



# JAI VATIKA PUBLIC SCHOOL

Syllabus Class XII (Sci.) 2024-2025

## ENGLISH

- Prescribed Books:**
1. Flamingo: English Reader by NCERT
  2. Vistas: Supplementary Reader by NCERT
  3. English Links by Good Luck Publishers

### TERM 1

#### April

<b>Flamingo:</b>	1. The Last Lesson (Pages 212-220)
<b>English Links</b>	2. Lost Spring (Pages 221-229)
<b>English Links</b>	1. The Third Level (Pages 317-324)
<b>Vistas:</b>	1. My Mother at Sixty Six (Pages 281-287)
<b>English Links</b>	Notices (Pages 94-114)
<b>Poetry:</b>	
<b>English Links</b>	
<b>Writing</b>	

#### May

<b>Flamingo:</b>	3. Deep Water (Pages 230-238)
<b>English Links</b>	4. The Rattrap (Pages 239-246)
<b>English Links</b>	2. The Tiger King (Pages 325-333)
<b>Vistas:</b>	Keeping Quiet (Pages 288-296)
<b>English Links</b>	Letter to Editor (Pages 126-139)
<b>Poetry:</b>	Descriptive Passages
<b>English Links</b>	
<b>Writing</b>	
<b>Reading</b>	

#### July

<b>Flamingo:</b>	5. Indigo (Pages 247-255)
<b>English Links</b>	3. Journey to the End of the Earth (Pages 334-342)
<b>Vistas:</b>	3. A Thing of Beauty (Pages 296-302)
<b>English Links</b>	Invitation and Replies (Pages 115-123)
<b>Poetry:</b>	Factual Passages
<b>English Links</b>	
<b>Writing</b>	
<b>Reading</b>	

#### August

<b>Flamingo:</b>	6. Poets and Pancakes (Pages 256-264)
<b>English Links</b>	4. The Enemy (Pages 343-351)
<b>Vistas:</b>	Applications for Job (Pages 140-153)
<b>English Links</b>	
<b>Writing</b>	

**Term I (in September 2024) Exam will be based on Syllabus covered from April to August 2024.**

## **TERM II**

### **October**

<b>Flamingo:</b>	7. The Interview
<b>English Links</b>	(Pages 265-272)
<b>Vistas:</b>	6. On the Face of it
<b>English Links</b>	(Pages 352-360)
<b>Poetry:</b>	4. A Road Side Stand
<b>English Links</b>	(pages 303-309)
<b>Writing</b>	Article Writing (Pages 154-186)
<b>Reading</b>	Case based Passages

### **November**

<b>Flamingo:</b>	8. Going Places
<b>English Links</b>	(pages 273-280)
<b>Poetry:</b>	5. Aunt Jennifer's Tigers
<b>English Links</b>	(pages 310-316)
<b>Vistas:</b>	7. Memories of Childhood
<b>English Links</b>	(Pages 361-368)
<b>Writing</b>	Report Writing (Pages 187-208)

### **December-**

### **January:**

### **Pre-Board I**

### **Revision & Pre-Board II**

**Pre-Board II (Jan 2025) Exam will be based on Syllabus covered from April to November 2024.**

## **PHYSICAL EDUCATION**

<b>PRESCRIBED BOOKS:</b>	Textbook on Physical Education (Sonia Publications)
<b>Lab Manual-</b>	Physical Education Practical book (Sonia Publications)

### **April:**

1. Management of Sporting Events
2. Children and Women in Sports

### **May:**

3. Yoga as Preventive Measure for Lifestyle Disease
4. Physical Education and Sports for CWSN

### **July**

5. Sports and Nutrition
6. Test and measurement in Sports

### **August**

7. Physiology & Injuries in Sports
- Revision

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### **October:**

8. Biomechanics and Sports
9. Psychology and Sports

### **November:**

10. Training in Sports

### **December:**

**Revision of Complete Syllabus, Preparation of Practical File, Pre-Board I**

### **January:**

**Pre-Board (Jan 2025) Exam will be based on Syllabus covered from April to November 2024.**

## MATHEMATICS

**Prescribed Book:** Modern ABC of Mathematics by J.P. Mohindru & Bharat Mohindru

**Lab Manual:** Global Mathematics Activity Book – By Teena Arora

**April** Chapter 3 : Matrices  
Chapter 4 : Determinants  
Chapter 1 : Relation and Functions  
**May** Chapter 2 : Inverse Trigonometric function  
Chapter 5 : Continuity and Differentiability

