LK SINGHANIA EDUCATION CENTRE

GOTAN

HOLIDAY ASSIGNMENT

SESSION : 2026-27

CLASS - X

“Climb every mountain, ford every stream,
Follow every rainbow, till you find your dream.”

Dear Students,

Wishing you a happy and blessed summer time!

You are the torch bearers of change. Put in your sincere efforts and do some unique and creative work for the society. The tiny efforts of each soul are the remarks of gratitude to Nature.

The entire team of LKSEC teachers has put all will and might in designing "The Holiday Assignment", where certain aspects are kept in mind like use of technology, wise use of paper and resources from surroundings. Put your shoulder to the wheel in making the projects creative, attractive and cost effective with appropriate information.

While preparing the assignment, keep in mind following points:

1. **All the assignments should be original.**
2. **Use technology wisely and correctly.**
3. **Values and virtues bring enrichment in bonds among members of the family. So, as a piece of advice, involve your parents in the process.**
4. **Use poster colours, sketch pens etc.**
5. **Grammatical accuracy also carries weightage.**
6. **Sincere and honest efforts will be appreciated.**
7. **The cover page must include details like student's name, class and section, subject and name of the teacher it is to be submitted to.**

Make this summer special, innovative and enthralling.

Educationally Yours,

R C Joshi
Principal


Resilience
Confidence
Nurture
Creativity
Community
Love
of
Learning

SUB - SCIENCE

CLASS – X

Student Details:

- ✓ **Name : _____**
- ✓ **Class & Section : _____**
- ✓ **Roll Number : _____**

Chemistry

Based on Chemical Reactions and Equations

Instructions:

Complete all sections of this assignment neatly in your science assignment file(or on project file papers). Ensure all chemical equations are properly balanced and state symbols are included where necessary.

Part 1: The Balancing Act

Apply the law of conservation of mass to balance the following reactions.

A. Translate the following statements into chemical equations and balance them:

1. Hydrogen gas combines with nitrogen to form ammonia.
2. Barium chloride reacts with aluminium sulphate to give aluminium chloride and a precipitate of barium sulphate.
3. Potassium metal reacts with water to give potassium hydroxide and hydrogen gas.
4. Zinc reacts with sulphuric acid to form zinc sulphate and hydrogen.
5. Hydrogen reacts with chlorine to form hydrogen chloride.

B. Balance the following skeletal chemical equations:

1. $HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + H_2O$

2. $NaOH + H_2SO_4 \rightarrow Na_2SO_4 + H_2O$

3. $NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$

4. $Fe + H_2O \rightarrow Fe_3O_4 + H_2$

5. $Mg + O_2 \rightarrow MgO$

Part 2: Real-World Observation

Chemistry happens all around us, not just in a lab. For this section, you must observe your environment:

The Rust Hunt: Find an iron object in your home or neighborhood that has been left exposed to the humid atmosphere and developed a reddish-brown powder coating. This process is commonly known as the rusting of iron. Document the object's location, take a photograph (or draw a detailed sketch), and write down the environmental conditions (such as moisture and air) that likely accelerated this corrosion.

BIOLOGY

SECTION A: AUTOTROPHIC v/s HETEROTROPHIC NUTRITION

A. Answer the Following-

1.Define Autotrophic Nutrition.

2.Define Heterotrophic Nutrition.

3.What is the difference between the two?

B. Comparison Table

Basis	Autotrophic	Heterotrophic
Definition		

Basis	Autotrophic	Heterotrophic
Food Source		
Examples		
Energy Source		

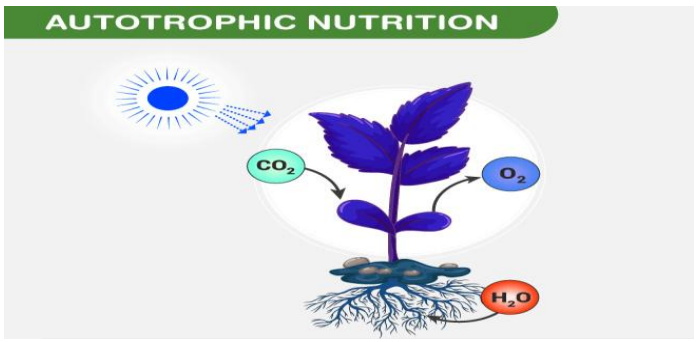
C. Application-Based Questions

1. Why plants are called producers?
2. What will happen if autotrophs disappear?
3. Make a colorful mind map / chart showing difference

