STEPHENS

INTERNATIONAL PUBLIC SCHOOL

Holidays' Homework

Session – 2025-26

Class : 9th

General Instructions:

1. **Use assignment sheets to do all the written work.**
2. **Use a separate file (use A4 sheets) for project and activity work.**
3. **Make separate file for each subject.**
4. **Do your work neatly and beautify it.**
5. **Revise Pre Mid Term Syllabus.**

- **God gives us 24 hours in a day, let us take out a few minutes for Him and thank Him for the happy moments and also ask Him to give us strength to cope up with our difficulties.**
- **Don't be lazy and become a couch potato!! Do exercise and be fit and healthy.**
- **Reading is fun and it helps us develop our vocabulary. Make it a habit to read story books.**

Subject : English

1. **Pre-Picnic Diary Entry:**
   You are Rajesh. The night before your school picnic, write a diary entry in 100-150 words describing your excitement, planning, and expectations.
2. **First Flight Experience:**
   You are Ankit from Punjab. Describe your first journey by airplane to Mumbai in a diary entry of 100-150 words.
3. **Character Sketch:**
   Read "Iswaran the Storyteller" and write a detailed character sketch of Iswaran – his traits, behaviour and storytelling style.
4. **NukkadNatak Script:**
   Draft a script for a street play (NukkadNatak) on the theme "Importance of Mother Tongue."
5. **Creative Writing:**
   Write an original article/poem/short story reflecting creativity, thoughts or personal experiences. Make sure that the work is self-created and not copied from any source.
   Theme: Dream Big, Start Small

विषय - हिन्दी

1. आप इस ग्रीष्मावकाश में जहाँ भी घूमने जाएँ वहाँ का यात्रा वृतांत चित्र सहित लिखें।
2. भारत की कोई पाँच प्रमुख महिला पर्वतारोहियों के बारे में चित्रों सहित जानकारी एकत्रित करें।
3. पत्र के लिए ऐनवल्प बनाकर उसमें अपने छोटे भाई को सत्संगति का महत्त्व बताते हुए पत्र लिखकर डालें।
4. कोई एक स्वयं रचित कहानी को चित्रों सहित दर्शाएँ। (8 से 10 चित्र)
5. पाठ 'वैज्ञानिक चेतना के वाहक' के आधार पर भारत में किन–किन वैज्ञानिकों को नोबेल पुरस्कार मिला है? किन्हीं चार के चित्र लगाकर उनके बारे में पंक्तियाँ लिखें।
6. कोई दस ज्ञानवर्धक सुझाव (सुविचार) आकर्षक रूप में लिखकर लाएँ।

Subject : Mathematics

Q1. Rationalise the denominator of: $\frac{5}{\sqrt{3}+\sqrt{2}}$.

Q2. Simplify using laws of exponents: $\left(\frac{3^2 \times 4^2}{3^3}\right)^2$

Q3. Write the number 0.00027 in standard form.

Q4. Evaluate: $(2^{-3} \times 4^2) \div 8$

Q5. Expand using identities: $(2x + 3)^2$

Q6. Factorise: $x^2 - 16$

Q7. Use the identity $(a + b)^2 = a^2 + 2ab + b^2$ to expand: $(5x + 2)^2$

Q8. Factorise: $x^2 + 5x + 6$

Q9. Plot the points A(2, 3), B(4, 3), and C(2, 6) on a graph. What type of figure do they form?

Q10. Find the perpendicular distance of the point (4, 3) from the x-axis.

Q11. Find the coordinates of a point that lies on the y-axis and is 5 units away from the origin.

Q12. Frame a linear equation: The sum of two numbers is 15. One number is 5 more than the other.

Q13. Form an equation: A number decreased by 7 is equal to twice the same number.

Q14. Frame a linear equation from the statement: The cost of 3 pens and 2 pencils is ₹40. The cost of a pen is x and a pencil is y.

Q15. Solve the linear equation: $3x - 4 = 2x + 1$

LAB MANUAL ACTIVITIES

1. To make a square root spiral by paper folding.
2. To verify the identity $(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$, using cuboids and unit cubes.
3. Intercepts of equidistant parallel lines.