**July** Chapter 6 : Application of Derivatives  
Chapter 12 : Linear Programming

**August** Chapter 10 : Vector  
Chapter 11 : Three Dimensional Geometry

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**October** Chapter 7 : Integral  
Chapter 8 : Application of Integrals

**November** Chapter 9 : Differential Equation  
Chapter 13 : Probability

**December** : Revision of Complete Syllabus & Pre Board-I

**January** : Pre-Board (Jan 2025) Exam will be based on Syllabus covered from April to November 2024.

## PHYSICS

**Prescribed Books:** Pardeep's Fundamental Physics by K.L.Gomber and K.L Gogia

**Lab Manual:** Nirmal Physics Lab Manual by Sony Publication

**April** Chapter–1: Electric Charges and Fields  
Chapter–2: Electrostatic Potential and Capacitance  
Chapter–3: Current Electricity

**May** Chapter–4: Moving Charges and Magnetism  
Chapter–5: Magnetism and Matter

**July** Chapter–6: Electromagnetic Induction  
Chapter–7: Alternating Current

Chapter–8: Electromagnetic Waves  
**August** Chapter-9: Ray Optics and Optical Instruments + (Revision)

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**Experiments : (Term-I)**

1. To determine resistance per cm of a given wire by plotting a graph for potential difference versus current.
2. To find resistance of a given wire using meter bridge and hence determine the resistivity (specific resistance) of its material.
3. To verify the laws of combination (series) of resistances using a meter bridge.
4. To verify the laws of combination (parallel) of resistance using a meter bridge.
5. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.
6. (i) To convert the given galvanometer (of known resistance and figure of merit) into an ammeter of (0-30mA) range and to verify the same.  
(ii) To convert the given galvanometer ( of known resistance and figure of merit) into a voltmeter of (0-3V) range and to verify the same.
7. To find the frequency of the A.C. mains with a Sonometer.

**Activities:**

1. To measure the resistance and impedance of an inductor with or without iron core
2. To measure the resistance, voltage (A.C. /D.C.), current (A.C.) and check continuity of a given circuit using millimeter.
3. To assemble the household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
4. To assemble the components of a given electrical circuit.
5. To study the variation in potential drop with length of a wire for a steady current.
6. To draw the diagram of a given open circuit comprising at least a battery, Resistor/Rheostat, key, ammeter and voltmeter. Mark the components, which are not connected in proper order and correct the circuit and the circuit diagram.

**October**

Chapter-10: Wave Optics

Chapter-11: Dual Nature of Radiation and Matter

**November**

Chapter-12: Atoms

Chapter-13: Nuclei

Chapter-14: Semiconductor Electronics: Materials, Devices and Simple Circuits

**December**

**Revision of Complete Syllabus & Pre Board-I**

**January**

**Pre-Board II (Jan 2025) Exam will be based on Syllabus covered from April to November 2024.**

**Experiments : (Term-II)**

1. To find the value of  $v$  for different values of  $u$  in case of a concave mirror and to find the focal length.
2. To find the focal length of a convex mirror, using a convex lens.
3. To find the focal length of a convex lens by plotting graphs between  $u$  and  $v$  or between  $1/u$  and  $1/v$ .
4. To find the focal length of a concave lens, using a convex lens.
5. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation.
6. To determine refractive index of a glass slab using a travelling microscope.
7. To find refractive index of a liquid by using convex lens and plane mirror.
8. To find refractive index of a liquid by using concave lens and plane mirror.

9. To draw the I-V characteristic curve for a p-n junction in forward bias and reverse bias.

**Activities :**

1. To identify a diode, an LED, a resistor and capacitor from a mixed collection of such items.
2. Use of multimeter to:
  - a) See the unidirectional flow of current in case of a diode and an LED.
  - b) Check whether a given electronic component (e.g. diode, transistor or IC) is in working order.
3. To study effect of intensity of light (by varying distance of the source) on an LDR.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe diffraction of light due to a thin slit between sharp edges of razor blades.
6.
  - i. To study the nature and size of the image formed by a concave mirror on a screen by using a candle and a screen (for different distances of the candle from the mirror.)
  - ii. To study the nature and size of the image formed by a convex lens on a screen by using a candle and a screen (For different distances of the candle from the lens.)
7. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