SECTION B: PHOTOSYNTHESIS – "FOOD FACTORY OF PLANTS"

✏️ A. Answer the Following

1. What is photosynthesis?
2. .Name the raw materials required
3. .Write Chemical Equation of Photosynthesis?
4. Why is photosynthesis important for life?
5. How does it maintain oxygen balance?
6. Draw a labeled diagram of photosynthesis process?

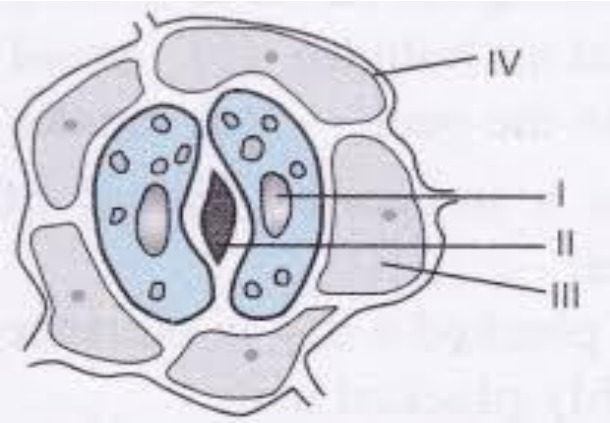


SECTION C: HUMAN DIGESTIVE SYSTEM – "JOURNEY OF FOOD"

✏️ . Answer the Following

1. What is digestion?

2. Name the organs involved in digestion
3. What is the role of: Mouth , Stomach , Small intestine
4. Draw a large labeled diagram of digestive system
5. .Draw a well labeled diagram of stomata?



Section - D

EXPERIMENT -Aim-To show that carbon dioxide is essential for photosynthesis.

NOTE- Support your experiments with diagram.

SECTION E: "HEALTHY ME, HEALTHY SYSTEM" PROJECT

1. Write any 5 tips for good digestion

DECLARATION

"I hereby declare that this project is my original work and has been completed by me."

Signature: _____

CREATIVE HOME ASSIGNMENT – CLASS X (BIOLOGY)

TOPICS: AUTOTROPHIC NUTRITION, HETEROTROPHIC NUTRITION, PHOTOSYNTHESIS & HUMAN DIGESTIVE SYSTEM

General Instructions:

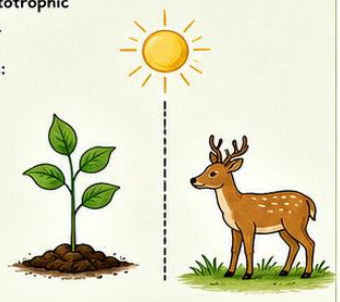
- This is a creative worksheet. Use your ideas, drawings, colours and handwritten content.
- Make it neat and well-organized on A4 sheets or in a file.
- Diagrams must be labelled. Content should be in your own words.
- Submit on _____ (date).

1. AUTOTROPHIC vs HETEROTROPHIC NUTRITION

Make a colourful **comparison chart** or **mind map** on a large sheet to show the difference between Autotrophic and Heterotrophic nutrition.

Include the following points:

- Definition
- Mode of nutrition
- Sources
- Examples
- Importance in nature
- Interdependence between both types



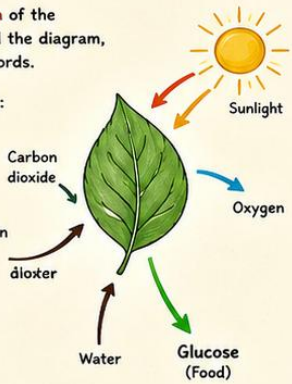
Be creative!
Use arrows, sketches, cut-outs, or icons.

2. PHOTOSYNTHESIS – "FOOD FACTORY OF PLANTS"

Create a neat and **labelled diagram** of the process of **Photosynthesis**. Around the diagram, explain the process in your own words.

