

BISHOP SCOTT GIRLS' SCHOOL

Jaganpura, Brahmpur, Patna –27

(Affiliated to CBSE, New Delhi Up to 10+2)



SUMMER HOLIDAY HOMEWORK

Class – XI (Science)

Session: 2026 – 27

Date of Submission: 18.06.2026

Dear Students,

As the summer vacation begins, I would like to wish all of you a joyful, healthy, and refreshing break. Vacations are not only meant for relaxation and enjoyment but also provide an excellent opportunity to learn new things, improve skills, and strengthen your knowledge.

Your holiday homework has been carefully prepared to help you revise the topics studied in class and to keep you connected with your learning process during the vacation. The purpose of this work is not just to complete assignments, but to encourage creativity, critical thinking, self-study, and discipline. I expect each one of you to complete your work sincerely, neatly, and within the given time.

Remember that learning does not happen only inside the classroom. Develop the habit of reading newspapers, magazines, and good books. Stay updated with current affairs, improve your vocabulary, and try to explore concepts beyond your textbooks. Make short notes wherever possible, as they will help you in future studies as well.

Along with studies, it is equally important to take care of your health and well-being. Spend quality time with your family, help your parents in small household activities, maintain a healthy daily routine, and participate in physical activities or sports to stay active and energetic. Also, avoid wasting too much time on mobile phones, television, or social media. Use technology wisely for learning and self-improvement.

I would also encourage you to follow a proper timetable during the holidays so that you can balance studies, hobbies, relaxation, and recreation effectively. Try to learn something new during this vacation, whether it is a new skill, a good habit, or a creative activity.

Please make sure that all holiday homework is completed properly and submitted on time after the school reopens. Incomplete or untidy work reflects a lack of seriousness, so do your best and present your work with pride.

May this summer vacation bring happiness, positivity, confidence, and new experiences into your life. Stay safe, stay healthy, and continue learning with enthusiasm.

Wishing you and your family a very Happy Summer Vacation!

Regards,

Bishop Scott Girls' School

ENGLISH CORE (Code-301)

1. Write a diary entry from the grandmothers perspective on the day the narrator left for abroad(120-140 words)
Include:
Her emotions
Her thoughts about changing time
Her silent love.

2. Interview your grandmother / grandfather or any elderly relative of your family. Ask the following questions.
 - a) Name of their school
 - b) Educational qualification.
 - c) Which games they played
 - d) Childhood dreams
 - e) do they feel lonely
 - f) How do they spend their free time?

Any other relevant questions.

3. Look at an old family photograph.
What details you notice first
What emotions does it evoke?
4. Stick a picture of any holiday spent with your family. What were your happy moments? (120-140 words)
5. If you were to have an exotic animal as a pet what will it be? How will you take care of it? (120-140 words)
6. Design a poster (half chartpaper) about the 'Sports Day' celebration in your school.
7. Write a review of any good English book which you have read recently. Format to be discussed in class. (120-140 words)
8. Use the following idioms in sentence of your own
 - a) Hit the nail on the head
 - b) Under the weather
 - c) Down the midnight oil
 - d) Cast and arm and a leg
 - e) Sit on the fence next
 - f) in sixes and sevens
 - g) At loose ends
 - h) Call it a day
 - i) Get your act together
9. Research: -Find out about Armenia and about Gharoglanian tribe.
10. You come across an old photograph of a person who is no more but you have beautiful memories with that person. Share those memories . (120-140 words)
11. **Short Story** Use these points to build up your story.(120-140 words)
Hiking.....forest.....four friends.....white horse.....adventure

12. After his grandmother's demise Khushwant Singh writes a letter to his friend . He pens down all his memories. As Khuswant Singh write that letter.
13. Imagine you are Suzanne. You went through a harrowing experience on 2nd January when Wave Walker nearly capsized. What did you feel?
Write a diary entry about what all happened on that day (120-140 words).
14. Burn the midnight oil
Cost an arm and a leg
Rectify the idiom
15. Read any newspaper editorial for five consecutive days and answer
 - a) What is the central issue discussed?
 - b) Write five new vocabulary words from each editorial and use them in a sentence
 - c) Do you agree with the writer's opinion?

