-10

Save Energy

11-20

Artificial Intelligence a boon or bane


21 onwards

Smart Phones are making us less smart

An illustration of ancient Indian ruins, featuring a prominent stepped pyramid structure made of reddish-brown bricks. The scene is set in a dry, hilly landscape under a warm, golden light, suggesting a sunset or sunrise. In the foreground, several broken clay pots and fragments are scattered on the ground. The background shows more ruins and a distant horizon.

History & Civics Holiday Adventure: The Ancient India Chronicles

This holiday assignment is designed to be an **immersive journey** through time. Instead of standard essays, you will be creating a **"Discovery Portfolio"** that brings the ancient world to life. Get ready to think like an architect, a philosopher, a king, and a cartographer!

 DISCOVERY PORTFOLIO

 CREATIVE LEARNING

 ANCIENT INDIA + GEOGRAPHY

Activity 1: The Harappan Urban Planner

Model & Map Challenge

The Challenge

Imagine you are the **Chief Architect of Mohenjo-Daro**. Your mission is to recreate the brilliance of one of the world's first planned cities!

The Task

- Create a **3D Blueprint** or a **pop-up page** of a Harappan street
- Focus on the **"Great Bath"** or the unique drainage system
- Use recycled materials: cardboard, straws, clay
- Show how the drains were **covered** — a marvel of ancient engineering!

Architect's Note

Write a **1-page "Architect's Note"** explaining why your city layout is superior to many modern towns today. Think about:

Grid Layout

Perfectly planned streets at right angles

Sanitation

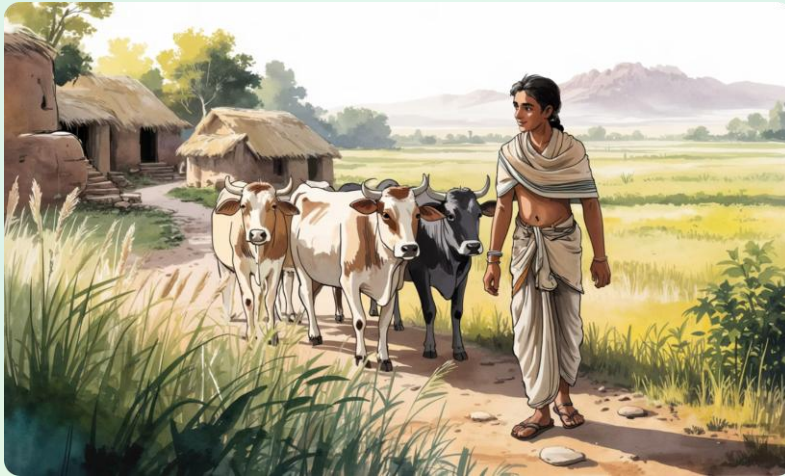
Covered drains running under every street

Public Spaces

The Great Bath as a community hub

Activity 2: The Vedic "Venn" Challenge

Comparison — Decode the Transition from Early to Later Vedic Period



Create a **giant Venn Diagram** using **illustrations** to show how Vedic society evolved over centuries.

Early Vedic Circle

Draw symbols of **pastoral life** — cows, open assemblies (Sabha & Samiti), tribal chieftains, simple rituals

Later Vedic Circle

Draw symbols of **kingdom expansion** — crowns, complex sacrifices (Ashvamedha), rigid varna system, territorial kingdoms

The Center

List things that **remained constant** — importance of the family unit, reverence for the Vedas, fire rituals

Activities 3 & 4: Philosophy, Games & Imperial Instagram



Activity 3: "Quest for Nirvana" Board Game

Design a board game where players move through **stages of life**. Landing on a "**Four Noble Truths**" square lets you jump ahead. Landing on a "**Violated Ahimsa**" square sends you back two spaces. Create **Teaching Cards** summarizing Mahavira or Buddha's teachings in exactly **10 words**!



Activity 4: Mauryan "Imperial Instagram"

Design a **4-page paper mock-up** of Ashoka's Imperial Feed!
Post 1: Live Update from the **Kalinga War** (Dhamma Ghosh). Post 2: Reel of the **Edicts** — draw the Lion Capital or Sanchi Stupa. Post 3: Travel Vlog of **Dhamma Mahamattas** visiting a distant province. Use hashtags like **#DhammaDiaries** **#PataliputraVibes** **#AshokaTheGreat**

Activity 5: The Ancient India Crossword + Submission Guidelines

🌸 Mini Crossword — Complete & Decorate!

#	Clue	Answer Pattern
1	The Dockyard city of the Harappans	L _ _ _ L
2	The sacred drink mentioned in the Rig Veda	S _ _ A
3	The language used by Buddha to reach the masses	P _ _ _ I
4	The Prime Minister and author of Arthashastra	C _ _ _ _ _ A
5	The symbolic mound used to house Buddha's relics	S _ _ _ A

- ✔ Decorate your crossword with ancient Indian motifs — lotus flowers, elephants, and Harappan seals!