Include the following in your work:

- Raw materials required
- Role of sunlight and chlorophyll
- Products formed
- Balanced chemical equation
- The importance of photosynthesis in our environment and life



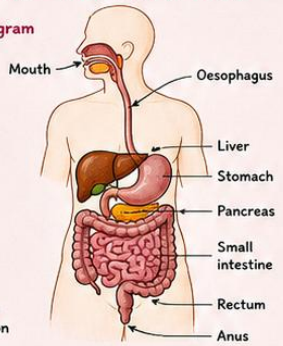
Think & Add:
Write 3–4 lines on how photosynthesis helps in maintaining the balance of oxygen and carbon dioxide.

3. HUMAN DIGESTIVE SYSTEM – "JOURNEY OF FOOD"

Make a large, neat and **labelled diagram** of the human digestive system. Show the path of food from the mouth to the anus.

Include the following:

- Label all the organs
- Mention the role of each organ in digestion
- Highlight the accessory digestive glands and their functions
- Use arrows to show the movement of food
- Add a short note on the importance of complete digestion and absorption



Creative Touch:
You can make a 3D model, use flaps, pockets or interactive elements.

4. "HEALTHY ME, HEALTHY SYSTEM" – MINI PROJECT

Prepare a mini project (3–4 pages) on how we can take care of our digestive system and maintain a healthy body.

Include the following:

- Balanced diet – what and why?
- Eating habits to follow and avoid
- Role of water and fibre
- Common digestive disorders and their prevention
- Regular exercise and healthy lifestyle
- Any 5 tips for a healthy digestive system

Be Innovative!
Use charts, slogans, quotes, pictures, or handmade elements to make your project attractive.

Learning Outcome:
Through this assignment, you will understand the concepts better, improve your creativity and presentation skills, and develop a scientific attitude.

Submission Checklist:

- ☐ Neat & Clean work
- ☐ Diagrams are labelled
- ☐ Content in your own words
- ☐ Creativity and Presentation

All the Best! ☺

THE ABOVE IMAGE IS FOR YOUR REFERNCE AND TAKE THE COLOUR PRINT AND ADD AT LAST PAGE.

- **Ray Diagrams**: Draw all six cases of image formation for a concave mirror and the two cases for a convex mirror. Repeat this for convex and concave lenses.
- **Numerical Sheet**: Solve problems involving the mirror and lens formulas
- Include calculations for magnification (m = -v/u) or \(m = v/u\)) and the refractive index
- Do all back exercise question

- **Conceptual Questions**:
  - Why are convex mirrors used as rear-view mirrors in vehicles?
  - Explain why a pencil partially immersed in water appears bent at the interface.
  - Differentiate between real and virtual images.

Creative Projects & Models

Perform simple home experiments

- **The Spoon Activity**: Use a shiny stainless steel spoon to observe how your image changes when looking at the concave (inner) and convex (outer) sides. Record your observations.
- **Refraction Tracing**: If you have a glass slab, trace the path of light and measure the lateral displacement for different angles of incidence.
- **Focal Length Estimation**: Roughly find the focal length of a concave mirror or convex lens by focusing sunlight onto a sheet of paper (with adult supervision) until it begins to singe

Research & Application

- **Daily Life Investigation**: List at least five uses of concave and convex mirrors in your surroundings.
- **Board Prep**: Go through previous years' papers and identify the 20 most frequently asked questions from this chapter.

SUB - ENGLISH

CLASS – X

Not your usual homework—this is your creative playground!!!

Dear Students,
Read each task carefully, follow the instructions, and present your work neatly. You may use handwritten or digital formats as mentioned.

1. Time-Travel Tales

Pick a historical event from a story or novel and write a **travel blog (150–200 words)** as if you were present there.

- Describe what you saw, heard, and felt
- Blend facts with imagination

2. Grammar Glow-Up

Choose any grammar topic (Tenses, Modals, Reported Speech, etc.)

- Present it as a **creative poster or graffiti-style page**
- Include 4–5 correct examples
- Make it clear and visually appealing

3. Poetry Remix

Create your own poem inspired by at least two poets or styles.

- Write 8–10 lines
- Focus on rhythm, imagery, or theme
- You may record a recitation (optional)

4. Secret Diaries

Write a **diary entry (120–150 words)** from a character's point of view.

