

BIRLA SCHOOL, PILANI
Summer Vacation Home assignment session 2026-27 for class XI (Science)

ENGLISH

Students are required to prepare a **short research project** based on any one of the following topics:

1. How do Instagram and WhatsApp affect the way we use language?
2. Why do teenagers prefer movies over books?
3. Can memes be considered a powerful form of communication?
4. Why are fantasy stories like *Harry Potter* so popular among teens?
5. Do music lyrics influence the thinking and behaviour of teenagers?

Guidelines:

1. Select any one topic from the list.
2. Conduct research by:
 - a. Taking interviews
 - b. Listening to podcasts/interviews
 - c. Watching relevant radio or TV documentaries
3. Frame a set of questions based on the chosen topic.
4. Analyse the responses and prepare a report either supporting or opposing the views gathered.
5. Write a **report of 800–1000 words**
6. Submit the project on shivani030246@birlaschoolpilani.edu.in

Project Portfolio Must Include:

- **Cover Page** (Title, student details, school details)
- **Statement of Purpose / Objectives**
- **Certificate of Completion** (under teacher's guidance)
- **Action Plan** for completing the project
- **Supporting Materials**, such as:
 - Questionnaires
 - Interview transcripts
 - Survey reports / written responses
 - Scripts (if any role play is included)
- **Main Report (800–1000 words)**
- **Student/Group Reflection**
- **Photographs** (if available, showing project work)
- **Bibliography / List of Resources**

Assessment Rubrics:

The project will be evaluated on the basis of:

- Quality and relevance of content
- Accuracy of information
- Adherence to the timeline
- Language accuracy (grammar, spelling, punctuation)
- Clarity of ideas and expression
- Creativity and presentation
- Contribution of each group member
- Learning outcomes and understanding gained

PHYSICS	<p>Theme: Physics Through Measurement and Motion</p> <p>Project 1: Precision Measurement using Screw Gauge</p> <ul style="list-style-type: none"> • Measure diameter of wire, paper stack, or metal rod using screw gauge. • Record least count, readings, zero error, corrected reading, and average value. • Draw labelled diagram of screw gauge. • Include applications in engineering, automobiles, and electronics. • Write conclusion on importance of accurate measurements. <p>Project 2: Dimensions and Their Applications</p> <ul style="list-style-type: none"> • Prepare a chart/model showing dimensional formulae of velocity, acceleration, force, pressure, and energy. • Explain use of dimensions in checking equations and unit conversions. • Create a creative dimensional formula wheel/chart using cardboard. • Include real-life applications and conclusion. <p>Project 3: Motion in a Straight Line</p> <ul style="list-style-type: none"> • Observe motion of a bicycle, toy car, or walking person. • Measure distance, time, and speed. • Draw distance-time and velocity-time graphs. • Use equations: $v = u + at$ and $s = ut + \frac{1}{2} at^2$. • Compare uniform and non-uniform motion with observations. <p>Presentation Guidelines</p> <ul style="list-style-type: none"> • Use neat handwritten work in a project file. • Attach photographs, diagrams, and graphs. • Maintain proper headings and presentation.
CHEMISTRY	<ol style="list-style-type: none"> 1. Solve Class test exam paper in Chemistry notebook. 2. Revise Unit-1 from notes and NCERT book. 3. Learn Names and symbols of elements from atomic number 1 to 54.
MATHEMATICS	<p>Write all formulas of Arithmetic Progression, Mensuration, Statistics & Probability</p> <p>Solve 20 questions from Set Theory & Relations & Functions.</p>
BIOLOGY	<p>Q1. Make an Investigatory Project on any one topic of your grade, for example - To make an inventory of local tree, shrub and herb.</p> <p>Information's can be listed in following categories: (i) Avenue trees (ii) Wind Breakers (iii) Road dividers (iv) Sound barriers (v) Medicinal and other uses</p> <p>Reporting/Writing of Project A4 size pages, A format, such as given below, can be followed. (i) Title of the investigatory project: (ii) Objectives: (iii) Materials (iv) Method: (v) Result: (vi) Analysis and interpretation: (vii) Discussion: (viii) Conclusion: (ix) References:</p> <p>This write up is meant to train the students in scientific methods. In other words, it accentuates the spirit of enquiry and investigation in young minds.</p>

