

HOLIDAY HOME WORK 2026-27 (SCIENCE)

CLASS 12

ENGLISH

Instructions:

- **Presentation:** Neatly handwritten. Use proper formatting and headings.
- **Creativity:** Add relevant pictures, charts, and newspaper clippings.
- **Submission:** Compile all the work in one file with a cover page (*Name, Class, Section, Roll No.*).
- **Word Limit:** Follow the prescribed limit for clarity and precision.

Focus: Your work should reflect original thinking, analysis, and personal reflection.

1. The Last Lesson – Research Project

Topic: Are Regional Languages Slowly Disappearing?

Research how regional and mother-tongue languages are losing importance in modern society due to the growing dominance of English and technology.

Prepare a short project (approx. 200–250 words) explaining: Why people hesitate to speak their mother tongue. How language is connected to culture, identity, and patriotism. The impact of globalization and social status on language preference. **Activities:** Conduct a small survey among students and parents regarding language preference at home and school. Interview grandparents or elders about changes in language usage over time. Collect examples of local words or dialects that are disappearing. **Include:** Survey charts/graphs Newspaper clippings related to endangered languages

Quotes on language and culture Practical solutions to preserve regional languages

2. Lost Spring – Research Project

Topic: Children

Without

Childhood

Research the condition of underprivileged children who are forced to work instead of attending school.

Prepare a short project (approx. 200–250 words) explaining: Causes of child labour and poverty. Difference between the lives of privileged and underprivileged children. How education can help break the cycle of poverty. **Activities:** Conduct a case study or interview with a worker/helper/vendor. Research government schemes and NGOs working against child labour. Compare the daily routine of a working child and a school-going

child. **Include:** Poverty cycle chart Child labour statistics Awareness slogans/posters
Reflection on the importance of equal opportunities

3. Keeping Quiet – Research Project

Topic: Silence in the Age of Noise

Research how excessive use of technology, social media, and busy lifestyles are increasing stress and reducing inner peace in modern life.

Prepare a short project (approx. 200–250 words) explaining: Causes of mental exhaustion and lack of peace. Importance of silence, mindfulness, and self-reflection. How silence can improve emotional well-being and relationships. **Activities:** Conduct a digital detox activity for 1–2 hours and record your observations. Survey students on daily screen time and stress levels. Observe the effect of silence and reduced gadget use on concentration and mood. **Include:** Screen time graphs/charts, Observation journal, Mindfulness tips, Quotes and images related to peace and calmness

PHYSICS

1. For Board examination-2027 students will prepare one of the Project as allotted by the subject teacher. Readings will be taken by students individually.
2. The project file will be hand written.
3. The observation sheets, graph etc must be handmade based on the reading/ observation taken by individual student.
4. Allotment list share in class group.

PROJECTS FOR CLASS XII BOARD EXAMINATION-2027, BASED ON HAND ON EXPERIMENTS

1. To determine the internal resistance of a given primary cell using a potentiometer. To study various factors on which the internal resistance/EMF of a cell depends.
2. To compare emf(s) of two primary cell using a potentiometer.
3. Calibration of voltmeter and Ammeter using a potentiometer.
4. To find a low value resistance using Post office box.
5. To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer.
6. By plotting magnetic field lines around a bar magnet find the null point.
7. To study the earth's magnetic field using a compass needle -bar magnet by plotting magnetic field lines and tangent galvanometer.
8. To find refractive index of given oil and glycerin with the help of Hollow prism.
9. To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids.
10. To find value of current with the help of tangent galvanometer.
11. Study of charging and discharging of capacitor and plot the graph.
12. Study of AND, NOT & OR gate.

13. Plot the CE characteristic graph for npn transistor.
14. To study the variations in current flowing in a circuit containing an LDR because of a variation in
 - (a) the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance).

(b) the distance of an incandescent lamp (of fixed power) used to 'illuminate' the LDR.

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) Analyze your result of the experiment in proper observation table with proper data.

1. Sterilization of water using bleaching powder: Roll No. 1,16,31,46,61

2. To prepare soya milk and compare with different samples of natural milk : Roll No. 2,17,32,47,62

3. Quantity of the presence of caffeine in different samples of Tea: Roll No: 3,18,33,48,63

4. Presence of oxalate ions in guava fruit and different stages of ripening: Roll No : 4,19,34,49,64

5. Effect of Potassium Bisulphate as a food preservative: Roll No: 5,20,35,50,65

6. Quantity of the presence of casein in different samples of milk: Roll No: 6,21,36,51,66

7. Extraction of various essential oils present in Ajwain (Carum), Illaichi (Cardamom) and Saunf (Fennel Seeds): Roll No: 7,22,37,52,67