- Express hidden thoughts and feelings
- Base it on an important moment

5. Literary Maps (Choose a story and map its setting)

- Draw a map
- Mark 4–5 important places
- Add short notes or relevant quotes

6. Word Wizardry

Create a crossword or word search puzzle.

- Use at least 10 vocabulary words
- Provide clues or meanings

7. Author Showdown

Write a short dialogue between two authors.

- Choose a topic they may disagree on
- Write at least 10–12 lines

8. Letter to Future You

Write a **letter (150–200 words)** to your future self.

- Reflect on your present and goals
- Use at least two literary devices (metaphor, simile, etc.)

Submission & Record Guidelines :

To ensure proper assessment, follow these instructions:

- Maintain a **separate English Holiday Homework Notebook or File**
- Write your **Name, Class, Section, and Roll Number** on the first page

Written Tasks (1, 4, and 8):

- Complete neatly in your notebook
- Use proper headings

Creative Tasks (2, 5, 6):

- Do on A4 sheets or digitally
- Compile in a folder/file
- If digital, attach printouts or screenshots

Optional Video Tasks (Poetry Recitation / Author Showdown Performance):

- Save files with your name and class
- Submit through the assigned platform (Google Drive / School App / WhatsApp, as instructed)
- Arrange all work in sequence
- Keep your work neat, original, and well-presented
- Submit on the **first day after vacation**

Do your best, but don't stress. Keep it creative, neat, and real.

SUB - MATHEMATICS

CLASS : X

CASE STUDY BASED QUESTION: 1

A seminar is being conducted by an Educational Organisation, where the participants will be educators of different subjects. The number of participants in Hindi, English and Mathematics are 60, 84 and 108 respectively.

i) In each room the same number of participants are to be seated and all of them being in the same subject, hence maximum number participants that can accommodated in each room are

a) 14 b) 12 c) 16 d) 18

ii). What is the minimum number of rooms required during the event?

a) 11 b) 31 c) 41 d) 21

iii). The LCM of 60, 84 and 108 is

a) 3780 b) 3680 c) 4780 d) 4680

iv). The product of HCF and LCM of 60,84 and 108 is

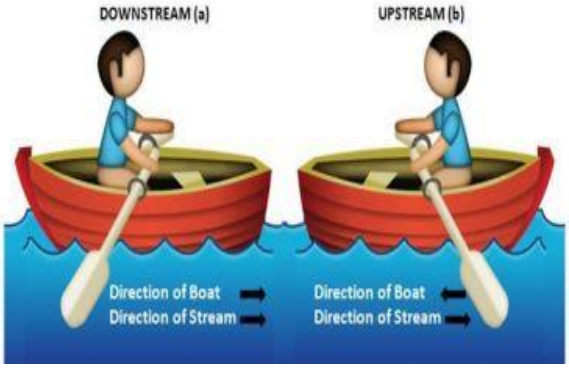
a) 55360 b) 35360 c) 45500 d) 45360

v). 108 can be expressed as a product of its primes as

a) $2^3 \times 3^2$ b) $2^3 \times 3^3$ c) $2^2 \times 3^2$ d) $2^2 \times 3^3$

CASE STUDY BASED QUESTION: 2

The speed of a motor boat is 20 km/hr. For covering the distance of 15 km the boat took 1 hour more for upstream than downstream.



i). Let speed of the stream be x km/hr. then speed of the motorboat in upstream will be

a) 20 km/hr **b) (20 + x) km/hr**

c) (20 – x) km/hr **d) 2 km/hr**

ii). What is the relation between speed ,distance and time?

a) speed = (distance)/time **b) distance = (speed)/time**

c) time = speed x distance **d) speed = distance x time**

iii). Which is the correct quadratic equation for the speed of the current?

a) $x^2 + 30x - 200 = 0$ **b) $x^2 + 20x - 400 = 0$**

c) $x^2 + 30x - 400 = 0$ **d) $x^2 - 20x - 400 = 0$**

iv). What is the speed of current ?

a) 20 km/hour **b) 10 km/hour**

c) 15 km/hour **d) 25 km/hour**

CASE STUDY BASED QUESTION: 3

The below picture are few natural examples of parabolic shape which is represented by a quadratic polynomial. A parabolic arch is an arch in the shape of a parabola. In structures, their curve represents an efficient method of load, and so can be found in bridges and in architecture in a variety of forms.

