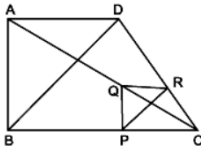
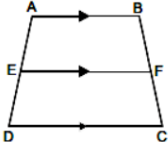
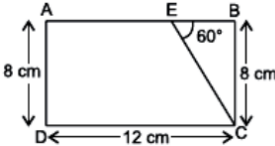
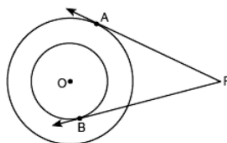


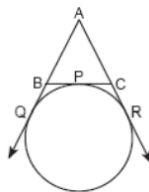
**VASISHTHA GENESIS SCHOOL, BARDOLI**  
**DIWALI VACATION ASSIGNMENT**  
**ACADEMIC SESSION: 2025-26**  
**CLASS 10**

| SUBJECT     | TASK ASSIGNED  |
|-------------|--|
| English     | <p>Prepare an art integrated project on either of the topics given of the text FIRST FLIGHT <b><u>Making of a scientist</u></b> popup book or flipbook create small hint box or flipbook to show the sequence of the chapters revolving around the protagonist of the story pictorially.</p> <p style="text-align: center;"><b>OR</b></p> <p><b><u>Footprints without feet</u></b> [invisible man] create a character arc of Griffin and use all the materials like bandages gloves had and all the stuff utilize to maintain the disguise you can use A3 sheet or a chart paper to present the character</p>  |
| Mathematics | <p><b><u>Solve the following questions</u></b></p> <ol style="list-style-type: none"> <li>In figure, two triangles ABC and DBC lie on the same side of base BC. P is a point on BC such that <math>PQ \parallel BA</math> and <math>PR \parallel BD</math>. Prove that <math>QR \parallel AD</math>.</li> </ol>  <ol style="list-style-type: none"> <li>P and Q are points on the sides AB and AC respectively of a triangle ABC. If <math>AP = 2</math> cm, <math>PB = 4</math> cm, <math>AQ = 3</math> cm, <math>QC = 6</math> cm, prove that <math>BC = 3PQ</math>.</li> <li>If a line is drawn parallel to one side of a triangle, the other two sides are divided in the same ratio, prove it. Use this result to prove the following : In the given figure, if ABCD is a trapezium in which <math>AB \parallel DC \parallel EF</math>, then prove that <math>\frac{AE}{ED} = \frac{BF}{FC}</math></li> </ol>  <ol style="list-style-type: none"> <li>In the given figure, ABCD is a rectangle with <math>AD = 8</math> cm and <math>CD = 12</math> cm. Line segment CE is drawn, making an angle of <math>60^\circ</math> with AB, intersecting AB at E. Find the length of CE and BE.</li> </ol>  <ol style="list-style-type: none"> <li>If <math>7 \sin^2 A + 3 \cos^2 A = 4</math>, then find <math>\tan A</math></li> <li>If <math>\operatorname{cosec} \theta + \cot \theta = p</math>, then prove that <math>\cos \theta = \frac{p^2 - 1}{p^2 + 1}</math></li> <li>If <math>\sin \theta + \cos \theta = \sqrt{3}</math>, then prove that <math>\tan \theta + \cot \theta = 1</math>.</li> <li>If <math>\cos \theta + \sin \theta = \sqrt{2} \cos \theta</math>, show that <math>\cos \theta - \sin \theta = \sqrt{2} \sin \theta</math></li> <li>A man rowing a boat away from a lighthouse 150 m high takes 2 minutes to change the angle of elevation of the top of lighthouse from <math>45^\circ</math> to <math>30^\circ</math>. Find the speed of the boat. (Use <math>\sqrt{3} = 1.732</math>)</li> <li>At a point A, 20 metres above the level of water in a lake, the angle of elevation of a cloud is <math>30^\circ</math>. The angle of depression of the reflection of the cloud in the lake, at A is <math>60^\circ</math>. Find the distance of the cloud from A.</li> </ol> |

11. The shadow of a flagstaff is three times as long as the shadow of the flagstaff when the sunrays meet the ground at an angle of  $60^\circ$ . Find the angle between the sunrays and the ground at the time of longer shadow.
12. In the below figure, there are two concentric circles, with centre O and of radii 5 cm and 3 cm. From an external point P, tangents PA and PB are drawn to these circles. If AP = 12 cm, find the length of BP.

