



LINGAYA'S
PUBLIC SCHOOL
choose to know

PARENT'S BOOKLET CLASS-XII SCIENCE SESSION 2021-2022



Dear Parents,

Thank you for choosing Lingaya's Public School !

One of the most important decisions we make in our lives is choosing where our children will attend school. As it is said that the number of years a student spends at a school will make or break that person, schools hold a great deal of power and responsibility.

Was your dream to be a dancer, doctor, astronaut, engineer, sailor, entrepreneur, or painter when you were a child? Dreamed of climbing mountains, studying insects, or discovering a new planet? Was it your dream to be Prime Minister of this nation? Starting from a thought is the first step. We are defined by our thoughts. Our goals are enabled by them. Dreams of the future are a part of growing up. The question is, will we be able to realize them fully. Do we have the means and resources to become who we thought we should be?

Ensure your child realizes his/her potential and dreams big.

Lingaya's focuses on enhancing the unique identity your child has-character, scholarship, and humanity. Our team considers learning a sacred pursuit. The purpose of education will be to think beyond classroom learning. Our activities and lessons will take the child on a journey through the wonders and glories of art, music, culture, science, and above all the deep rooted Indian values.

Lingaya's staff and team are energized by change, diversity, and progress. The result is that our students have access to the highest quality educational opportunities that satisfy their diverse learning needs. As a result, the curriculum creates an engaging learning environment through highly skilled teaching.

It is the legacy of two decades that distinguishes Lingaya's from others, and it is making its mark across India. Lingaya's is a premier education institution of the country & Overseas, with four prestigious technical & management institutes and 02 k-12 schools (and counting) that have earned the trust of the people. Over 99% first divisions at our schools, two decades of tradition, 10000+ Alumni and 40+ programs for all-round development of a child-all define the excellence of Lingaya's Public School.

Warm Regards,

Principal



LIST OF THE BOOKS

S.N.O	SUBJECT	Author Name / All Books NCERT
1	English	Flamingos
2		VISTAS
3	PHYSICS	NCERT
4	Mathematics	NCERT
5	CHEMISTRY	NCERT
6	BIOLOGY	NCERT
7	Physical Education	Saraswati Publication (Dr. V.K Sharma)

CLASS-XII-SCIENCE SYLLABUS BREAK-UP SESSION (2021-2022)

ENGLISH

APRIL TO JULY

TOPIC	ENRICHMENT ACTIVITY	LANGUAGE (WRITING SKILLS)
FLAMINGO <ul style="list-style-type: none">• The Last Lesson• Lost Spring• .Deep Water POEM <ul style="list-style-type: none">• My Mother at Sixty-six• .An Elementary school classroom in a slum	<ul style="list-style-type: none">• Art – Integrated project based on the chapter 'The Last Lesson'.	<ul style="list-style-type: none">• Notice Writing• . Poster Writing

AUGUST TO SEPTEMBER

TOPIC	ENRICHMENT ACTIVITY	LANGUAGE (WRITING SKILLS)
VISTAS <ul style="list-style-type: none">• The Third Level• The Enemy POEM <ul style="list-style-type: none">• .Keeping Quiet FLAMINGO <ul style="list-style-type: none">• The Rattrap	<ul style="list-style-type: none">• Group discussion- Chapter 'The Rattrap'• Importance of Community over Isolation• Individual Activity- Prepare a poster on the poem 'Keeping Quiet'.• Parameters : creativity, Content, Presentation	<ul style="list-style-type: none">• Report Writing• . Job Application• . Advertisement• . Invitation



OCTOBER TO DECEMBER

TOPIC	ENRICHMENT ACTIVITY	LANGUAGE (WRITING SKILLS)
FLAMINGO <ul style="list-style-type: none">• Indigo• VISTAS• Should Wizard Hit Mommy• Evans tries an O- Level POEMS <ul style="list-style-type: none">• A Thing of Beauty• Aunt Jennifer's Tiger	<ul style="list-style-type: none">• Art – Integrated project based on the poem- 'A Thing of Beauty'.• The poem talks about the beauty of nature as a healer. It says that nature is immortal.• Students can describe the natural beauty of Telangana:• Greenery, rain , climate and relate it with the poem	