📄 Submission Guidelines

Format

Use an **A4 size scrapbook** or a digital flipbook

Aesthetics

Use **tea-stained paper** to give your work an "ancient manuscript" look

Reflection

On the final page, write: *"Which ancient Indian value do you think is most needed in the world today, and why?"*

Geography Explorer: The Global Grid Challenge

This holiday project transforms the **abstract concepts of Latitudes and Longitudes** into a hands-on, creative portfolio. Move beyond the textbook and become a **digital and physical cartographer!**



Activity 1

Globe-in-a-Box 3D Model



Activity 2

Time Zone Traveler Log



Activity 3

Date Line Comic Strip



Activity 4

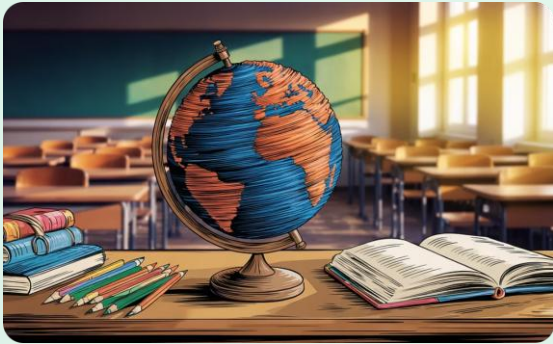
Coordinate Treasure Hunt



Activity 5

Anti-Distortion Infographic

Activities 1 & 2: Build Your Globe + Time Zone Traveler



Activity 1: Globe-in-a-Box

Use a **spherical object** (old football, large orange, or styrofoam ball). Mark lines with colored wool/strings: **Red** for the Equator, **Blue** for the Prime Meridian, **Gold** for the Tropics and Polar Circles. Pin small flags on **five major cities** you wish to visit with their exact coordinates. Create a "**hidden flap**" explaining Great Circles and why the Equator is the only latitude that is one!



Activity 2: Time Zone Traveler

You are a pilot flying a "**Sun-Chaser**" plane around the world! Create a **Flight Logbook** starting from New Delhi (77°E). Select three destinations: one to the East (Tokyo) and two to the West (London, New York). If you leave Delhi at **10:00 AM Monday**, calculate local arrival times. Draw a **Time Zone Slider** — a paper strip that moves across a longitudinal map showing how hours are added or subtracted.

Activities 3 & 4: Comic Strip + Coordinate Treasure Hunt



🎨 Activity 3: International Date Line Comic Strip

Create a **4-panel comic strip** featuring two characters, "**Lati**" and "**Longi**." They are crossing the International Date Line (180°) from East to West and then West to East. Humorously show how they "**gain**" or "**lose**" a day. Explain why the line is "**zigzag**" instead of straight — to avoid splitting time within a single country!

🗺️ Activity 4: The Coordinate Quest

Use **Google Earth** or a **physical Atlas** to solve these geographical riddles:

→ Riddle 1 — ($0^\circ, 0^\circ$)

I am the point where the Prime Meridian meets the Equator. What is my name and what is around me?

→ Riddle 2 — Your Antipode

Find the exact opposite point on Earth of your home city. If you dug a hole straight through the center, where would you pop out? Provide the coordinates.

→ Riddle 3 — ($27^\circ\text{N}, 78^\circ\text{E}$)

Find a famous monument at this location. Draw a sketch of it!

Activity 5 + Submission: Anti-Distortion & Captain's Journal

Activity 5: The "Anti-Distortion" Infographic

Why can't we peel an orange and lay it perfectly flat? Create a visual comparison between a **Globe** and a **Mercator Projection** map.

- Draw a "**Flattened Earth**" and highlight how countries near the poles (like Greenland) look much larger than they actually are
- Briefly explain how **GPS on our phones** uses a "Constellation of Satellites" and trilateration of latitudes/longitudes to find our location

 Fun Fact: Greenland appears as large as Africa on a Mercator map — but Africa is actually 14 times bigger!

Submission: The Captain's Journal

The Journal

Compile all activities into a **weathered-looking journal** — the "Captain's Journal"

Media

Use **watercolors for maps** and 3D elements for the Globe-in-a-Box

Digital Option

Create a **Google Earth Project** — drop pins at each coordinate and record a short voice-over explaining the concepts

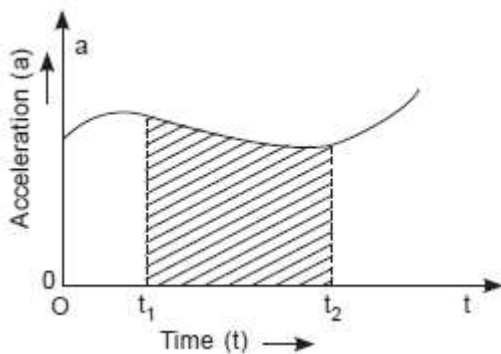
Final Thought

"If the Earth didn't rotate, would we still need Longitudes? Why or why not?"