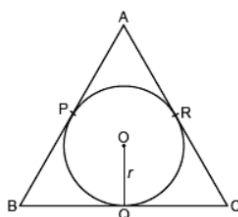


13. In figure, a circle touches the side BC of  $\triangle ABC$  at P and touches AB and AC produced at Q and R respectively. If AQ = 5 cm, find the perimeter of  $\triangle ABC$ .

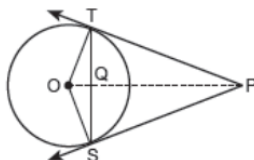


14. In figure, the sides AB, BC and CA of triangle ABC touch a circle with centre O and radius r at P, Q and R respectively. Prove that (i)  $AB + CQ = AC + BQ$

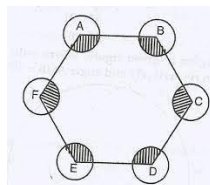
(ii)  $\text{Area}(\triangle ABC) = \frac{1}{2}(\text{Perimeter of } \triangle ABC) \times r$



15. In figure, from an external point P, two tangents PT and PS are drawn to a circle with centre O and radius r. If  $OP = 2r$ , show that  $\angle OTS = \angle OST = 30^\circ$



16. A chord of a circle of radius 15 cm subtends an angle of  $60^\circ$  at the centre. Find the areas of the corresponding minor and major segments of the circle. (Use  $\pi = 3.14$  and  $\sqrt{3} = 1.73$ )
17. An arc of a circle is of length  $5\pi$  cm and the sector it bounds has an area of  $20\pi$  cm<sup>2</sup>. Find the radius of the circle.
18. A ceiling fan has three wings as shown in the figure. Find the length of arc described between two consecutive wings, where length of each wing is 0.98 m.
19. A Sonar system is deployed in a maritime environment to detect and alert submarines about potential underwater obstacles. The Sonar covers a sector with a central angle of  $120^\circ$  and has a maximum detection range of 3 km under water. Approximately, how much area is covered by the sonar during the monitoring period?
20. ABCDEF is a regular hexagon. With vertices A, B, C, D, E and F as the centres, circles of same radius 'r' are drawn. Find the area of the shaded portion shown in the given figure.



**SOCIAL  
SCIENCE**

Prepare an Inter Disciplinary Project on the Theme: **India and the Global Economy: Past and Present**

**Project Topics (Choose ONE or combine them creatively):**

**1. Journey of Indian Economy from Colonization to Globalization**

- Trace economic changes from the British era to post-1991 liberalization.
- Highlight India's trade links in the past and present.

**2. Role of Transport and Communication in Connecting India to the Global Market**

- Explore how roads, railways, ports, and communication helped integrate India's economy with the world.
- Map-based presentation of key routes and trade hubs.

**3. Impact of Globalisation on Indian Farmers, Workers, and Consumers**

- Study the impact of globalization on Indian farmers, workers, and consumers through real-life case studies — highlighting both positive and negative effects.
- Include a simple survey or interview with a local farmer, shopkeeper, or small business owner (if possible) to understand real-world experiences with globalization.

**Project Format:**

- Prepare a project file.
- Use A4 size paper only.
- Project should be Art Integrated.
- Paste pictures and graphs wherever necessary.
- Project length: 6 to 8 pages

**SCIENCE**

**BIOLOGY**

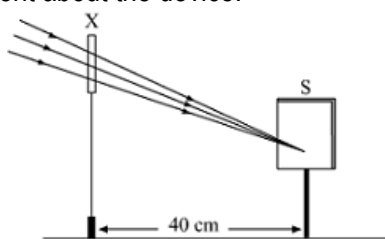
**Answer the given competency based questions in your biology notebook.**

1. A student accidentally blocked the trachea of a frog during dissection.  
(a) Which life process would be immediately affected?  
(b) Explain how this would affect the organism's survival.
2. During intense exercise, a person may experience muscle cramps.  
(a) Explain the cause of this pain.  
(b) How can it be relieved?
3. A child accidentally touches a sharp object and immediately withdraws his hand.  
(a) Name the type of response shown.  
(b) Explain the pathway involved in this action.
4. A gardener notices that his sunflower plants always face towards the sunlight.  
(a) Name the type of movement shown by the plant.  
(b) Which plant hormone is responsible for this movement?
5. In a biology experiment, a student cut a piece of Bryophyllum leaf and planted it in moist soil. After a few days, new plantlets appeared from the edges of the leaf.  
(a) What type of reproduction is this?  
(b) Name one advantage and one disadvantage of this method.