MATHEMATICS

APRIL TO MAY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none">• INTRODUCTION TO RELATIONS AND FUNCTIONS• TYPES OF RELATIONS• TYPES OF FUNCTIONS• COMPOSITION OF FUNCTIONS AND INVERTIBLE FUNCTIONS• BINARY OPERATIONS• INTRODUCTION TO INVERSE TRIGNOMETRIC FUNCTIONS• DOMAIN-RANGE TABLE FOR TRIGNOMETRIC FUNCTIONS• GRAPH OF VARIOUS TRIGNOMETRIC FUNCTIONS.	<ul style="list-style-type: none">• PROJECT ENTITLED VARIOUS GRAPHS AND FUNCTIONS	

JUNE TO AUGUST

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none">• RESUME INVERSE TRIGNOMETRIC FUNCTIONS• MATRICES• DETERMINANTS• CONTINUITY AND DIFFERENCIABILITY• APPLICATION OF DERIVATIVES	<ul style="list-style-type: none">• PROJECT ENTITLED CONCEPT OF LIMIT AND CONTINUITY.• PROJECT ENTITLED USE OF CONTINUITY AND DIFFERENCIABILITY IN SCIENCE AND ENGINEERING.	<ul style="list-style-type: none">• RESUME INVERSE TRIGNOMETRIC FUNCTIONS• MATRICES• DETERMINANTS• CONTINUITY AND DIFFERENCIABILITY• APPLICATION OF DERIVATIVES

AUGUST TO OCTOBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none">• INTEGRALS• APPLICATION OF INTEGRALS• DIFFERENTIAL EQUATIONS• VECTOR ALGEBRA	<ul style="list-style-type: none">• PROJECT ENTITLED USE OF INTEGRALS IN LIFE MECHANISM	



OCTOBER TO DECEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none">• THREE DIMENSIONAL GEOMETRY• LINEAR PROGRAMMING• PROBABILITY	<ul style="list-style-type: none">• SHOW 3-D VIEW OF REAL LIFE OBJECTS BASED ON GEOMETRICAL CRITERIA.• PROJECT ENTITLED THE PERCEPTION OF PROBABILITY. ALSO LIST SOME SELF MADE REAL LIFE CONDITIONS QUESTIONS TO HAVE A PROBABILITY BASED SOLUTION	<ul style="list-style-type: none">• THREE DIMENSIONAL GEOMETRY• LINEAR PROGRAMMING• PROBABILITY

**SCIENCE
PHYSICS**

APRIL TO JULY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none">• Electric Charges and Electric Field• Electric dipole, Force and Torque• Stable and unstable equilibrium.• Gauss theorem and it's application• Capacitor and capacitance• Application of Gauss theorem, Electric potential and EPS• Summer Camp• Vacation• Current Electricity• Drift Velocity and OHM'S Law, Cells, Emf internal resistance Kirchhoff's laws, wheatstone bridge and potentiometer	<ul style="list-style-type: none">• Charging of a Conductor by electrostatic induction and daily life experiences to explain the static electricity.• Draw Gaussian surface for a given situation and find electric field for symmetrical surfaces• Gauss theorem as the simplest way of finding Electric field over closed surfaces.• Summer Camp: Activities based on reflection refraction, surface tension and thrust• Understand wheatstone bridge, Meter bridge to find unknown resistance.• Verify the laws of resistance• Working and use of potentiometer• Evaluating Electric circuits (Kirchhoff's rule)	