i). In the standard form of quadratic polynomial, $ax^2 + bx + c$, a, b and c are

a) All are Polynomials. **b) All are rational numbers.**

c) 'a' is a non zero real number and b and c are any Polynomials.

d) All are integers.

ii). If the roots of the quadratic polynomial are equal, where the discriminant $D = b^2 – 4ac$, then

a) $D > 0$ **b) $D < 0$** **c) $D \geq 0$** **d) $D = 0$**

iii). If α and 1/α are the zeroes of the quadratic polynomial 2x2 – x + 8k, then k is

a) 4 **b) ¼** **c) –1/4** **d) 2**

iv). The graph of $x^2+1 = 0$

a) Intersects x-axis at two distinct points. **b)Touches x-axis at a point.**

c) Neither touches nor intersects x-axis. **d)Either touches or intersects x- axis.**

v). If the sum of the roots is –p and product of the roots is –1/p, then the quadratic polynomial is

a) $k(–px^2 + x/p + 1)$ **b) $k(px^2 – x/p – 1)$**

c) $k(x^2 + px – 1/p)$ **d) $k(x^2 – px + 1/p)$**

CASE STUDY BASED QUESTION: 4

It is common that Governments revise travel fares from time to time based on various factors such as inflation (a general increase in prices and fall in the purchasing value of money) on different types of vehicles like auto, Rickshaws, taxis, Radio cab etc. The auto charges in a city comprise of a fixed charge together with the charge for the distance covered. Study the following situations:

Name of the city	Distance travelled (Km)	Amount paid (Rs.)
City A	10	75
	15	110
City B	8	91
	14	145

<u>Situation 1</u>: In city A, for a journey of 10 km, the charge paid is Rs 75 and for a journey of 15 km, the charge paid is Rs 110.

<u>Situation 2:</u> In a city B, for a journey of 8km, the charge paid is Rs 91 and for a journey of 14km, the charge paid is Rs 145.

Refer situation 1

i). If the fixed charges of auto rickshaw be Rs x and the running charges be Rs y km/hr, the pair of linear equations representing the situation is

a) x + 10y =110, x + 15y = 75 **b) x + 10y = 75, x + 15y = 110**
c) 10x + y = 110, 15x + y = 75 **d) 10x + y = 75, 15x + y = 110**

ii). A person travels a distance of 50km. The amount he has to pay is

a) Rs.155 **b) Rs.255** **c) Rs.355** **d) Rs.455**

Refer situation 2

iii). What will a person have to pay for travelling a distance of 30km?

a) Rs.185 **b) Rs.289** **c) Rs.275** **d) Rs.305**

SUB – COMPUTER SCIENCE
CLASS – X

INSTRUCTIONS

- Prepare a PowerPoint presentation on the topic "Responsible use of AI".
- A pdf of the same topic is attached with this assignment for your reference.
- PPT should contains beautiful design, fonts, transition, animations, pictures and videos.
- Save this ppt in pen drive and submit to concern teacher after summer vacation.

RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE

Ethical Frameworks, Governance, and Best Practices for 2025

WHAT IS RESPONSIBLE AI?

Responsible AI is the practice of designing, building, and deploying AI systems in a way that is ethical, safe, and trustworthy.

- **Alignment:** Ensuring AI goals match human values.
- **Mitigation:** Proactively identifying and reducing risks.
- **Trust:** Building confidence among users, regulators, and the public.
- **Integration:** Moving ethics from "theory" into "technical requirements."

FAIRNESS AND INCLUSIVITY

Eliminating Bias

AI systems should treat all people fairly and avoid disparately impacting specific groups based on race, gender, or age.

Key Challenges

- Biased training data sets.
- Implicit bias in algorithm design.
- Lack of diverse representation in development teams.

TRANSPARENCY AND EXPLAINABILITY

Opening the "Black Box"

Users and stakeholders must be able to understand how an AI system reached a specific conclusion or decision.

- **Interpretability:** The ability to trace the logic of the model.
- **Disclosure:** Clearly stating when a user is interacting with an AI (e.g., chatbots).
- **Documentation:** Maintaining detailed "model cards" or data sheets.