MATHEMATICS (041)

1. In a class of 60 students, 25 students play cricket, 20 students play tennis and 10 students play both the games. Then, the number of students who play neither is :
(a) 0 (b) 25 (c) 35 (d) 45
2. Two finite sets have m and n elements. The number of subsets of the first set is 112 more than that of second set. The values of m and n are, respectively :
(a) 4, 7 (b) 7, 4 (c) 4, 4 (d) 7, 7
3. Let U be the universal set containing 700 elements. If A , B are sub-sets of U such that $n(A) = 200$, $n(B) = 300$ and $n(A \cap B) = 100$. Then, $n(A' \cap B') =$
(a) 400 (b) 600 (c) 300 (d) none of these
4. Statement – 1 (A) : If $n(A - B) = 30 + x$, $n(B - A) = 20 + 2x$, $n(A \cup B) = 100$ and $n(A \cap B) = 15 + 2x$, then $x = 7$
Statement – 2 (R) : $n(A \cup B) = n(A - B) + n(B - A) + n(A \cap B)$
(a) Statement – 1 and Statement – 2 are true; Statement – 2 is a correct explanation for Statement – 1
(b) Statement – 1 and Statement – 2 are true; Statement – 2 is not a correct explanation for Statement – 1
(c) Statement – 1 is true, Statement – 2 is false
(d) Statement – 1 is false, Statement – 2 is true
5. Let A and B finite sets. Then,
Statement – 1 (A) : $n(A \cup B) = n(A - B) + n(B - A) + n(A \cap B)$
Statement - 2 (R) : $n(A \cup B) = n(A) + n(B) - 2n(A \cap B)$
(a) Statement – 1 is true, Statement – 2 is true; Statement – 2 is a correct explanation for Statement – 1
(b) Statement – 1 is true, Statement – 2 is true; Statement – 2 is not a correct explanation for Statement – 1
(c) Statement – 1 is true, Statement – 2 is false
(d) Statement – 1 is false, Statement – 2 is true
6. Are the following pairs of sets equal? Give reasons.
(i) $A = \{2, 3\}$, $B = \{x : x \text{ is a solutions of } x^2 + 5x + 6 = 0\}$
(ii) $A = \{x : x \text{ is a letter of the word "WOLF"}\}$, $B = \{x : x \text{ is a letter of word "FOLLOW"}\}$
7. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $A = \{2, 4, 6, 8\}$ and $B = \{2, 3, 5, 7\}$.
Verify that :
(i) $(A \cup B)' = A' \cap B'$ (ii) $(A \cap B)' = A' \cup B'$
8. If $U = \{2, 3, 5, 7, 9\}$ is the universal sets and $A = \{3, 7\}$, $B = \{2, 5, 7, 9\}$, then prove that :
(i) $(A \cup B)' = A' \cap B'$ (ii) $(A \cap B)' = A' \cup B'$

9. In a class of 35 students, 24 like to play cricket and 16 like to play football. Also, each student likes to play at least one of the two games. How many students like to play both cricket and football?
10. There are 40 students in a Chemistry class and 60 students in a Physics class. Find the number of students which are either in Physics class or Chemistry class in the following cases :
 - (i) the two classes meet at the same hour
 - (ii) the two classes meet at different hours and 20 students are enrolled in both the subjects
11. In a survey of 100 students, the number of students studying the various languages were found to be English only 18, English but not Hindi 23, English and German 8, English 26, German 48, German and Hindi 8, no language 24. Find the number of students who were studying (i) Hindi (ii) English and Hindi (iii) English, Hindi and German
12. Find the differentiation of :
 - (i) $e^x \sin x$
 - (ii) $x^4 \tan x$
 - (iii) $\sin(\cos \tan x^4)$
13. Solve the following quadratics :
 - (i) $x^2 + x + 1 = 0$
 - (ii) $21x^2 - 28x + 10 = 0$
14. Find the values of :
 - (i) $\tan 15^\circ$
 - (ii) $\cos 105^\circ$
 - (iii) $\sin 75^\circ$
15. Find the radian measure corresponding to the following degree measure :
 - (i) 340°
 - (ii) $40^\circ 20'$