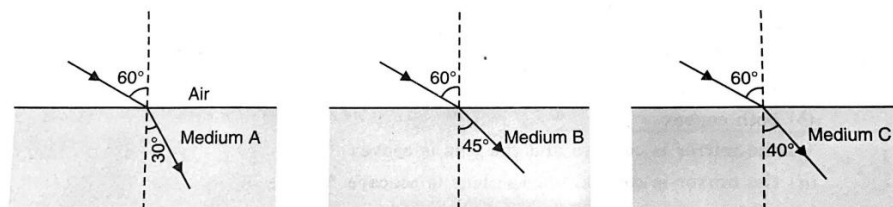
**PHYSICS**

**Answer the following questions in your Physics notebook.**

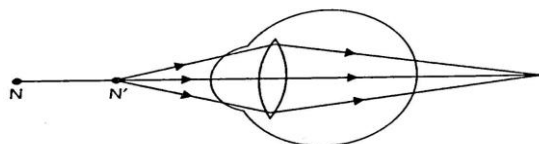
1. A student focused the image of a distant object using a device 'X' on a white screen 'S' as shown in the figure. If the distance of the screen from the device is 40 cm, select the correct statement about the device.



2. (a) A hypermetropic person prefers to remove his spectacles, while driving. Give reason.  
(b) What is meant by accommodation of eye? Name the part of the eye which helps in this phenomenon and state how it helps.
3. The path of light ray from air to three different media A, B and C for given angle of incidence is shown below. Study the diagrams and answer the following questions:



- (i) Which of the three media A, B and C has maximum optical density?
  - (ii) Through which of the three media, will the speed of light be maximum?
  - (iii) Will the light travelling from A to B bend towards or away from the normal?
  - (iii) Will the refractive index of B relative to C be more than unity or less than unity?
4. Study the diagram and answer the questions that follow it:



- (i) Which defect of vision is represented in this case? Give reason for your answer.
  - (ii) What could be the two causes of this defect?
  - (iii) With the help of a diagram show how this defect can be corrected by the use of a suitable lens.
5. (a) An object is kept in front of a concave mirror of focal length 20 cm. The image formed is three times the size of the object. Calculate the two possible distances of the object from mirror.
- (b) One – half of the convex lens is covered with a black paper. Will this lens produce a complete image of the object? Give reason.
- (c) A concave lens of focal length 15 cm forms an image 10 cm from the lens. How far is the object placed from the lens? Draw the ray diagram.

## CHEMISTRY

Research and answers the following questions as per the format given at the end.

### 1. The Chemistry Behind Fireworks

- What are the main components of fireworks?
- What roles do the following substances play in fireworks:
- Potassium nitrate, Charcoal, Sulfur, Strontium salt Barium salts
- How do oxidizers and reducers work together to produce explosions and colors?

### 2. Colors in Fireworks – Flame Test Research

- Research how metal salts produce different flame colors when burned.
- Make a table listing at least 5 metal salts and the color they produce.
- Explain the concept of electrons getting excited and emitting light in flame tests.

### 3. Diwali and Air Pollution – Chemical Perspective

- List the major gases and particles released from bursting crackers.
- Example: Carbon monoxide, sulfur dioxide, PM2.5, etc.
- Write the chemical equations for the formation of 2 harmful gases.
- What are the short-term and long-term effects of these pollutants on human health and the environment?

### 4. Green Crackers – The Eco-Friendly Alternative

- What are green crackers and how are they different chemically from traditional ones?
- Which Indian research organization developed green crackers?
- Name at least 2 types of green crackers and their chemical benefits.
- How can green crackers help reduce pollution?

### 5. Chemistry in Diya Lighting (Combustion Reaction)

- Write the chemical equation for the combustion of mustard oil or ghee.
- Explain the types of chemical reactions involved (e.g. combustion, exothermic).
- What is the role of oxygen in this reaction?

### General Format

#### 1. Use a Separate Notebook or A4 Sheets

You may use your Chemistry notebook or staple A4 sheets neatly together.  
If handwritten, write neatly in blue or black ink.

