



Maheshwari Public School

Jawahar Nagar, Jaipur

A Prestigious Co-Educational English Medium School

Governed by The Education Committee of The Maheshwari Samaj Society, Jaipur

Affiliated to CBSE, Delhi , Affiliation No. 1730004

It's summertime when faces light up with a smile as holidays are about to begin.

It's time for the children to feel free, unbound, high-spirited but safe at home.

Summer break is a vacation time students eagerly await for. So, now is the time to unlock the days creatively making the most while at home. So, adopt a herb, a house plant or a flower, bake a cake, sing-along, paint and draw and compose your own song or take up your hobby as the school announces the summer vacation.

To ensure that the children have a constructive holiday, some holidays' homework & projects have been given which will keep the child active and observant. These projects can easily be done by the children and parents could assist only where required. You can download the Holidays' Homework from the school website for your convenience and in case of any clarification, you may contact the teacher concerned as it shall be a part of the internal assessment.

Stay safe, stay healthy!

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HOLIDAY HOMEWORK

Session-2023-24

Class-12

GENERAL INSTRUCTIONS

1. All the assignments have to be done in the respective subject notebook / A4 size sheet or as instructed by the teacher.
2. Work should be neat and tidy.

Assignment should be according to the given guidelines.

ENGLISH

Prepare a file and neatly answer the questions that follow:

1. You are Priya/Puneet, the Activity Captain of your school. An Inter House Debate Competition is coming up for classes 9-12. Draft a notice regarding the same for the school notice board with all necessary details. (50 words)
2. You are Rashi/ Rakshit, a student of class 12. You lost your Project File somewhere in the school campus. Draft a notice for the school notice board regarding the same. (50 words)
3. Last Sunday you visited Jawahar Kala Kendra on the inaugural day of a week long Tribal Craft Fair. Write a detailed report on the same. (timings - Chief Guest - stalls- variety - response) (150-200 words)
4. You are Vijay/ Vijaya, a resident of 127A Vinoba Nagar Jaipur -18. You feel perturbed by the complete negligence of the road safety rules by the masses. Write a letter to the Editor of a national daily expressing your concern, along with solutions. (excessive honking - jumping lanes - red light - wrong side driving - rash driving)
5. You are Suraj/ Savita, a student of class 12. For your school magazine, write an article in 150-200 words on ' The Joy of Reading has Lost its Way in the Labyrinth of Social Media'.

APPLIED MATHEMATICS

1. Prepare the following in a spread sheet (Use Microsoft Excel spread sheet or Google sheet):

S. No	Name of Activity
1.	Spread sheet simulation inverse of matrix AB is equal to product of inverse of matrix B and inverse of matrix A
2.	Simulation of solving the system of four equations in four unknowns using matrix method through spread sheet
3.	Simulation of solving the system of three equations in three unknowns using Cramer's rule through spread sheet
4.	Calculating Mean and Median for ungrouped and grouped data in spread sheet
5.	Plot the graph of quadratic functions and cubic functions on excel and study the graph to find out the point of maxima/minima
6.	Probability of dice roll simulation in spread sheet
7.	Probability of coin tossing simulation in spread sheet

8.	Collect the data on weather and analyse the data and make meaningful inferences through spread sheet
9.	Collect the data on inflation and analyse the data and make meaningful inferences through spread sheet
10.	<p>Create a simulation of the following problem in spread sheet</p> <p>Mr. Rahgav start an account with ₹P that grows $x\%$ a year. He is having an account with ₹Q that declines by $y\%$ a year, $y > x$. When will the new account overtake the old account?</p>

2. Prepare a project based on the following topics.

- Use of prime numbers in coding and decoding of messages
- Prime numbers and divisibility rules
- Logarithms for financial calculations such as interest, present value, future value, profit/loss etc. with large values)
- The cardinality of a set and orders of infinity
- Comparing sets of Natural numbers, rational numbers, real numbers, and others
- Use of Venn diagram in solving practical problems
- Fibonacci sequence: Its' history and presence in nature

- Testing the validity of mathematical statements and framing truth tables
- Investigating Graphs of functions for their properties
- Visit the census site of India. Depict the information given there in a pictorial form
- Prepare a questionnaire to collect information about money spent by your friends in a month on activities like travelling, movies, recharging of the mobiles, etc. and draw interesting conclusions
- Check out the local newspaper and cut out examples of information depicted by graphs. Draw your own conclusions from the graph and compare it with the analysis given in the report
- Analysis of population migration data - positive and negative influence on urbanization
- Each day newspaper tells us about the maximum temperature, minimum temperature, and humidity. Collect the data for a period of 30 days and represent it graphically. Compare it with the data available for the same time - period for the previous year
- Analysis of career graph of a cricketer (batting average for a batsman and bowling average for a bowler). Conclude the best year of his career. It may be extended for other players also - tennis, badminton, athlete
- Vehicle registration data - correlating with pollution and the number of accidents