PRIVACY AND SECURITY

AI systems must protect personal data and remain resilient against adversarial attacks.

- **Data Stewardship:** Adhering to GDPR, CCPA, and evolving data residency laws.
- **Anonymization:** Using differential privacy or synthetic data to protect identities.
- **Robustness:** Ensuring systems cannot be easily "jailbroken" or manipulated by malicious prompts.

RELIABILITY AND SAFETY

Responsible AI must perform as intended and fail gracefully under unexpected conditions.

- **Rigorous Testing:** Validating performance across diverse scenarios before deployment.
- **Error Handling:** Clear protocols for when the system produces high-confidence incorrect results ("Hallucinations").
- **Boundary Limits:** Restricting AI actions in high-stakes environments like healthcare or transport.

ACCOUNTABILITY AND OVERSIGHT

Human-in-the-Loop

Ultimate responsibility for AI outputs remains with humans. Governance structures must define who is liable for AI errors.

- **Human Oversight:** Ensuring experts can override AI decisions in critical paths.
- **Auditability:** Maintaining logs of system inputs, versions, and decision pathways for external review.
- **Governance Committees:** Cross-functional teams (Legal, Tech, HR) to oversee AI lifecycle.

RISK-BASED REGULATION: EU AI ACT

Risk Level	Definition / Examples	Requirement
Unacceptable	Social scoring, manipulative AI	Strictly Prohibited
High Risk	Biometrics, hiring, infrastructure	Strict Obligations & Testing
Transparency Risk	Chatbots, Deepfakes	Mandatory Disclosure
Minimal Risk	Spam filters, AI-enabled games	Voluntary Codes of Conduct

ETHICAL CHALLENGES IN GENERATIVE AI

- **Misinformation:** The ease of creating convincing fake text, images, and audio.
- **Intellectual Property:** Training models on copyrighted data without consent or compensation.
- **Devaluation of Work:** Impact on creative industries and automated job displacement.
- **Sustainability:** The high energy and water consumption of large-scale model training.

IMPLEMENTING RESPONSIBLE AI

Successful implementation requires a structured approach across the organization:

1. **Establish Policy:** Create clear guidelines on permitted vs. prohibited AI use cases.
2. **Risk Assessment:** Use frameworks like the NIST AI RMF to map and measure potential harms.
3. **Continuous Monitoring:** Audit models post-deployment for bias drift and performance decay.
4. **Education:** Training employees on prompt engineering and critical evaluation of AI outputs.

THE NIST AI FRAMEWORK

1. GOVERN & MAP

Develop a culture of risk management and identify system contexts and risks.

2. MEASURE & MANAGE

Analyze risks through quantitative metrics and deploy resources to mitigate them.

Note: This is a voluntary, flexible framework used globally to improve AI trustworthiness.

Questions & Discussion

Responsible AI is not a destination, but a continuous journey of governance and refinement.

Contact: compliance@organization.com

ग्रीष्मकालीन अवकाश रचनात्मक कार्य

विषय - हिन्दी

कक्षा – दसवीं

1. अपनी योग्यता, उपलब्धियों, रुचियों और फोटो सहित स्वयं का एक स्ववृत (bio-data) तैयार कीजिए।
2. अपनी पसंद की किन्हीं तीन वस्तुओं/कार्यक्रम/प्रतिष्ठान के आकर्षक विज्ञापन तैयार कीजिए।

SUB : SOCIAL SCIENCE
CLASS : X

Economics Project work

Topic - <u>Consumer Rights / Consumer awareness</u> **MM-10**

Guidelines for the Project -

- Project must be submitted in hard copy (Project File) Containing A4 sheets before 20th July-2027.
- Project must contains the following topics with relevant pictures.

1- Cover page
2- Acknowledgement
3- Introduction
4- History of consumer protection act-1986- with relevant pictures
5- Consumer protection act. Description six rights
6- Redressal agencies under consumer protection act-1986
7- Reliefs available to the consumer
8- Consumer Responsibilities
9- Conclusion
10- Bibliography

- Assessment criteria -
  1- Presentation-2 M
  2- Content Relevance-3M
  3- Creativity- 3M
  4- Viva- Voce-2M