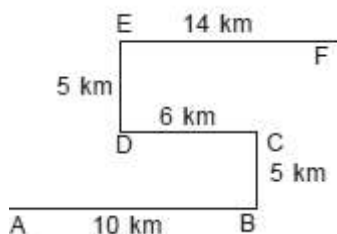


- 1 The variation of the acceleration a with time t of an object moving in a straight line is shown in the graph. 2

What does the shaded area represent?



- (a) The velocity at time t_1
(b) The velocity at time t_2
(c) The change in velocity from t_1 to t_2
(d) The average velocity between t_1 and t_2
- 2 A car travels along the route ABCDEF in half an hour. What is the average speed of the car? 2



- (a) 10 km h^{-1}
(b) 80 km h^{-1}
(c) 40 km h^{-1}
(d) 20 km h^{-1}
- 3 Draw a displacement-time graph for a girl going to market with a uniform velocity. 2

- 4 A car travels with a uniform velocity of 30 m/s for 5 s . The brakes are then applied and the car comes to rest with a uniform retardation in a further 10 s . Draw a velocity-time graph and use it to find (i) the distance with which the car travels after the brakes are applied, and (ii) distance travelled in first 5 s , total distance travelled, acceleration during the first 5 s and in last 10 s . 2

- 5 A train starts from rest and moves with uniform acceleration. It attains a velocity of 72 km h^{-1} in 360 s . The acceleration of the train will be 1

(a) $\frac{1}{21} \text{ m s}^{-2}$

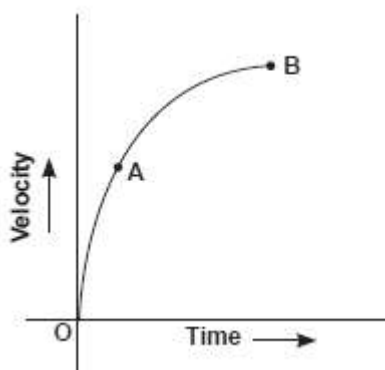
(b) $\frac{1}{12} \text{ m s}^{-2}$

(c) $\frac{1}{18} \text{ m s}^{-2}$

(d) $\frac{1}{15} \text{ m s}^{-2}$

- 6 The velocity-time (v-t) graph of an object moving in a straight line is shown below. Choose the correct option from the following:

1



- (a) In part OA acceleration is increasing
(b) In part OA acceleration is decreasing
(c) In part OA acceleration is constant and in part AB acceleration is decreasing
(d) In part AB acceleration is increasing
- 7 John moving on a circular track of radius 10 m completes three - fourth of the circular track. The distance travelled and displacement will be respectively:
- (a) 47.1 m and 14.1 m
(b) 47.1 m and 10 m
(c) 31.4 m and 14.1 m
(d) 31.4 m and 10 m
- 8 Give an example for the motion of an object moving with constant speed but variable velocity. Also draw its diagram.
- 9 Differentiate between uniform acceleration and variable acceleration.
- 10 Calculate the acceleration of the car starting from rest which attains a velocity of 30 m/s in 0.05 h.
- 11 A car moving on a straight path covers a distance of 2 km due east in 100 s. What is the speed of the car? What is its velocity?
- 12 Explain with the help of two examples that motion is relative.
- 13 Define a scalar and a vector quantity. Give two examples of each.
- 14 Define distance and displacement. Mention their SI units.
- 15 In hare-tortoise race, the hare ran for 2 min at a speed of 7.5 km/h, slept for 56 min and again ran for 2 min at a speed of 7.5 km/h. Find the average speed of the hare in the race.
- 16 A train passed the 100 km, 160 km and 220 km marks at 8:30 am, 9:30 am and 11:30 am. Find the average speed of the bus during: (i) 8:30 am to 9:30 am, (ii) 9:30 am to

1

2

2

2

2

3

3

3

3

3

11:30 am, and (iii) 8:30 am to 11:30 am.