**CHEMISTRY**

**Prescribed Book: Modern's abc of Chemistry Part 1 & 2 by S.P Jauhar**

**Lab Manual: Nirmal Physics Lab Manual by Sony Publication**

<b>April</b>	1. Solutions 2. Electrochemistry
<b>May</b>	3. Chemical Kinetics 4. D- and f- Block Elements
<b>July</b>	5. Coordination Compounds 6. Haloalkanes and Haloarenes
<b>August</b>	<b>Revision</b>

**Term I (September 2024) Exam will be based on Syllabus covered from April to August 2024.**

<b>Practical (Term-I):-</b>	A. Surface Chemistry B. Chemical Kinetics C. Thermo chemistry D. Electrochemistry E. Chromatography F. Preparation of Inorganic Compounds
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<b>October</b>	7. Biomolecules 8. Alcohols, Phenols and Ethers
<b>November</b>	9. Aldehydes, Ketones and Carboxylic Acid 10. Organic Compounds Containing Nitrogen
<b>December</b>	<b>Revision and Pre Board-I</b>

**January** **Pre-Board II (Jan 2025) Exam will be based on Syllabus covered from April to November 2024.**

**Practical (Term-II)** G. Preparation of Organic Compounds  
H. Tests for the functional groups present in organic compounds:  
I. Characteristic tests of carbohydrates, fats and proteins in pure Samples and their detection in given foodstuffs.  
K. Salt analysis

### **BIOLOGY**

**Prescribed Book:** Biology Trueman Elementary Biology Volume II

**Lab Manual:** Manual Nirmal Biology Lab Manual 12

**APRIL** Chapter 2 Sexual Reproduction in Flowering Plants

Chapter 3 Human Reproduction

Chapter 4 Reproductive Health

**MAY** Chapter 5 Principles of Heredity and Variation

Chapter 6 Molecular basis of Inheritance

Chapter 7 Evolution

**JULY** Chapter 8 Human Health & Diseases

Chapter 10 Microbes in Human Welfare

**AUGUST** Chapter 11 Principles and Process of Biotechnology

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#### **Practical:**

1. Prepare a temporary mount to observe pollen germination.
2. Study the plant population density by quadrant method. Study the plant population frequency by quadrant method.
3. Prepare a temporary mount of onion root tip to study mitosis.
4. Isolate DNA from available plant material such as spinach, green pea seeds, papaya, etc.

**OCTOBER** Chapter 12 Applications of Biotechnology in Health and Agriculture

Chapter 13 Organisms and Populations

**NOVEMBER** Chapter 14 Ecosystem

Chapter 15 Biodiversity and its Conservation

**DECEMBER** **Revision of Syllabus, Pre-Board I**

**JANUARY** **Pre-Board II (Jan 2025) Exam will be based on Syllabus covered from April to November 2024.**

## **Study and observe the following (Spotting):**

1. Flowers adapted to pollination by different agencies (wind, insects, birds).
2. Pollen germination on stigma through a permanent slide or scanning electron micrograph.
3. Identification of stages of gamete development, i.e., T.S. of testis and T.S. of ovary through permanent slides (from grasshopper/mice).
4. Meiosis in onion bud cell or grasshopper testis through permanent slides.
5. T.S. of blastula through permanent slides (Mammalian).
6. Mendelian inheritance using seeds of different color/sizes of any plant.
7. Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, blood groups, ear lobes, widow's peak and color blindness.
8. Controlled pollination - emasculation, tagging and bagging.
9. Common disease causing organisms like Ascaris, Entamoeba, Plasmodium, any fungus causing ringworm through permanent slides, models or virtual images or specimens. Comment on symptoms of diseases that they cause.
10. Models specimen showing symbiotic association in root modules of leguminous plants, Cuscuta on host, lichens.
11. Flash cards models showing examples of homologous and analogous organs.

## **Spoken English**

### **Term 1**

#### **April**

##### **1. Self Introduction**

- **Introduction Round**
- Sample Paper 1,2,3

##### **2. Group Discussion**

Tips, techniques, purpose, benefits

##### **Topics**

- Importance of connection
- How can marketing help businesses connect with customers?
- What is the impact of customer reviews on marketing?
- What is the role of storytelling in marketing?