- Visit a village near Delhi and collect data of various crops over the past few years from the farmers. Also, collect data about temperature variation and rain over the period for a particular crop. Try to find the effect of temperature and rain variations on various crops
- Choose any week of your ongoing semester. Collect data for the past 10 - 15 years of the amount of rainfall received in Delhi during that week. Predict the amount of rainfall for the current year
- Weather prediction (prediction of monsoon from past data)
- Visit Kirana shops near your home and collect the data regarding the sales of certain commodities over a month. Try to figure out the stock of a particular commodity which should be in the store in order to maximize the profit
- Stock price movement
- Risk assessments by insurance firms from data
- Predicting stock market crash
- Predicting the outcome of an election - exit polls
- Predicting mortality of infants

Note:

- 1. It is a sample list of projects. You can do any innovative projects other than the listed projects.**
- 2. Project should be made in Microsoft Excel or Google sheet.**

MATHEMATICS

1. Complete the following list of activities

- ❖ **Activity 1:** To verify that the relation R in the set L of all lines in a plane, defined by $R = \{(l, m): l \text{ is perpendicular to } m\}$ is symmetric but neither reflexive nor transitive.
- ❖ **Activity 2:** To verify that the relation R in the set L of all lines in a plane, defined by $R = \{(l, m): l \parallel m\}$ is an equivalence relation.
- ❖ **Activity 7:** To sketch the graphs of $y = a^x$ and $y = \log_a(x)$, $a > 0, a \neq 1$ and to examine that they are mirror images of each other.
- ❖ **Activity 8:** To establish a relationship between common logarithm (to the base 10) and natural logarithm (to the base e) of the number x .
- ❖ **Activity 13:** To understand the concepts of decreasing and increasing functions.
- ❖ **Activity 16:** To construct an open box of maximum volume from a given rectangular sheet by cutting equal squares from each corner.
- ❖ **Activity 17:** To find the time when the area of a rectangle of given dimensions become maximum, if the length is decreasing and the breadth is increasing at given rates.
- ❖ **Activity 18:** To verify that amongst all the rectangles of the same perimeter, the square has the maximum area.

❖ **Activity 20:** To verify geometrically that

$$\vec{c} \times (\vec{a} + \vec{b}) = \vec{c} \times \vec{a} + \vec{c} \times \vec{b}.$$

❖ **Activity 21:** To verify that angle in a semi-circle is a right angle, using vector method.

2. Do a project in Mathematics. Refer the following list of projects.

List of Projects

1. Project on history of Mathematicians: It may include history of Indian Mathematicians such as Aryabhata, Brahmagupta, Varahamihir, Sridhara, Bhaskar Acharya, Ramanujan etc., and history of foreign mathematicians such as Cantor, Pythagoras, Thales, Euclid, Apollonius, Descartes, Fermat, Leibnitz, Euler, Fibonacci, Gauss, Newton etc.
2. On linear Programming problems related to day-to-day life like collecting data from families of their expenditures and requirements from the factories to maximum output.
3. Collect data from dieticians, transporters, agents and formulate linear programming problems.
4. Make a chart of the formulae of applications of calculus.
5. Applications of conic sections, vectors, three-dimensional geometry, calculus, etc., in Mathematics and Physics
6. Mathematics and Chemistry: Study structure of organic compounds
7. Mathematics and Biology: Study of science of heredity etc.
8. Mathematics and Music

9. Mathematics and Environment
10. Mathematics and Arts: Construction of shapes using curves
11. Mathematics and Information and Communication Technology: Writing of Mathematical programmes, flow charts, algorithm, circuit diagrams etc.
12. Collection of statistical data and analysing it for standard deviation and mean deviation
13. Observe the various patterns and properties in Pascal's triangle and make a project.
14. Prepare a project based on the Fibonacci sequence, their properties and similar pattern found in nature.
15. Form a differential equation for the growth of bacteria in different environments.
16. Study the nature of Mathematics and make a project showing where three aspects of nature of mathematics - formalism, logic, intuition is applied in the development of mathematics.
17. Application of cavalier's principle in mathematics

Note:

It is a sample list of projects. You can do any innovative project other than the listed projects.