#### 2. Heading and Subheadings

Write each question number and title clearly.  
Use headings and bullet points for better presentation.

#### 3. Length of Answers

Short questions: 3–5 lines.  
Long answer questions: 100–150 words (1–2 paragraphs).  
Use your own words as much as possible.

#### 4. Tables & Diagrams

Include tables wherever comparisons or lists are required (e.g., metal salts and colors).  
Draw neat diagrams or flowcharts with proper labels using a pencil and ruler.

HINDI

\* निम्नलिखित में से किन्हीं एक विषय पर परियोजना कार्य अपनी नोटबुक में तैयार कीजिए।  
(1) भारत के नक्शे पर वे स्थान अंकित कीजिए जहाँ चाय की पैदावार होती है। इन स्थानों से संबंधित भौगोलिक स्थितियों और अलग-अलग जगह की चाय की क्या विशेषताएँ हैं? इसका पता लगाइए और परियोजना कार्य नोटबुक में कीजिए।  
(2) आज़ाद होने के बाद सबसे मुश्किल काम है 'आज़ादी बनाए रखना' इस विषय पर अनुच्छेद लिखिए।  
(3) 'एकांकी' और 'नाटक' में क्या अंतर है? कुछ नाटकों और एकांकियों की सूची तैयार कीजिए।

GUJARATI

➤ **પ્રાચીન કવિઓ**  
નીચે આપેલા પ્રાચીન કવિ નરસિંહ મહેતા / પ્રેમાનંદ / દયારામ / ભાવણ તેનું જીવન, પરિવાર, અભ્યાસ, અને મુખ્ય કૃતિઓ વિશે લખો.  
➤ **કૃતિ વિશ્લેષણ (Work Analysis)**  
• કોઈ એક “ભજન / અખ્યાન / ગરબી” પસંદ કરો અને તેનો સાર (summary) લખો.  
• તેમાં કવિએ કોને / ક્યા પર વિશ્વાસ લખ્યો છે?  
• તે કૃતિમાં કવિ-શૈલી કેવી છે (ભક્તિ, ભાવ-ભીરુ, લોકશૈલી, ઉપમાઓ - સ્વરૂપ, બોલભાષા)?  
➤ **તુલનાત્મક અભ્યાસ (Comparative study)**  
• બે કવિઓની તુલના કરો. જેમ કે, નરસિંહ મહેતા અને પ્રેમાનંદ.  
• બંનેની રચનાઓમાં ભાષા / વિષય / ભાવસંપદાને કેમ ઉપયોગ કર્યો છે.

INFORMATION  
TECHNOLOGY

#### **Chapter 4: Analyse Data Using Scenarios and Goal Seek (Page 113)**

- Mr Gurdeep wants a loan of Rs. 10 lakhs and can pay Rs. 20,000 per month for 15 years.
  - Use **Goal Seek** to find the interest rate for this loan.
  - Use **What-If Scenario** to check what happens if he pays Rs. 10,000 per month for 25 years.
  - Use **Scenario Manager** to find the best payment case.
- Power Motors has 3 branches in Bhopal.
  - Each branch sends monthly sales of electric scooters in separate sheets.
  - Prepare a **Consolidated Sheet** that shows total and average sales of each scooter model.

#### **Chapter 5: Using Macros in Spreadsheets (Page 124)**

- Record a macro that makes the heading in cell A1 **bold and underlined**. Name it **BoldunderlineA1** and save in a new module called **Basic Formatting** inside a new library named **DocumentHeadingA1**.
- Create a macro function to calculate **Mileage** of a vehicle:  
 $\text{Mileage} = \text{Distance Travelled (km)} \div \text{Fuel Filled (liters)}$ .  
Prepare a sheet with Distance, Fuel, and Mileage columns.

#### **Chapter 6: Linking Spreadsheet Data (Page 139)**

- Create three sheets: **Jan, Feb, March** with employee attendance data (mark 'P' for present). Use the **COUNTA** function to count days present.

- |  |  |
|--|--|
|  | 2. Create a <b>Consolidated Attendance</b> sheet that totals attendance for all three months and calculates percentage attendance. |
|--|--|

**Instructions:**

- Submission of all assignment will be between 06-11-2025 Thursday to 10-11-2025 Monday.
- Internal marks will be given base on completion and timely submission of assignments.