17 A car moves with an average speed of a m/s during first of its journey and with b m/s during the remaining half. Calculate its average speed during the entire journey. 3

18 A body starts with an initial velocity of 20 m s^{-1} and acceleration 5 m s^{-2} . Find the distance covered by it in 5 s. 3

19 A body is dropped from the top of a tower. It acquires a velocity 20 m s^{-1} on reaching the ground. 3

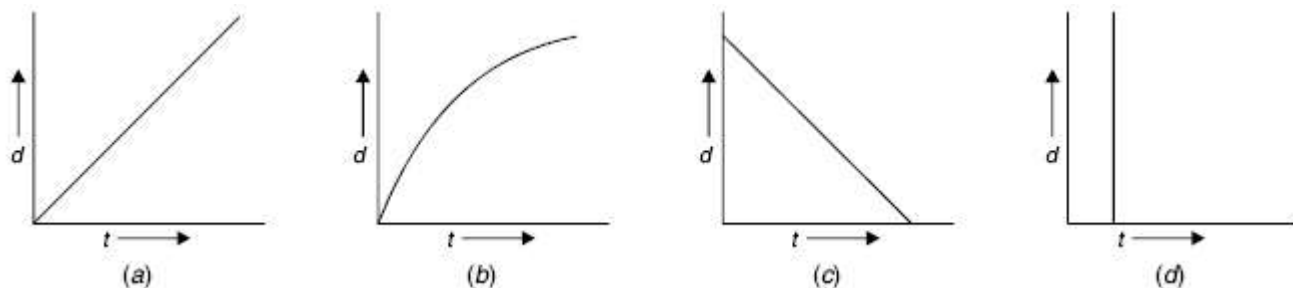
Calculate the height of the tower. (Take $g = 10 \text{ m s}^{-2}$)

20 A stone is dropped freely from the top of a tower and it reaches the ground in 4 s. Taking $g = 10 \text{ m s}^{-2}$, draw velocity-time graph and use it to calculate the height of the tower. 3

21 If an object is falling freely under gravity. Draw its (i) velocity-time and (ii) distance-time graphs. (Take $g = 10 \text{ m/s}^2$). 4

22 Obtain the equations of motion of a body moving with uniform acceleration. 4

23 State the type of motion represented by the following sketches: 4



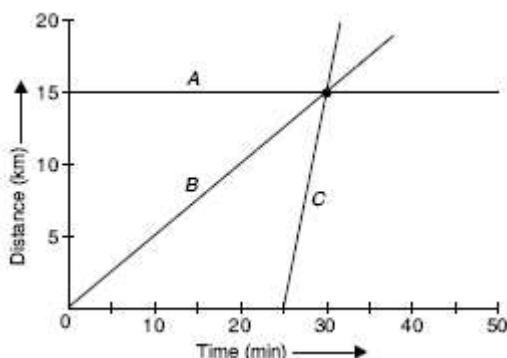
24 Distance-time graph of three friends A, B and C is shown in the figure. All of them moving along a straight road in a fixed direction. 4

(i) Is any (one or more) of them at rest? If yes, who?

(ii) When did C start moving?

(iii) Did they meet at the same time? If yes, when and where?

(iv) Who is moving the fastest?



25 A body is moving in a straight line and its displacement at various instants of time is given in the following table: 4

Time (s)	0	1	2	3	4	5	6	7
Displacement (m)	2	6	12	12	12	18	22	24

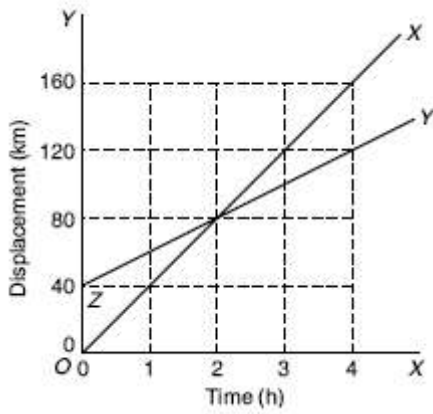
Plot displacement-time graph and calculate:

(i) total distance travelled in time interval 1 s to 5 s.

(ii) average velocity in time interval 1 s to 5 s.

26 The given figure represents the displacement-time sketch of motion of two cars X and Y. Find:

- (i) The distance by which the car Y was initially ahead of car X.
- (ii) Velocities of car X and Y.
- (iii) The time in which the car X will catch the car Y.
- (iv) The distance from start when the car X will catch car Y.