Complete Exercise 1.1, 1.2 & 1.3 NCERT

Activity 1 : To find the number of subsets of a given set and verify that if a set has n number of elements, then the total number of subset is 2^n .

PHYSICS (Code-042)

A. Activity-Based Questions

1. Measure the length, breadth, and thickness of a book and calculate its volume. Write the units and dimensions of volume. (Use NCERT Physics Part 1)
2. Use a stopwatch to measure time taken for a small activity (like walking 10 m). Find speed and its dimensional formula.
3. Observe different physical quantities around you (mass, time, length) and classify them into fundamental and derived quantities.
4. Take a simple formula like velocity $v = d/t$ and verify its dimensional consistency.
5. Plot a rough graph of distance vs time for uniform motion and identify slope.

B. Concept-Based Questions

6. What are dimensions? Write dimensional formula of: (a) Force (b) Energy (c) Pressure
7. What is the principle of homogeneity of dimensions? Why is it important?
8. Differentiate between fundamental units and derived units with examples.
9. What is differentiation in basic mathematics? Explain its physical meaning in physics.
10. Define instantaneous velocity. How is it related to differentiation?

C. Numerical / Critical Thinking Questions

11. Check whether the equation $v = u + at$ is dimensionally correct.
12. If force $F = ma$, find its dimensional formula.
13. Find the derivative of $x^2 + 3x + 5$ and interpret its physical meaning if x represents displacement.
14. If $s = t^3$, find velocity using differentiation.
15. A quantity is given by $P = F/A$. Check its dimensional formula and verify correctness.

CHEMISTRY (Code – 043)

1. Calculate the number of atoms present in 52 moles of Argon.
2. Why is the molality of a solution preferred over molarity in experimental chemistry conducted at varying temperatures?
3. Define Limiting Reagent. In a reaction $A + B_2 \rightarrow AB_2$, identify the limiting reagent if 5 moles of A react with 2.5 moles of B.
4. State the main postulates of Bohr's Model of an atom. How does it overcome the limitations of Rutherford's model?
5. How many electrons, protons, and neutrons are present in the species $^{31}_{15}\text{P}^{-3}$?
6. A solution is prepared by adding 2 g of a substance A to 18 g of water. Calculate the mass percent of the solute.
7. Commercially available concentrated hydrochloric acid contains 38% HCl by mass. What is the molarity of the solution if the density is 1.19 g/mL?
8. Calculate the amount of water (g) produced by the combustion of 16 g of methane.
9. Calculate the energy associated with the first orbit of He^+ . What is the radius of this orbit?
10. What is the wavelength of light emitted when the electron in a hydrogen atom undergoes a transition from an energy level with $n = 4$ to $n = 2$?
11. If 10 volumes of dihydrogen gas react with 5 volumes of dioxygen gas, how many volumes of water vapour would be produced? Justify using Gay Lussac's Law.
12. "Rutherford's atomic model is like a solar system, but it contradicts classical electromagnetic theory." Elaborate on why a stable atom was a challenge for Rutherford's design.
13. Welding fuel gas contains carbon and hydrogen only. Burning a small sample of it in oxygen gives 3.38 g carbon dioxide and 0.690 g of water. A volume of 10 L (at STP) of this welding gas is found to weigh 11.6 g. Find the molecular formula.
14. Explain why Bohr's theory is not applicable to the Helium atom (He), but is applicable to the Helium ion (He^+). Also, calculate the velocity of an electron in the first Bohr orbit of a hydrogen atom.
15. Density of a 3M solution of NaCl is 1.25 g/mL. Calculate the molality of the solution. (Atomic mass: Na=23, Cl=35.5).