PROJECT

1. Investigation of various historical aspects of the number π (pi).

Subject : Science

PHYSICS

Section – A

Solve the following numericals:-

1. **Calculating Force:**
   A cricket ball of mass 150 g is accelerated from rest to a velocity of 20 m/s in 0.5 s. Calculate the magnitude of the force applied to the ball.
2. **Change in Momentum:**
   A car of mass 1200 kg is moving with a velocity of 30 m/s. When brakes are applied, it comes to rest in 5 seconds. Calculate the change in momentum of the car.
3. **Newton's Second Law:**
   A constant force acts on an object of mass 5 kg for a duration of 2 seconds. It increases the object's velocity from 3 m/s to 7 m/s.
   (a) Calculate the magnitude of the applied force.
   (b) If the force were applied for a duration of 5 seconds, what would be the final velocity of the object?
4. **Recoil Velocity:**
   A bullet of mass 20 g is horizontally fired with a velocity of 150 m/s from a pistol of mass 2 kg. What is the recoil velocity of the pistol?
5. **Force and Acceleration:**
   A force of 10 N acts on an object of mass 2 kg.
   (a) What is the acceleration produced?
   (b) If the same force acts on an object of mass 4 kg, what will be its acceleration?
6. **Momentum Conservation in Collision:**
   Two trolleys, A and B, of masses 1 kg and 2 kg respectively, are moving towards each other with velocities of 5 m/s and 2 m/s respectively. They collide and stick together. What is their common velocity after collision?
7. **Balanced and Unbalanced Forces:**
   A block of wood of mass 500 g is pushed on a horizontal surface with a force of 10 N. If the frictional force acting on the block is 2 N, what is the net force acting on the block? What is the acceleration of the block?
8. **Impulse:**
   A bat exerts a force of 100 N on a cricket ball for 0.05 seconds.
   (a) Calculate the impulse imparted to the ball.
   (b) If the mass of the ball is 160 g, what is the change in its velocity?

Section – B

Activity/Practical Based Question:

Title: Investigating Newton's First Law of Motion (Law of Inertia)

Objective: To observe and demonstrate the concept of inertia of rest and inertia of motion.

Materials Required:

* A smooth table or flat surface
* A small coin (e.g., ₹5 coin)
* A playing card (or a stiff piece of cardboard, credit card size)
* A glass tumbler or a small cup

Procedure:

* Inertia of Rest:
* Place the playing card horizontally over the mouth of the glass tumbler.
* Place the coin exactly in the center of the playing card, directly above the opening of the glass.
* Now, with a quick and sharp flick of your finger, strike the playing card horizontally. Observe what happens to the coin and the card.
* **Question:** Explain your observation in terms of inertia of rest. Why did the coin fall into the glass and not move with the card?
* Inertia of Motion (Demonstration Idea - No actual experiment needed for this part, just a thought experiment/discussion):
* Imagine you are standing in a bus that suddenly applies brakes. What happens to your body?
* Imagine you are standing in a bus that suddenly starts moving forward. What happens to your body?
* **Question:** Explain these common experiences using the concept of inertia of motion.

Viva Voce Questions (to be considered during discussion):

* What is inertia?
* Give two everyday examples of inertia that are not discussed in this activity.
* How is mass related to inertia?
* Can inertia be completely eliminated? Why or why not?

Section – C

Working models:-

Roll no. (1-7)

1. Momentum Conservation

   Project Title: "Newton's Cradle (Simplified)"

   Concept: In an isolated system, the total momentum remains constant.

   Materials:

   * Wooden frame or two sturdy uprights
   * String or fishing line
   * Identical marbles or small steel balls (at least 5)
   * Adhesive tape or super glue

   Procedure:

   * Construct a frame from which you can hang the marbles.
   * Cut equal lengths of string for each marble.
   * Attach two strings to each marble, forming a 'V' shape, to ensure they swing in a straight line.
   * Hang the marbles side-by-side, ensuring they are just touching each other at rest.

* Lift one marble from one end and let it swing to hit the row.

Observe what happens.

* Repeat by lifting two marbles, then three.

Expected Outcome:

* One marble swings in, one marble swings out from the other end.
* Two marbles swing in, two marbles swing out.
* The same number of marbles that hit swing out from the other side.

Explanation: This demonstrates the conservation of both momentum and kinetic energy during elastic collisions. When one marble hits, its momentum is transferred through the stationary marbles to the last one, which then moves with almost the same momentum.

Roll no. (8-14)

(2) Sound:

Homemade Stethoscope (Sound Transmission):

Concept: Illustrates how sound vibrations can be transmitted through a solid medium and amplified.

Materials: Two funnels, a long rubber tube, tape.

How it works: Connect the funnels to each end of the rubber tube. Place one funnel on a surface where sound is being produced (e.g., someone's chest) and listen through the other.

Working Model Aspect: Shows how sound travels and can be directed.

Roll no. (15-21)

3. String Telephone (Sound Vibrations):

Concept: Demonstrates how sound travels through vibrations in a solid medium (the string).

Materials: Two paper cups, a long piece of string, a needle.

How it works: Poke a small hole in the bottom of each cup. Thread the string through the holes and tie knots to secure. Speak into one cup while someone listens through the other, keeping the string taut.

Working Model Aspect: Simple, direct demonstration of sound transmission.

Roll no. (22-28)

4. Light:

Periscope (Reflection of Light):

Concept: Explains how light reflects off mirrors to allow you to see over or around obstacles.

Materials: Cardboard box/milk carton, two small plane mirrors, tape/glue, scissors.

How it works: Cut openings in the box and position the mirrors at 45-degree angles to each other, facing inwards. Light enters one mirror, reflects down to the second, and then out to your eye.

Working Model Aspect: Clearly shows the path of light through reflection.