JULY TO SEPTEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none">• Moving charges and magnetism• Magnetic effect of a current carrying conductor• Biot Savart law and ampere circuital law• Moving coil Galvanometer, its principle working and Conversion in an ammeter and voltmeter• Atom as magnetic dipole,• Components of Earth's magnetic field• Electromagnetic induction and alternating current Lenz' law, self and mutual induction Peak and RMS value Generator, Transformer, Electromagnetic Wave• Atom and nuclei• Rutherford Exp.-- observation and conclusion,• Bohr's theory of hydrogen atom and emission of spectral lines• Nuclear size and density, binding energy curve.• Idea about radioactivity• Ray and wave optics	<ul style="list-style-type: none">• Learning about the magnetic-field based instrument and their use• To learn working with a galvanometer, Ammeter and a voltmeter.• Shunt, its use in an electrical circuit• Learn Different ways to produce an EMF• Difference between AC and DC current and their safe values• Working of transformer and ac generator• Study emission of spectral lines in hydrogen spectra• Nuclear size and density.• Evolution of energy in fission and fusion process• Cause of radioactivity• Half life, Average life	

OCTOBER TO NOVEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none">• Semiconductor• PN junction diode• LED, photodiode rectifiers and solar cell• Brief idea about the formation of energy bands• p type and n type semi conductors• Revision & tests	<ul style="list-style-type: none">• Different types of diodes and their practical uses.• Transistors	

DECEMBER TO FEBRUARY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none">• Revision & Tests• Revision & Tests• Revision & Tests	<ul style="list-style-type: none">• Revision of all practicals.	<ul style="list-style-type: none">•

CHEMISTRY

APRIL TO JULY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> • Solid State • Solutions • Electrochemistry 	<ul style="list-style-type: none"> • Surface Chemistry • Chemical Kinetics • Thermochemistry 	<ul style="list-style-type: none"> • Scientific investigations involving laboratory testing and collecting information from other sources

JULY TO SEPTEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> • Chemical Kinetics • Surface Chemistry • General Principles and Processes of Isolation of Elements • p -Block Elements 	<ul style="list-style-type: none"> • Electrochemistry • Chromatography • Preparation of Inorganic Compounds • Preparation of Organic Compounds 	<ul style="list-style-type: none"> • Characteristic tests of carbohydrates, fats and proteins in pure samples and their detection in given foodstuffs.

OCTOBER TO DECEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> • d -and f -Block Elements • Coordination Compounds • Haloalkanes and Haloarenes • Alcohols, Phenols and Ethers • Aldehydes, Ketones and Carboxylic Acids • Amines • Biomolecules • Polymers • Chemistry in Everyday Life 	<ul style="list-style-type: none"> • Tests for the functional groups present in organic compounds: • Determination of concentration/ molarity • Qualitative analysis 	<ul style="list-style-type: none"> • d -and f -Block Elements • Coordination Compounds • Haloalkanes and Haloarenes • Alcohols, Phenols and Ethers • Aldehydes, Ketones and Carboxylic Acids • Amines • Biomolecules • Polymers • Chemistry in Everyday Life

DECEMBER TO JANUARY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> • Revision 	<ul style="list-style-type: none"> • Revision 	<ul style="list-style-type: none"> • Revision

BIOLOGY

APRIL TO JULY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> • Reproduction in Organisms • Sexual Reproduction in flowering plants • Human Reproduction • Reproductive Health 	<ul style="list-style-type: none"> • Study of permanent slides of mitosis. 	<ul style="list-style-type: none"> • Make a project on given topic for viva voce.

JULY TO SEPTEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> • Principle of inheritance • Molecular Basis of Inheritance • Evolution 	<ul style="list-style-type: none"> • Study of permanent slides of meiosis. • Study of soil properties 	



AUGUST TO OCTOBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> Principles & Processes Biotechnology & its Applications Human Health & Diseases Strategies for Enhancement in Food Production Microbes in Human Welfare 	<ul style="list-style-type: none"> Study of pH of water. 	<ul style="list-style-type: none"> Science exhibition

NOVEMBER TO FEBRUARY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> Organism & Population Ecosystem Biodiversity & its Conservation Environmental Issues REVISION 	<ul style="list-style-type: none"> Determination of plant frequency by quadrant method. 	