FOR ENHANCED PRACTICE

Write the chemical formula of :

- | | | | |
|---------------------------|-------|--------------------------|-------|
| (i) Aluminium oxide | ..... | (ix) Silver sulphide | ..... |
| (ii) Magnesium phosphide | ..... | (x) Aluminium sulphide | ..... |
| (iii) Nickel oxide | ..... | (xi) Sodium bisulphate | ..... |
| (iv) Barium hydroxide | ..... | (xii) Ammonium phosphate | ..... |
| (v) Ferrous sulphate | ..... | (xiii) Chromium chloride | ..... |
| (vi) Ammonium carbonate | ..... | (xiv) Calcium iodide | ..... |
| (vii) Ferric oxide | ..... | (xiv) Arsenic sulphide | ..... |
| (viii) Potassium sulphide | ..... | (xvi) Chromium oxide | ..... |

Special Worksheet-2

I. Give the chemical formulas of following compounds :

- | | | | |
|----------------------------|-------|------------------------|-------|
| (i) Nitric acid | ..... | (ii) Red lead | ..... |
| (iii) Phosphorus pentoxide | ..... | (iv) Hydrogen peroxide | ..... |
| (v) Methane | ..... | (vi) Ammonia | ..... |
| (vii) Phosphoric acid | ..... | (viii) Sulphurous acid | ..... |
| (ix) Sulphuric acid | ..... | (x) Carbonic acid | ..... |
| (xi) Triferric tetraoxide | ..... | (xii) Litharge | ..... |

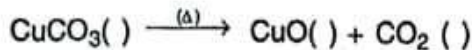
II. Name the following compounds :

- | | | | |
|-------------------------|-------|---------------------|-------|
| (i) $(NH_4)_2CO_3$ | ..... | (ii) $CuBr_2$ | ..... |
| (iii) $CrCl_3$ | ..... | (iv) $NaHSO_4$ | ..... |
| (v) $AuCl_3$ | ..... | (vi) $Fe_2(SO_4)_3$ | ..... |
| (vii) $(NH_4)_2Cr_2O_7$ | ..... | (viii) Ag_2S | ..... |
| (ix) Mg_3N_2 | ..... | (x) $NaHCO_3$ | ..... |

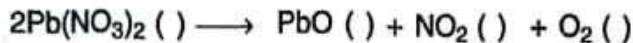
Make the following equations more informative by using Symbols (s) for solid, (l) for liquid, (g) for gaseous and (aq) for aqueous. Upward arrow (↑) for gas, downward arrow for precipitate (↓):

- Carbon + Oxygen → Carbon dioxide
 $C() + O_2() \longrightarrow CO_2()$
- Sodium + Water → Sodium hydroxide + hydrogen
 $2Na() + H_2O() \longrightarrow 2NaOH() + H_2() + \text{Heat}$
- Copper sulphide + Hydrochloric acid → Copper chloride + Hydrogen sulphide
 $CuS() + 2HCl() \longrightarrow CuCl_2() + H_2S()$

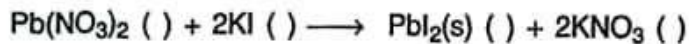
(4) Copper carbonate $\xrightarrow[\text{heating}]{\text{Strong}}$ Copper oxide + Carbon dioxide



(5) Lead nitrate $\xrightarrow[\text{heating}]{\text{Strong}}$ Lead oxide + Nitrogen dioxide + Oxygen



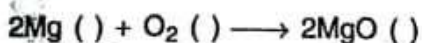
(6) Lead nitrate + Potassium iodide \longrightarrow Lead iodide + Potassium nitrate



(7) Silver nitrate + Sodium chloride \longrightarrow Silver chloride + Sodium nitrate

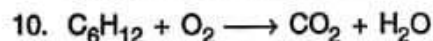
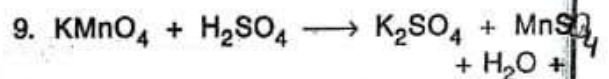
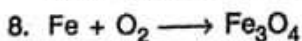
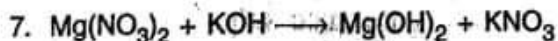
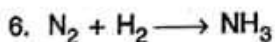
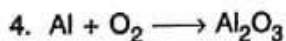
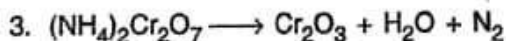
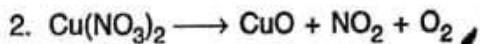
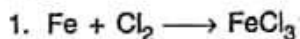


(8) Magnesium + Oxygen \longrightarrow Magnesium oxide



Worksheet

I. Balance the following equations :



II. Write balanced molecular equations for following word equations :

1. Sodium + Water \longrightarrow Sodium hydroxide + Hydrogen

.....

2. Aluminium bromide + Chlorine \longrightarrow Aluminium chloride + Bromine

.....

3. Potassium chlorate \longrightarrow Potassium chloride + Oxygen.

.....

4. Calcium hydroxide + Ammonium chloride \longrightarrow Calcium chloride + Water + Ammonia

.....