PHYSICS

1. PROJECT WORK: -

FOR XII BOARD PRACTICAL EXAMINATION, ONE INVESTIGATORY PROJECT IS TO BE PREPARED.

(A list of suggested Projects has been attached at the end)

INVESTIGATORY PROJECT LIST

- 1.To study the changes in velocity of a body pulled by a constant force
- 2.To study the conservation of energy of a simple pendulum using ticker -timer and tape
- 3.To study conservation of energy of a body falling freely, using ticker timer and tape
- 4.To estimate the size of molecule of an oil
- 5.To study a thermocouple and variation of its e.m.f. with temperature
- 6.To study the motion of a ball using the double inclined track /channel
- 7.To study acceleration due to gravity with the help of ball rolling down an inclined plane and by applying the correction for rotatory motion
- 8.To study the effect of nature of surface on emission and absorption of radiation
- 9.To determine the coefficient of viscosity of a given viscous liquid by measuring the terminal velocity of a given spherical body

10. To study the various factors (like distance between the electrode, concentration of electrolyte etc) on which e.m.f. of the cell depends
11. To determine the refractive indexes of various liquids by using hollow glass prism
12. To study the effect of temperature on the elasticity of rubber band
13. To study the tension on the pitch of a string
14. To study the effect of mass on terminal velocity
15. To study full wave, half wave and bridge rectifier
16. To study the self-designed transformer
17. To study the coefficient of restitution of elastic solids
18. Calculate numerical aperture of the given optical fiber
19. Solar powered grill from recycled carton box
20. To light an LED Using a thermistor
21. Raft powered by surface tension
22. To study the tangent galvanometer
23. To study about vibrational magnetometer
24. To calculate the specific heat capacity of water
25. To prepare the logic gates and study their input and output
26. Analysis of voice frequency across ethnic identities
27. To calibrate the ammeter by using potentiometer
28. To calibrate the voltmeter by using potentiometer
29. To study doppler effect and fiber gyroscope
30. Analysis of black hole thermodynamics

CHEMISTRY

An investigatory project is to be prepared for 12 boards practical according to the instructions given below:

- a) It must be handwritten in your neat handwriting.
- b) It should include the main topic, certificate, acknowledgement followed by the index and main content.
- c) Project must be neat and clean.
- d) Make it more interesting by pasting pictures, photographs or samples wherever required.
- e) Last page includes conclusion of the experiment and then ends with bibliography.
- f) Selection of topic is as per the contents given in the syllabus (lab manual) or can search at cbse.nic.in
- g) Analyze your result of the experiment in proper observation table with proper data.

Some of the common topics are:

1. Sterilization of water using bleaching powder
2. Analysis of fertilizer
3. Chemistry in black and white photography
4. Presence of oxalate ions in guava fruit and different stages of ripening
5. Effect of Potassium Bisulphate as a food preservative
6. Quantity of the presence of casein in different samples of milk
7. Extraction of various essential oils present in Ajwain (Carum), Illaichi (Cardamom) and Saunf (Fennel Seeds)

8. Surface chemistry colloidal solutions
9. Paper chromatography
10. Effects of Dye on different types of fabric
11. Comparative study of the rate of fermentation in the following substances- potato juice, wheat flour, carrot juice, gram flour, etc.
12. Common food adulterants in fat, butter, oil, turmeric powder, pepper, chilli powder, sugar, etc.
13. Measuring solubility of saturated solutions
14. Measure the amount of acetic acid in vinegar
15. Determination of contents in cold drinks

BIOLOGY

PROJECT WORK: -

FOR XII BOARD PRACTICAL EXAMINATION, ONE BIOLOGICAL BASED PROJECT IS TO BE PREPARED ON ANY TOPIC BY USING NCERT TEXT BOOK. Visit CBSE.NIC.IN website (A list of suggested Projects has been attached at the end)

Topics are listed below:

1. Different types of flora and fauna in India
2. Sacred groves
3. Radiation effect on living beings
4. Stem cells
5. Role of antioxidants in human body
6. Genetic disorder in human beings