Roll no. (28-33)

5. Pinhole Camera (Rectilinear Propagation of Light & Image Formation):

Concept: Demonstrates that light travels in straight lines and how an inverted image is formed when light passes through a small aperture.

Materials: Cardboard box (e.g., shoe box), tracing paper or wax paper, black paint/paper, needle/pin, tape.

How it works: Blacken the inside of the box. Make a tiny pinhole on one end. Cover the opposite end with tracing paper. Point the pinhole at a bright object and observe the inverted image on the tracing paper.

Working Model Aspect: Visually proves light's straight-line travel and image formation.

Roll no. (33-40)

5. Energy:

Water Wheel (Potential and Kinetic Energy Conversion):

Concept: Illustrates the conversion of potential energy (of water) into kinetic energy (of the rotating wheel) and then into mechanical energy.

Materials: Plastic bottle/cup, wooden skewers/dowel, plastic spoons (for paddles), strong wire/string, a bucket of water.

How it works: Construct a wheel with paddles. Position it so that falling water from a height hits the paddles, making the wheel spin.

Working Model Aspect: Shows a practical application of energy transformation.

Simplicity: Keep the design simple and use readily available materials.

Clear Concept: Ensure the model clearly demonstrates the intended physics principle.

Explanation: Prepare a brief explanation of how the model works and what physics concepts it illustrates.

* Safety: Always prioritize safety, especially when using sharp objects or heat.
* Labeling: Label parts if it helps in understanding the function.
* Aesthetics: A neat and well-presented model is always appreciated.

CHEMISTRY

Q1. Write the name, atomic number, atomic mass, symbol, Latin name, electronic configuration, valency of first 20 elements.

Q2. Write the formula and valency of the polyatomic ions.

(a) Ammonium
(b) Hydroxide
(c) Nitrate
(d) Nitrite
(e) Carbonate
(f) Sulphite
(g) Sulphate
(h) Phosphate

Note- You can take help from NCERT book (Ch- Atoms and molecule Table 3.6)

Q3. Making of the Modern Periodic Table (Flow Chart Representation)

Description: Create a colourful chart of Modern Periodic Table highlighting groups, periods, and element and properties.

PROJECT

Make a 3D model of structure of atom (Any one)

(a) Carbon
(b) Oxygen
(c) Sodium
(d) Aluminium
(e) Phosphorous

BIOLOGY

Section – A

Agriculture in News – Scrapbook

Topic: Tracking News Articles on Agriculture

Instructions:

- Collect 5-7 newspaper clippings or printouts related to agriculture and food production (Indian or global).
- Stick them in a scrapbook or file.
- Write a 2–3 line summary under each article.
- At the end, write: "What are the main issues farmers are facing today" on your own from the articles you've pasted, as per your understanding.

Submission Guidelines:

- Neatly present your work in a folder or file.
- Mention your name, roll number, and class clearly.
- Be original – use your own words and creativity.

Section – B

PRACTICALS

1. Preparation of stained temporary mounts of (a) onion peel, (b) human cheek cells & to record observations and draw their labelled diagrams.
2. Identification of Parenchyma, Collenchyma and Sclerenchyma tissues in plants, striped, smooth and cardiac muscle fibers and nerve cells in animals, from prepared slides. Draw their labelled diagrams.

Note:

- **Write all the practicals of Section B in practical files.**

Subject : Social Science

1. Write down the steps that can be taken by Central Government of India to ensure and tackle food security in India during pandemic [Refer to chapter – 4 (Economic) Food Security in India]
2. Explain the meaning of Poverty, Social Exclusion and Vulnerability.
   Make a photo collage on the chapter – 'Poverty as Challenge'.
3. Prepare 3D model of the map showing
   (i) Ganga **(For Roll No. 1 to 10)**
   (ii) Satluj **(For Roll No. 11 to 20)**
   (iii) Narmada **(For Roll No. 21 onwards)**
4. **General Questions**
   1. From which place does river Brahmaputra originate?
   2. What do Himalayan rivers do in the middle and lower course?
   3. Why are peninsular rivers called seasonal river?
   4. What are the regulations of Indus Water Treaty of 1960?
5. Write a note on five programmes that have been developed for the eradication of poverty in India.
6. Project– Prepare a detailed project report on Disaster Management

Subject : Information Technology

DIGITAL INDIA MISSION:

Prepare a digital presentation on the Digital India Mission launched by the government of India. Your presentation should include:

- Objectives of the Digital India initiative
- Benefits of the mission for citizens and society
- Key initiatives under the mission like (Digilocker, UMANG, BHIM, etc.)
- Relevant images, videos or screenshots of government portals
- Use consistent formatting, slide design, and appropriate animations/ transitions.

INSTRUCTIONS:

- Create 6 to 8 well-organized slides
- Keep the content informative and visually appealing
- Focus on clarity, layout, and presentation style

Note:-Take print out of all the pages and compile it in a folder. Design an attractive cover for your file / folder.

Subject : Art

- **Make a beautiful decor using seashell and sippy.**