Expand $\left(\frac{4x}{y} - \frac{5y}{2z}\right)^2$

A

Evaluate $(98)^2$

Expand $\left(\frac{x}{2} - \frac{4y}{3} + z\right)^2$

If $x - y = 5$ and $xy = 24$, find :

(i) $x + y$

(ii) $x^2 + y^2$

If $x^2 - 6x - 1 = 0$, $x \neq 0$, find :

(i) $x - \frac{1}{x}$

(ii) $x + \frac{1}{x}$

(iii) $x^2 - \frac{1}{x^2}$

If $\frac{x^2 + 1}{x} = 4\frac{1}{4}$, $x > 1$, find :

(i) $x - \frac{1}{x}$

(ii) $x^3 - \frac{1}{x^3}$

Find the coefficient of x in the expansion of $(x + 2)(x - 4)(x + 6)$.

If $a^2 + \frac{1}{a^2} = 14$ and $a > 0$, find : $4a^3 + \frac{4}{a^3} + 2a + \frac{2}{a}$.

9. The sum of two positive number is 14 and their product is 40. Find the sum of the cubes of these numbers.

10. If $x + y - z = 5$ and $x^2 + y^2 + z^2 = 39$, find the value of $xy - yz - zx$.

11. If $\frac{3x}{4y} = \frac{4y}{5z}$, show that :

$$(3x - 4y + 5z)(3x + 4y + 5z) = 9x^2 + 16y^2 + 25z^2$$

12. Evaluate, without calculating the cubes : $6^2 + 11^3 - 17^3$

B

1. If $x - y = 8$ and $xy = 5$, find $x^2 + y^2$.

2. If $x + y = 10$ and $xy = 21$, find $2(x^2 + y^2)$

3. If $2a + 3b = 7$ and $ab = 2$, find $4a^2 + 9b^2$

4. If $3x - 4y = 16$ and $xy = 4$, find the value of $9x^2 + 16y^2$

5. If $x + y = 8$ and $x - y = 2$, find the value of $2x^2 + 2y^2$

6. If $a^2 + b^2 = 13$ and $ab = 6$, find (i) $a + b$ (ii) $a - b$

7. If $a + b = 4$ and $ab = -12$, find (i) $a - b$ (ii) $a^2 - b^2$

8. If $p - q = 9$ and $pq = 36$, evaluate

(i) $p + q$

(ii) $p^2 - q^2$

9. If $x + y = 6$ and $x - y = 4$, find (i) $x^2 + y^2$ (ii) xy .

10. If $x - 3 = \frac{1}{x}$, find the value of $x^2 + \frac{1}{x^2}$

11. If $x + y = 8$ and $xy = 3\frac{3}{4}$, find the values of

(i) $x - y$

(ii) $3(x^2 + y^2)$

(iii) $5(x^2 + y^2) + 4(x - y)$

12. If $x^2 + y^2 = 34$ and $xy = 10\frac{1}{2}$, find the value of $2(x + y)^2 + (x - y)^2$

13. If $a - b = 3$ and $ab = 4$, find $a^3 - b^3$

14. If $2a - 3b = 3$ and $ab = 2$, find the value of $8a^3 - 27b^3$

Chapter - 2 Compound Interest

1. Find the amount and the compound interest on ₹8000 at 5% per annum for 2 years.
2. A man invests ₹46875 at 4% per annum compound interest for 3 years. Calculate:
 - (i) the interest for the first year.
 - (ii) the amount standing to his credit at the end of the second year.
 - (iii) the interest for the third year.
3. Calculate the compound interest for the second year on ₹8000 invested for 3 years at 10% p.a.
Also find the sum due at the end of third year.
4. Ramesh invests ₹12800 for three years at the rate of 10% per annum compound interest. Find :
 - (i) the sum due to Ramesh at the end of the first year.
 - (ii) the interest he earns for the second year.
 - (iii) the total amount due to him at the end of three years.
5. The simple interest on a sum of money for 2 years at 12% per annum is ₹1380. Find:
 - (i) the sum of money.
 - (ii) the compound interest on this sum for one year payable half-yearly at the same rate.
6. A person invests ₹10000 for two years at a certain rate of interest, compounded annually. At the end of one year this sum amounts to ₹11200. Calculate :
 - (i) the rate of interest per annum.
 - (ii) the amount at the end of second year.
7. Mr. Lalit invested ₹5000 at a certain rate of interest, compounded annually for two years. At the end of first year it amounts to ₹5325. Calculate
 - (i) the rate of interest.
 - (ii) the amount at the end of second year, to the nearest rupee.
8. A man invests ₹5000 for three years at a certain rate of interest, compounded annually. At the end of one year it amounts to ₹5600. Calculate:
 - (i) the rate of interest per annum.
 - (ii) the interest accrued in the second year.
 - (iii) the amount at the end of the third year.
9. The compound interest, calculated yearly, on a certain sum of money for the second year is ₹1,320 and for the third year is ₹1,452. Calculate the rate of interest and the original sum of money.
10. The present population of a town is 2,00,000. Its population increases by 10% in the first year and 15% in the second year. Find the population of the town at the end of two years.
11. Find the compound interest on ₹25,000 for $1\frac{1}{2}$ year at 8% per annum, interest being payable half-yearly.
12. A man invests ₹7,000 for three years at a certain rate of interest, compounded annually. At the end of one year, it amounts to ₹7,980. Calculate :
 - (i) the rate of interest per annum.
 - (ii) the interest accrued in the 2nd year.
 - (iii) the amount at the end of 3rd year.
13. ₹32,000 are lent out for 2 years at compound interest, the rate of interest being 10% for the first year and 15% for the second year. The borrower returns some money at the end of first year and on paying ₹23,000 at the end of second year, the total debt is cleared. Find the amount of money returned at the end of first year.
14. The simple interest in 5 years and the compound interest in 2 years on a certain sum at the same rate are ₹2,000 and ₹832 respectively. Find :
 - (i) the rate of interest
 - (ii) the sum of money
 - (iii) the difference between the C.I. and the S.I. on the same sum and at the same rate for 3 years.
15. At what rate % per annum will a sum of ₹4,000 yield ₹1,324 as compound interest in 3 years?
16. What sum of money will amount to ₹1,815 in 2 years at 10% per annum compound interest?
17. On what sum of money will the difference between the compound interest and simple interest for 2 years be equal to ₹100 if the rate of interest for both is 5% per annum?
18. A sum of money amounts to ₹9,680 in 2 years and ₹10,648 in 3 years compounded annually. Find the principal and the rate of interest per annum.