Instruction for Students:

- Show clear step-by-step calculations for numerical problems.
- Mention units (g/mol, mol/kg, m, nm) wherever applicable.
- For Bohr's and Rutherford's theories, use diagrams to support your explanations.
- To be done in Homework Notebook.

BIOLOGY (Code-044)

1. A plant in your school garden shows fibrous roots and parallel venation. Identify whether it is monocot or dicot and justify your answer.
2. While observing plants, you notice different leaf arrangements. Identify the type of phyllotaxy in three plants around you and explain each.
3. During a lab activity, you are given two root samples. Differentiate between tap root and fibrous based on observation and function.
4. You are given a flower specimen with no petals but strong fragrance. Suggest how it attracts pollinators and explain the adaptation.

5. During a biodiversity survey, you are asked to group organisms. Use taxonomical hierarchy to classify any one organism up to species level.
6. Explain the importance of classification in biology with two advantages.
7. Define species and explain its importance in biological classification.
8. Differentiate between taxonomy and systematics with suitable examples.
9. Explain racemose and cymose inflorescence based on growth pattern and order of flowering.
10. Explain binomial nomenclature rules used for naming organisms.
11. Two organisms belong to the same genus but different species. Analyze their similarities and differences in terms of evolution.
12. A plant develops thorns instead of normal leaves or stems. Explain the adaptive significance of such modifications.
13. A fruit develops without fertilization. Identify the phenomenon and discuss its advantages and disadvantages.
14. A botanist describes a flower as actinomorphic, bisexual, and pentamerous. Analyze what these terms indicate about the plant's structure and classification.
15. Variations are observed within members of the same species. Explain how this variation helps in survival under changing environmental conditions.

PHYSICAL EDUCATION (Code-048)

1. Make a list of college and university for physical education and courses available there.
2. Write Detail information about NIS.
3. What are New technologies introduced in sports? Write down the name and benefits.
4. Write about the women's participation in sports.
 - Make list of female athletes
 - sports
 - Achievements.
5. Write a short note on Olympics.
 - Olympics flag
 - Motto
 - Olympic flame
6. Write short note on
 - Paraolympics
 - Special Olympics
7. Explain Yoga as an Indian heritage. What are all 8 components of yoga?
8. What is SAI India fitness test. Do assessment of 5 children near you.
9. Make an IPL DAIRY.
10. Make list of sports awardee list of 2026.
11. Read a news paper and collect all the information national and international tournament.
12. Make a daily personnel fitness log. (exercise and physical activity)
13. Make record file for annual exam
 - Practical-1: Fitness tests administration. (SAI Khelo India Test)
 - Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease.
 - Practical-3: Any one IOA recognized Sport/Game of choice. Labelled diagram of Field & Equipment. Also, mention its Rules, Terminologies & Skills.

14. List the host cities and years of the Olympic Games in a chart format.
15. Identify the three Summer and two Winter Olympics that were cancelled, and explain the circumstances behind their cancellation.

INFORMATICS PRACTICES (Code-065)