7. Genome project
8. Endangered species of flora and fauna
9. Any chronic disease
10. Malfunctioning of junk food etc.
11. To Study the Genetic Mutation: Types and its Causes
12. To Study the Various DNA Separation Techniques
13. To Study the Radiation Effects on DNA
14. To Study and Extract the DNA from Banana
15. To Study the RNA Structure and Its Functions
16. To Study the Different DNA Extraction Methods
17. To Study the Process of the DNA Fingerprinting
18. To Study the Chromosomes and DNA Packaging
19. To Study the Characteristics of the Genetic Code
20. To Study Isolation of DNA from Animal Cell
21. To Study the Regulations of the Gene Expression
22. To Study DNA Extraction from Mango
23. To Study Chromosomal Disorder
24. To Study Mutualism and its different types
25. To Study DNA Sequencing Technologies Project
26. To Study Gene Silencing: Mechanism and applications
27. To Study the Enzymes of DNA Replication Mechanism
28. To Study the Developments in the Rice Genome Research

ACCOUNTANCY

Solve all practical questions of chapter Fundamental of Partnership (Dr. S.C. Sharma) and collect Annual General Report of any Company (Cover page, Statement of P & L, Balance Sheet and Cash Flow statement).

ECONOMICS

Select a topic for the project work and complete the research work for the topic. Students should be taking care of following points:

- Introduction of topic/title. (Any topic given in CBSE curriculum can be selected but prior approval of topic is must)
- Identifying the causes, consequences and/or remedies.
- Various stakeholders and effects on each of them.
- Advantages and disadvantages of situations or issues identified.
- Short-term and long-term implications of economic strategies suggested in the course of research.
- Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file.
- Presentation and writing that is succinct and coherent in the project file.
- Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.

BUSINESS STUDIES

1. Mind Mapping of chapters Nature & Significance of Management and Principles of Management.
2. Visit an industry during holidays. There you have to conduct the research and prepare a detail report of observations and

conclusions in context of chapter Functional Principles of Management Propounded by Henry Fayol. Also collect possible proofs like photographs, certificate of visits.

INFORMATICS PRACTICES

Design a project for board exam, topic as per your choice. Each student will have to create an individual project. Following guidelines should be followed within the project.

1. Submit the hard copy of the project. The hard copy must include the following:
 - a. Objective of Project
 - b. Source code of the Project.
2. For data storage use CSV file, Dataframe , MySql database file and use dataframe functions.
3. Data used from Data.gov.in or Kaggle dataset.

Write this Python program in your Practical file.

Create the following DataFrame Sales containing year wise sales figures for five salespersons in INR. Use the years as column labels, and salesperson names as row labels.

1. Display the row labels of Sales.

	2018	2019	2020	2021
Kapil	110	123	189	190
Kamini	117	145	160	180
Mohan	177	156	175	120
Sikhar	133	189	155	133

2. Display the column labels of Sales.

3. Display the data types of each column of Sales.
4. Display the dimensions, shape, size and values of Sales.
5. Display the last two rows of Sales.
6. Display the first two columns of Sales.

WEB APPLICATION

Create your project as assigned in HTML with CSS. The project should have at least 5 web pages hyperlinked to the main page. Make a movie using movie tools and insert it on the homepage. The project should have coding and output of the web page along with the objective of the project.

Take the print out of the project.

Psychology

Describe any one recent research which is based on observational method or experimental method

HISTORY

1) Prepare a project file

Topic - As per chosen by you in class.

Note -

- (a) Project should be handwritten with cover page, introduction to the topic, index page, acknowledgement and bibliography.
- (b) Guidelines of the project will be given to you in your respective class group.
- (c) Project must be based on art integrated activities.
- (d) Also, prepare yourself for viva based on the project.

GEOGRAPHY

1) Prepare MAP BOOK.

On outline political map of World.

- 1.Areas of subsistence gathering (Fig 4.2,ch-4F)
 - 2.Major areas of Nomadic herding of the world (4.4,ch-4F)
 - 3.Major areas of commercial livestocking rearing (4.6,ch-4F)
 - 4.Major areas of extensive commercial grain farming(4.12,ch-4F)
 - 5.Major areas of mixed farming of the world (4.14,ch-4F)
 - 6.Terminal stations of Transcontinental railways
 - a) Trans -Siberian
 - b) Trans -Canadian
 - c)Trance -Australian railways(ch-7F)
- 2) Complete Ch-1&2 in the practical file.

NOTE: The practical file should be handwritten with cover page, index page and acknowledgement.

PHYSICAL EDUCATION

Practical File Work

Practical 1:- Fitness test administration (SAI Khelo India Test)

Practical 2:- Procedure for Asanas, Benefits & contraindication for any two asanas for each lifestyle skills

Practical 3:- Any one IOA recognised sports lash game of choice. Labelled diagram of field and equipment, also mention its rules terminologies and skills.