Chapter - 2

1. Find the amount and the compound interest on ₹5000 for 2 years at 6% per annum, interest payable yearly.
 2. Find the amount and the compound interest on ₹8000 for 4 years at 10% per annum, interest reckoned yearly.
 3. If the interest is compounded half yearly, calculate the amount when the principal is ₹7400, the rate of interest is 5% and the duration is one year.
 4. Find the amount and the compound interest on ₹5000 at 10% p.a. for $1\frac{1}{2}$ years, compound interest reckoned semi-annually.
 5. Find the amount and the compound interest on ₹100000 compounded quarterly for 9 months at the rate of 4% p.a.
 6. Find the difference between C.I. and S.I. on sum of ₹4800 for 2 years at 5% per annum payable yearly.
 7. Find the difference between the simple interest and compound interest on ₹2500 for 2 years at 4% per annum, compound interest being reckoned semi-annually.
 8. Find the amount and the compound interest on ₹2000 in 2 years if the rate is 4% for the first year and 3% for the second year.
 9. Find the compound interest on ₹3125 for 3 years if the rates of interest for the first, second and third year are respectively 4%, 5% and 6% per annum.
 10. What sum of money will amount to ₹9261 in 3 years at 5% per annum compound interest?
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1. The present population of a town is 200000. Its population increases by 10% in the first year and 15% in the second year. Find the population of the town at the end of the two years.
 2. The present population of a town is 15625. If the population increases at the rate of 4% every year, what will be the increase in the population in next 3 years?
 3. The population of a city increases each year by 4% of what it had been at the beginning of each year. If its present population is 6760000, find :
(i) its population 2 years hence (ii) its population 2 years ago.
 4. The cost of a microwave oven is ₹9000. Its value depreciates at the rate of 5% every year. Find the total depreciation in its value at the end of 2 years.
 5. Dinesh purchased a TV for ₹24000. The value of the TV is depreciating at the rate of 5% per annum. Calculate its value after 3 years.
 6. A farmer increases his output of wheat in his farm every year by 8%. This year he produced 2187 quintals of wheat. What was the yearly produce of wheat two years ago?
 7. The value of a property decreases every year at the rate of 5%. If its present value is ₹411540, what was its value three years ago?
 8. Ahmed purchased an old scooter for ₹16000. If the cost of the scooter after 2 years depreciates to ₹14440, find the rate of depreciation.
 9. A factory increased its production of cars from 80000 in the year 2011-2012 to 92610 in 2014-2015. Find the annual rate of growth of production of cars.
 10. The value of a machine worth ₹500000 is depreciating at the rate of 10% every year. In how many years will its value be reduced to ₹364500?
 11. Mahindra set up a factory by investing ₹2500000. During the first two years, his profits were 5% and 10% respectively. If each year the profit was on previous year's capital, calculate his total profit.
 12. The value of a property is increasing at the rate of 25% every year. By what percent will the value of the property increase after 3 years?
 13. Mr. Durani bought a gold chain for ₹180000 and a car for ₹320000 at the same time. The value of the gold chain grows uniformly at the rate of 30% p.a., while the value of the car depreciates by 20% in the first year and by 15% p.a. thereafter. If he sells the gold chain as well as the car after 3 years, what will be his profit or loss?