8. Compare vitamin C in different fruit juices : Roll No: 8,23,38,53,68

9. Measuring the rate of evaporation of different liquids : Roll No: 9,24,39,54,69

10. To study the foaming capacity of different soaps: 10,25,40,55,70

11. Comparative study of the rate of fermentation in the following substances- potato juice, wheat flour, carrot juice, gram flour, etc.: Roll No: 11,26,41,56

12. Common food adulterants in fat, butter, oil, turmeric powder, pepper, chilli powder, sugar, etc.: Roll No : 12,27,42,57

13. Measuring solubility of saturated solutions: Roll No: 13,28,43,58

14. Measure the amount of acetic acid in vinegar: Roll No: 14,29,44,59

15. Determination of contents in cold drinks: Roll No: 15,30,45,60

BIOLOGY

BIOLOGY PROJECT WORK: - FOR XII BOARD PRACTICAL EXAMINATION, ONE BIOLOGICAL BASED PROJECT IS TO BE PREPARED ON ANY TOPIC BY USING NCERT TEXT BOOK AND CBSE.NIC.IN. (A list of suggested Projects has been attached in the last)

Some suggestive topics for project:

- 1 hydroponics farming
- 2 medicinal plants and their uses
- 3 migration in birds
- 4 camouflage in animals
- 5 artificial intelligence in health
- 6 endangered species of India
- 7 useful and harmful bacteria
- 8 biodiversity losses
- 10 genetically modified crops
- 11 viruses and pandemic.

MATHS

1. Complete the following list of Mathematics activities

1. **Activity 3:** To demonstrate a function which is not one-one but is onto.
2. **Activity 4:** To demonstrate a function which is one-one but not onto.
3. **Activity 6:** To explore the principal value of the function $\sin^{-1}(x)$ using a unit Circle.

2. Do any one project in Mathematics. Refer to the following list of

projects.

1. Project on history of Mathematicians: It may include history of Indian mathematicians such as Aryabhata, Brahmagupta, Varahamihir, Sridhar a, 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 projects other than the listed projects.

PHYSICAL EDUCATION

Students to complete the project work on a proper Physical Education record file available in the market. Project work record file should include:

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

Practical-2 Details of anyone IOA recognized Sports/Game of your choice. Draw labelled diagram of Field and Equipment. Also mention its rules, terminologies and skills.

Kindly note-Physical Education students can purchase any of the following Practical Manual(Record File) available in market.

Kindly note that it is compulsory for students to submit the project file just after the summer break is over.

PSYCHOLOGY

Prepare a project file on a small study(Casestudy) that must involve different methods of enquiry like survey,interview,observation,psychological testing related to any Psychological Disorder.

Project Blueprint

Title page ,Acknowledgment ,Certificate, Abstract (1 page) ,Table of Contents (1 Page),Introduction (of the topic) (2 pages) ,Rationale (1 page), Methodology (3-4 pages) , Statement of the problem , Objective of the study , Hypothesis, Operational definition of the variables, Sample selection and criteria, Tools for data collection (with their description), Procedure for data collection, Result (1 page) , Interpretation of profile cases (1 page) , Conclusion (1 page), Reference (1 page), Appendix (Data collected sample)

Further instructions:

Maximum pages allowed- 20 pages.

Must be a cardboard vertical file. Plastic files are strictly prohibited.

ARTIFICIAL INTELLIGENCE

PROJECT WORK

Project Title Options:

1. Student Performance Analysis using AI
2. Customer Purchase Prediction
3. Disease Prediction using Basic Data
4. Social Media Sentiment Analysis
5. Loan Approval Prediction System

Other than you can choose any project title from 17 SDG Goals.

Project Structure (to be followed by students)

1. **Introduction**
 - Problem definition
 - Objective
2. **Data Collection**
 - Source of dataset (CSV / Excel)
3. **Data Preprocessing**
 - Handling missing values
 - Removing duplicates
4. **Exploration (EDA)**
 - Graphs / charts

5. **Model Building (in Orange)**
 - Classification / Prediction
6. **Result & Conclusion**
 - Accuracy
 - Observations
7. **Future Scope**

important Questions:

- What is AI?
- Supervised vs Unsupervised Learning
- What is Classification?
- What is Data Preprocessing?
- What is Accuracy?

ORANGE DATA MINING EXPERIMENTS

Experiment 1: Load and Explore Data



Objective:

Understand dataset using Orange.