BIOTECHNOLOGY	<p>Collect latest discoveries and inventions in Biotechnology. Submit it in a soft copy. an030014@birlaschoolpilani.edu.in</p>
C.S.	<p>Topic: Introduction to Python Programming</p> <ol style="list-style-type: none"> Python programs Calculate Simple Interest Find area and perimeter of a square Write the program code, sample input/output, and mention where this program can be useful in daily life. Answer the following in 3–4 lines each: <ol style="list-style-type: none"> What are the advantages and disadvantages of Python? What is the difference between interactive mode and script mode in Python?
I.P.	<p style="text-align: center;">Topic: Python Introduction & Arithmetic Operators</p> <p>Instructions</p> <ul style="list-style-type: none"> Complete this assignment in a handwritten notebook. Write Python programs neatly with proper headings. Along with each program, write the input given and output received. <p>Practical Programming Tasks</p> <p>1. Student Percentage Calculator Write a Python program to calculate total marks and percentage of 5 subjects. Formula: $\text{Percentage} = (\text{Total Marks} / 500) \times 100$</p> <p>2. Simple Interest Calculator Write a Python program to calculate Simple Interest. Formula: $\text{SI} = (P \times R \times T) / 100$</p> <p>3. Electricity Bill Calculator Write a Python program to calculate electricity bill using units consumed and cost per unit.</p> <p>4. Daily Expense Calculator Write a Python program to calculate daily expenses such as food, transport, recharge, etc.</p> <p>5. Shopping Bill Calculator Write a Python program to calculate Total Bill, Discount, and Final Amount. Formula: $\text{Final Amount} = \text{Total Bill} - \text{Discount}$</p>
MUSIC	<p>Prepare a detailed project on the following Hindustani Classical Singers:</p> <ol style="list-style-type: none"> Pandit Bhimsen Joshi Pandit Jasraj Tansen Vishnu Narayan Bhatkhande Vishnu Digambar Paluskar <p>Objectives of the Project</p> <ul style="list-style-type: none"> To understand the contribution of great Hindustani classical singers. To learn about different gharanas and styles of Indian classical music. To develop research and presentation skills. To appreciate India's rich musical heritage.

AI

Class 11 – Capstone Project (Artificial Intelligence)

Project Title: *AI Capstone Project – Real World Problem Solving*

Students of Class 11 will work in teams to design and develop a complete AI-based solution for a real-world problem. The project should demonstrate creativity, teamwork, research skills, and practical implementation of Artificial Intelligence concepts learned during the academic session.

Each team may consist of **5–7 members**. Every team must appoint a **Team Leader** who will be responsible for:

- Regular communication with the teacher mentor
- Submission of project updates and reports
- Coordinating team meetings and task distribution
- Presenting the final project demonstration

Students are encouraged to select projects connected to:

- Smart Environment
- Healthcare
- Education
- Waste Management
- Agriculture
- Accessibility
- Safety and Security
- Sustainable Development Goals (SDGs)

Suggested Project Ideas

- AI-based Attendance System
- Smart Waste Segregation using Image Classification
- Fake News Detection
- AI Chatbot for School Helpdesk
- Emotion Detection System
- Road Safety Monitoring using AI
- AI Fitness or Diet Recommendation System
- Crop Disease Detection Model

Project Expectations

Each team should complete:

1. Problem Identification
2. Research and Data Collection
3. AI Model / Prototype Development
4. Testing and Improvements
5. Final Documentation
6. Presentation and Viva Demonstration

Submission Components

- Project Report
- Source Code / Model Files
- PPT Presentation
- Team Contribution Details

Students are advised to take guidance and inspiration from the official CBSE AI Project resource:

CBSE AI Projects Cookbook (Classes XI & XII)