##### **Activities**

- Question Time
- Discuss with peer

##### **2. ASL**

- Why listening is important
- Useful tips for effective listening

##### **Activities**

- Listen to 5 short extracts of people talking about why they prefer travelling by train. Read the statement and match the statements.
- Listen to the conversation between father and daughter about street art. Choose the correct statement.
- Listen audio of Ayurveda by Dr. Divyajot and complete the statement in one word.
- Listen the audio of three different radio advertisements carefully and answer the questions.

- Listen the audio of 5 different people talking about the contribution of an Indian American teenager who invented an award winning device and match the statement correctly.

### 3. Debate

#### 1. Tips, Techniques, purpose, benefits, steps

##### Topics

- More people should learn to grow their own vegetables.
- Big refrigerators are a waste of energy and aren't necessary.
- In a full household, dinner should be a family meal.

##### Activities

- The Republic Times
- Debatestorming

### 4. News Reading

- Make news from headlines
- Newspaper Treasure hunt

### 2. ASL

- Hear an internet expert talk about the internet of things and tick the correct statements.
- Hear a short talk on "Cyber Security" and tick the correct answer.
- Listen the linguist talk about an artificial language 'Esperanto' that its inventor wanted to be world's language and complete the statements in three words.

## May

### 1. Public Speaking

#### Domain

- **Art & Aesthetics**
- **The Elderly**
- **Business World**

#### Topics

- **Stars on my ceilings**
- My grandmother and Skype
- Things to be careful while shopping on line

### 2. Group Discussion

Importance, techniques, benefits

#### Topics

- How can we better support those struggling with mental health issues?
- Man vs beast: Who is more efficient?
- What is your fitness routine like, and are there any tips to keep fit and attractive?

#### Activities

- Listen to a talk by exchange students from Amsterdam about Repair cafes. Read the questions below and write the names of the speaker.
- Listen to a debate between a boy and girl on how team sport is better than individual sport. Complete the sentences in one word only.



- Hear Short talk on plant “Aloe Vera” by the eminent environmentalist and answer the questions.(part 1 & 2)

## July

### 1. Story Telling

- Weave the story of your own with the help of given scenario
- Stand in circle and complete the story

### 2. Role Play

#### Activity

- Group activity of school students for the exhibition of school

### 3. ASL

- Listen to five short extracts of people talking about the trend of purchasing branded products and match the statements.
- Listen to a doctor sharing her advice about noise pollution and choose the correct sentences.
- Listen a short talk on Bio Medical waste and complete the notes
- Part 1, 2 & 3

## August

### 1. Speaking

#### **Domains**

- Health and fitness
- Media and networking
- Adolescence

#### Topics

- Cycling is mantra for fitness
- I prefer e- newspaper
- The day my teenage brother had his ear pierced

### 2. ASL

- Listen to a talk by a professor of English about Bama’s book, Karukku and choose the correct options.
- Listen to a university student share his views in seminar, on “Balancing freedom and responsibility in college” and complete the statements in one word.
- Listen the conversation between two friends Abhi and Sidhi talking about some famous mesumes in India and answer the following questions.
- Hear three different parts about the phenomenon of desertification and answer the questions.

## Term II

## October

### 1. Short Conversations

Meaning, usage, benefits

- Sample paper 4,5,6,7,8

### 3. Speaking

#### **Domain**

- Mystery and the supernatural
- Ethics and values
- Careers

### Activities

- Why I believe in prayers
- Team projects develop good work ethics
- Why i wish to become an interpreter

### November

#### **1. Group Discussion**

##### Activities

- Rescue
- Solve my problem

##### Topics

- I Find it hard to concentrate on studies
- Sports commentary
- I can not get rid of my addiction to social media
- My parents are forcing me to study subject of their choice, but i want to study subjects that i like

#### **2. ASL**

- **Listening test 2**

### December

#### **1. Short Conversation**

- Careers
- Humour
- Urbanisation

#### **2. Problem Solving**

- **Problem solving papers 1 to 7**

### January

#### **1. Problem Solving**

- Problem solving papers 8 to 14

#### **2. Topic Presentations**

##### **Domain**

- **Inventors and Inventions**
- **Social Issues and Citizen Responsibility**
- **History and Culture**

##### Topics

- **William Kent and baby Transport**
- **Old Jeans and sustainability**
- **The food festival at school**