Instructions:-

- All programs must be written in Python language.
 - Use proper indentation in your code.
 - Take input from user using input() function.
 - Display output using print() function.
 - Use simple if-else conditions wherever required.
 - Write each program clearly with proper spacing.
 - Add comments in your code to explain logic.
 - Avoid syntax errors and write clean code.
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1. School in your city is giving admission to new students.
The rule is that a child must be at least 5 years old.
Take age as input and check whether the student can get admission or not.
 2. During summer, temperature is recorded every day.
If the temperature is more than 30°C, it is considered a hot day.
Take temperature as input and display whether the day is hot or normal.
 3. In a bus, seat numbers are given to passengers.
All even-numbered seats are window seats.
Take a seat number as input and check whether it is a window seat or not.
 4. A student appears in an exam conducted by the school.
To pass, the student must score at least 33 marks.
Take marks as input and display whether the student passed or failed.
 5. A person goes to a bank ATM to withdraw money.
If the withdrawal amount is less than or equal to the balance, the transaction is allowed.
Otherwise, show "Insufficient Balance".
 6. A mobile phone shows battery percentage to the user.
If the battery is less than 20%, the phone should display a warning.
Take battery percentage as input and show appropriate message.
 7. An electricity board charges consumers based on units used.
If units are up to 100, rate is rs 5 per unit, otherwise rs 10 per unit.
Take units as input and calculate the total bill.
 8. A shop offers discount on shopping during a sale.
If the total amount is more than ₹500, a 10% discount is given.
Take the amount as input and calculate final payable amount.
 9. The government allows only adults to vote in elections.
A person must be 18 years or older to vote.
Take age as input and check whether the person can vote or not.
 10. Traffic police monitor the speed of vehicles on the road
If a vehicle's speed is more than 60 km/h, a fine is charged.
Take speed as input and display whether fine is applicable or not.

11. A contractor is measuring a room for construction work.
The length and breadth must be greater than zero.
Take both values as input and check whether they are valid or not.
12. A company gives bonus to employees based on salary.
If salary is more than ₹20,000, a 20% bonus is given.
Take salary as input and display whether bonus is given or not.
13. A teacher gives a number to a student for checking.
The student needs to check whether the number is divisible by 5.
Take a number as input and display the result.
14. In winter, very low temperatures can be dangerous
If the temperature is below 10°C, show "Very Cold".
Otherwise, display "Normal".
15. The calendar system includes leap years for adjustment.
A year is a leap year if it is divisible by 4.
Take a year as input and check whether it is a leap year.

ECONOMICS (Code-030)

Section A: Statistics for Economics (Unit 1)

1. Define Statistics in both singular and plural senses. Explain one major difference between the two.
2. "All statistics are data, but all data are not statistics." Justify this statement with a suitable example.
3. List and briefly explain any three functions of Statistics in the field of Economics.
4. Why is the distinction between 'Quantitative' and 'Qualitative' data important for an economist? Give one example of each.
5. Identify and explain two major limitations of Statistics. Why can it sometimes be considered "distrustful"?
6. How does Statistics help in formulating government policies? Provide a real-world scenario (e.g., poverty or unemployment).
7. Describe the role of a "Scarcity" in the context of Statistics. How does the choice of data collection help in solving economic problems?

Section B: Microeconomics (Unit 1)

8. What is an Economy? Distinguish between a Centrally Planned Economy and a Market Economy based on the objective of production.
9. Define Scarcity. Why is scarcity considered the "root cause" of all economic problems?
10. Explain the Problem of Choice. List the three fundamental economic problems that every society faces.
11. Differentiate between Microeconomics and Macroeconomics. Provide two examples of study for each branch.
12. What is a Production Possibility Curve (PPC)? Draw a rough sketch of a PPC and explain why it is typically concave to the origin.
13. Define Opportunity Cost with the help of a numerical example involving two goods (e.g., Rice and Wheat).
14. Distinguish between Positive Economics and Normative Economics. Classify the following statement: "The government should provide basic healthcare to all citizens."
15. What happens to the Production Possibility Frontier (PPF) when:

There is an advancement in technology for both goods.

There is a loss of resources due to a natural calamity.

Section C: Project Work

As discussed in the class from CBSE Academics Syllabus 26-27. (PDF is shared in the WhatsApp Group.)

Homework Guidelines:

Presentation: Answer the questions in a dedicated assignment folder or homework notebook.

Diagrams: Use a pencil and ruler for the PPC diagram. Label the axes clearly (Good X and Good Y).