EXAMINATION SCHEDULE

Name of the Examination	Month	Syllabus
<ul style="list-style-type: none"> PT 1 Term 1 PreBoard 1 PreBoard 2 Final Exam 	<ul style="list-style-type: none"> JULY September November January February 	<ul style="list-style-type: none"> Unit 1 Reproduction Unit 1 Reproduction Unit2 Heradity and Evolution Unt4 Biotechnology Complete Syllabus Complete syllabus Complete syllabus

PHYSICAL EDUACTION

APRIL TO JULY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<p>Unit I Planning in Sports</p> <ul style="list-style-type: none"> Meaning & Objectives of Planning Various Committees & its Responsibilities (per, during & post) <p>Tournament- Knock-out, League or Round Robin & Combination</p> <ul style="list-style-type: none"> Procedure To draw Fixtures-knock-out (Bye & Seeding) & League(Staircase & Cyclic) Round Robin & Combination Procedure To draw Fixtures-knock-out (Bye & Seeding) & League(Staircase & Cyclic) <p>Unit II Sports & Nutrition</p> <ul style="list-style-type: none"> Balanced Diet & Nutrition: Macro & Micro Nutrients Nutritive & Non- 	<ul style="list-style-type: none"> Draw a Fixture of Knockout tournament and League Tournament. Make a Balance Diet Chart for an Athletes. Make a short video of yoga for Better Concentration. 	

<p>Nutritive Components of Diet</p> <ul style="list-style-type: none"> Eating For Weight Control- A healthy Weight, The Pitfalls of Dieting, Food Intolerance & Food Myths <p>Unit III Yoga & Lifestyle</p> <p>Asanas as preventive measures</p> <ul style="list-style-type: none"> Obesity: Procedure, Benefits & Contraindication for Vajrasana, Hastasana, Trikonasana, Ardha Matsyendrasana Diabetes: Procedure, Benefits & contraindications for Bhujangasana, Paschimottasana, Pawanuktasana, Ardha Matsyendrasana Asthma: Procedure, Benefits & contraindications for sukhasana, Chakrasana, Gomukhasana, Parvatasana, Bhujangasana, Paschimottasana, Matsyasana Hypertension: Tadasana, Vajrasana, Pawanuktasana, Ardha Chakrasana, Bhujangasana, Shavasana 		
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JULY TO SEPTEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<p>Unit IV Physical Education & Sports for CWSN</p> <ul style="list-style-type: none"> Concept of Disability & Disorder Types of Disability, its causes & nature (cognitive disability, intellectual disability, physical disability) Types of Disorder, its cause & nature (ADHD, SPD, ASD, ODD, OCD) Disability Etiquettes Strategies to make Physical Activities assessable for children with special need. 		