Steps:

1. Open **Orange Data Mining**
2. Click on **New Workflow**
3. From the left panel, drag **File Widget** to workspace
4. Double-click File widget
5. Click **Browse** and select your dataset (.csv file)
6. Drag **Data Table Widget**
7. Connect:
 - File → Data Table
8. Click Data Table to view:
 - Number of rows

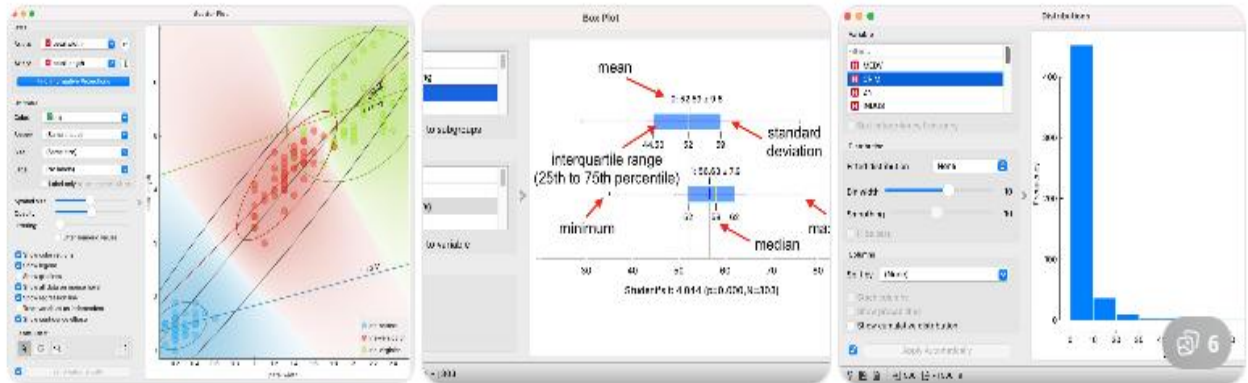
- Number of columns
- Attribute names

Result

Dataset is successfully loaded and displayed.

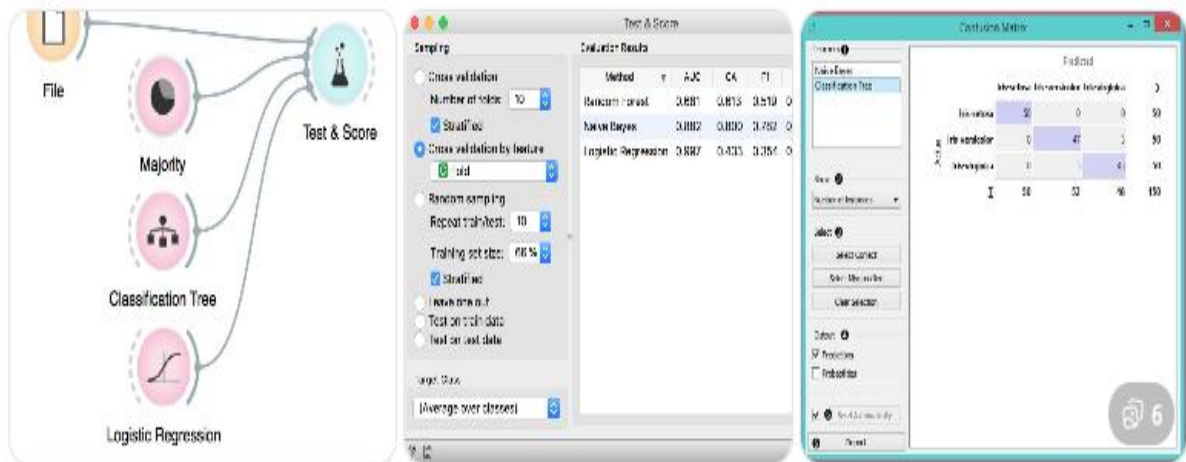
Experiment 2: Data Visualization

- Use Scatter Plot, Box Plot, Histogram



- Use the same workflow from Experiment 1
- Add following widgets:
 - **Scatter Plot**
 - **Histogram**
 - **Box Plot**
- Connect:
 - File → Scatter Plot
 - File → Histogram
 - File → Box Plot
- Open each widget:
 - Select variables for X and Y axis (Scatter Plot)
 - Observe data distribution (Histogram)
 - Identify outliers (Box Plot)

Experiment 3: Classification Model



- Use Logistic Regression, Naive Bayes
- Connect to Test & Score

Objective:

Build prediction model.

Steps:

1. Add widgets:
 - o **File**
 - o **Logistic Regression**
 - o **Naive Bayes**
 - o **Test & Score**
2. Connect:
 - o File → Logistic Regression
 - o File → Naive Bayes
 - o Logistic Regression → Test & Score
 - o Naive Bayes → Test & Score
 - o File → Test & Score
3. Open **Test & Score**
4. Select:
 - o Cross Validation (default)
5. Observe:
 - o Accuracy
 - o Precision
 - o Recall

Result

Model accuracy is displayed and best model identified.

Experiment 4: Clustering



- Use K-Means
- Visualize clusters

Objective:

Group similar data.

Steps:

1. Add widgets:
 - o **File**
 - o **K-Means**
 - o **Scatter Plot**
2. Connect:
 - o File → K-Means
 - o K-Means → Scatter Plot
3. Open **K-Means**:
 - o Set number of clusters (e.g., 2 or 3)
4. Open Scatter Plot:
 - o Observe colored clusters

Result

Data is grouped into clusters based on similarity.