15. If $x + \frac{1}{x} = 4$, find the values of

(i) $x^2 + \frac{1}{x^2}$

(ii) $x^4 + \frac{1}{x^4}$

(iii) $x^3 + \frac{1}{x^3}$

(iv) $x - \frac{1}{x}$

16. If $x - \frac{1}{x} = 5$, find the value of $x^4 + \frac{1}{x^4}$

17. If $x - \frac{1}{x} = \sqrt{5}$, find the values of

(i) $x^2 + \frac{1}{x^2}$

(ii) $x + \frac{1}{x}$

(iii) $x^3 + \frac{1}{x^3}$

18. If $x + \frac{1}{x} = 6$, find (i) $x - \frac{1}{x}$ (ii) $x^2 - \frac{1}{x^2}$

19. If $x + \frac{1}{x} = 2$, prove that $x^2 + \frac{1}{x^2} = x^3 + \frac{1}{x^3} = x^4 + \frac{1}{x^4}$

20. If $x - \frac{2}{x} = 3$, find the value of $x^3 - \frac{8}{x^3}$

21. If $a + 2b = 5$, prove that $a^3 + 8b^3 + 30ab = 125$

22. If $a + \frac{1}{a} = p$, prove that $a^3 + \frac{1}{a^3} = p(p^2 - 3)$

23. If $x^2 + \frac{1}{x^2} = 27$, find the value of $x - \frac{1}{x}$

24. If $x^2 + \frac{1}{x^2} = 27$, find the value of $3x^3 + 5x - \frac{3}{x^3} - \frac{5}{x}$

25. If $x^2 + \frac{1}{25x^2} = 8\frac{3}{5}$, find $x + \frac{1}{5x}$

26. If $x^2 + \frac{1}{4x^2} = 8$, find $x^3 + \frac{1}{8x^3}$

27. If $a^2 - 3a + 1 = 0$, find (i) $a^2 + \frac{1}{a^2}$ (ii) $a^3 + \frac{1}{a^3}$

28. If $a = \frac{1}{a-5}$, find (i) $a - \frac{1}{a}$ (ii) $a + \frac{1}{a}$ (iii) $a^2 - \frac{1}{a^2}$

29. If $\left(x + \frac{1}{x}\right)^2 = 3$, find $x^3 + \frac{1}{x^3}$

30. If $x = 5 - 2\sqrt{6}$, find the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$

31. If $a + b + c = 12$ and $ab + bc + ca = 22$, find $a^2 + b^2 + c^2$

32. If $a + b + c = 12$ and $a^2 + b^2 + c^2 = 100$, find $ab + bc + ca$

33. If $a^2 + b^2 + c^2 = 125$ and $ab + bc + ca = 50$, find $a + b + c$

34. If $a + b - c = 5$ and $a^2 + b^2 + c^2 = 29$, find the value of $ab - bc - ca$

35. If $a - b = 7$ and $a^2 + b^2 = 85$, then find the value of $a^3 - b^3$

36. If the number x is 3 less than the number y and the sum of the squares of x and y is 29, find the product of x and y .

37. If the sum and the product of two numbers are 8 and 15 respectively, find the sum of their cubes.

लॉर्ड जोसस पब्लिक स्कूल
ग्रीष्मावकाश गृह कार्य

कक्षा- नौ

1. कविता का चित्र रूपांतरण
कार्य - अपने पाठ्यक्रम की किसी भी एक कविता को एक A3 साइज पेपर पर पेंटिंग या कोलाज के माध्यम से दर्शाएं।

विवरण - A3 पेपर पर कविता की प-ठ सबसे महत्वपूर्ण पंक्तियाँ सुंदर अक्षरों में लिखें। उसके चारों तरफ कविता के भाव को दर्शाते हुए चित्र बनाएँ या अखबारों/पत्रिकाओं से काटकर चित्र चिपकाएँ।

2. सामाजिक सरोकार (नुक्कड़ नाटक की पटकथा)
कार्य - आज के समय की किसी सामाजिक समस्या पर नुक्कड़ नाटक की पटकथा लिखिए।
विषय विकल्प -
डिजिटल लत - मोबाइल की दुनिया और खोता बचपन
पर्यावरण - प्लास्टिक मुक्त भारत

3. साहित्य का 'अखबार'
कार्य - साहित्य सागर की कहानियों और कविताओं को मुख्य समाचार बनाकर हिन्दी में 1 या 2 पन्नों का एक आकर्षक समाचार पत्र तैयार करें।
रचनात्मकता - यह आपकी कल्पना और संपादन कौशल को दिखाता है।

अखबार की मुख्य सामग्री :-

मुख्य समाचार
कहानी से
साक्षात्कार
मौसम और व्यापार