<p>Unit V Children & Women in Sports</p> <ul style="list-style-type: none"> • Motor development & factors affecting it • Exercise Guidelines at different Stages of growth & Development • Common Postural Deformities – Knock knee; Flat Foot; Round Shoulders; Lordosis, Kyphosis, Bow Legs and Scoliosis and their Corrective measures • Sports participation of women in India <p>Unit VI Test & Measurement in Sports</p> <ul style="list-style-type: none"> • Motor Fitness Test- 50M standing start, 600M Run/ Walk, Sit & Reach, Partial Curl Up, Push Ups (Boys), Modified Push Ups (Girls), Standing Broad Jump, Agility—4x10M Shuttle Run • Measurement of Cardiovascular Fitness — Harvard Step Test/ Rockport Test – Computation of Fitness Index; (Duration of the Exercise in Seconds x 100) (5.5x Pulse count of 1-1.5 Min after Exercise) • Rikli & Jones – Senior Citizen Fitness Test • Chair Stand Test for lowerbody strength • Arm Curl Test for Upperbody strength • Chair Sit & Reach Test for lower body flexibility • Back Scratch Test for upper body flexibility • Eight Foot Up & Go Test for agility • Six Minute Walk Test for Aerobic Endurance 		
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SEPTEMBER TO DECEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<p>Unit VII Physiology & Injuries in Sports</p> <ul style="list-style-type: none">• Physiology factor determining Component of physical fitness• Effect of exercise on cardio Respiratory System• Effect of exercise on Muscular System• Sports injuries: Classification (Soft Tissue Injuries: (Abrasion, Contusion, Laceration, Incision, Sprain & Strain) Bone & Joint Injuries: (Dislocation, Fractures: Stress Fracture, Green Stick, Comminuted, Transverse Oblique & Impacted) Causes, Prevention & treatment• First Aid- Aims & Objectives <p>Unit VIII Biomechanics & Sports</p> <ul style="list-style-type: none">• Meaning and Importance of Biomechanics in Sports Types of movements (Flexion,• Extension, Abduction & Adduction)• Newton's Law of Motion & its application in sports <p>Unit IX Psychology & Sports</p> <ul style="list-style-type: none">• Personality; its definition & types – Trait & Types (Sheldon & Jung Classification) & Big Five Theory• Motivation, its type & techniques• Meaning, Concept & Types of Aggressions in Sports <p>Unit X Training in Sports</p> <ul style="list-style-type: none">• Strength- Definition, Types & methods of improving strength-Isometric, Isotonic & Isokinetic• Endurance – Definition, types & methods to develop Endurance-continuous Training, Interval Training & Fartlek Training Speed- Definition,• types & methods to develop		

<ul style="list-style-type: none"> • Speed- Acceleration Run & PaceRun • Flexibility- Definition, types & methods to improve flexibility Coordinative Abilities- Definition & types 		
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DECEMBER TO FEBRUARY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
		Revision for Annual Exams <ul style="list-style-type: none"> • Pre Board-1 • Pre Board-2 • Pre Board-3

COMPUTER

APRIL TO JULY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> • Revision of Python • Functions • Introduction of files, types of files • Text file 	<ul style="list-style-type: none"> • Practice of all topic covered in class XI • Explain by program in python • Explain by program in python • Explain by program in python 	<ul style="list-style-type: none"> • Make a chart on Types of function

JULY TO SEPTEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> • Binary file • CSV file • Python libraries • Recursion • Idea of efficiency • Data Structure 	<ul style="list-style-type: none"> • Explain by program in Python • Explain by program in Python • Explain by program in Python • WAP to print Natural numbers, factorial, Fibonacci series. 	Make a chart on Stack, operation and implementation of stack

SEPTEMBER TO DECEMBER

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none"> • Evolution of Networking • Data Communication technologies • Transmission Media • Network Devices • Network Protocols • Mobile telecommunication technologies • Introduction to web services 	<ul style="list-style-type: none"> • Make presentation on Evolution of networking. Discuss about IP address, switching and protocols. Discuss about Transmission media. Discuss about modem, hub, router, wifi etc Discuss about LAN, WAN, PAN, MAN. Make presentation on HTTP, FTP, PPP, SMTP, TCP/IP, HTTPS etc. Explain web services in lab. 	<ul style="list-style-type: none"> • Make a chart on Transmission Media. • Make a chart on difference between LAN, PAN, WAN and MAN.



DECMEBER TO FEBRUARY

TOPIC	ENRICHMENT ACTIVITY	PROJECT
<ul style="list-style-type: none">• Data Base• Relational data model• Structured query language• Interface of Python with an SQL data base	<ul style="list-style-type: none">• Given Introduction to Data Base• Do Practical of SQL commands.• Do practical of SQL Commands.	<ul style="list-style-type: none">• Make a chart on Keys



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"Par Excellence With Human Touch"



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