TAGORE INTERNATIONAL SCHOOL
VASANT VIHAR, NEW DELHI
PARENTS SYLLABUS (2021-22)
CLASS XII C & D
APRIL-MAY

Subject	Topics Covered / No. of Periods	Learning outcome	Activities	Assessments
Mathematics	**Inverse Trigonometric Functions (9 days)** **Bridge Course** **Bridge Course** **Continuity and differentiability (15 days)**	Each child will be able to *state what the terms domain , range , codomain Mean for a function *identify and apply appropriate trigonometric identities to questions	**Lab Activity: To draw $\sin^{-1}x$ curve using sin x about y=x** **Art Integration: Coconut carving** **On the exterior of a half shell of a coconut , make designs using inverse trigonometric functions graphs and create a decorative piece and a short note on this art form from Lakshadweep**	Class Work Home Work Google Slides-Assessment of domain and range and some values of inverse trigonometric functions Class Work Home Work Class test on differentiation Google Forms

	Bridge Course **Applications of derivatives (12 days)**	Each child will be able to *recall the concepts of relations and functions * find the domain and range of relations and functions * under what conditions any function has its inverse * when can any trigonometric function have its inverse * principal value and range of inverse trigonometric functions *find the principal value of inverse trigonometric functions *apply the properties of inverse trigonometric functions to questions Each child will be able to *differentiate using product , quotient and chain rules Each child will be able to *recall the concept of existence of limit and process of differentiation using product ,quotient and chain rules		

		*find the derivative of composite, inverse Trigonometric and implicit functions *make sense out of the concept of logarithmic differentiation * differentiate parametric function *find second order derivatives * define continuity and differentiability of a function *prove continuity and differentiability of a function *find points of discontinuity Each child will be able to *solve trigonometric equations Each child will be able to * recall the relation of derivative at a point with the slope of tangent *find the equations of tangent and normal at a given point on a curve *identify a given function to be increasing or decreasing *find the intervals in which a given function is increasing /decreasing	**Lab Activity: To explain increasing and decreasing functions**	

English	**<u>WRITING SKILLS</u>: APRIL (BRIDGE COURSE FOR REVISION):** Report Writing Letter to Editor Job Application MAY: Notice Writing Classified Advertisements Article Writing <u>LITERATURE</u>: APRIL- <u>FLAMINGO-</u> The Last Lesson My Mother at Sixty Six	Write coherent and meaningful paragraphs through the process of drafting, revising, editing and finalizing.Organize and structure thoughts and ideas in accordance with the audience and purpose. Write grammatically accurate language . Develop a skill to write content with appropriate beginning, middle and end. Communicate ideas, points in proper writing style, tone and manner. Ask questions that are relevant and meaningful. Read literary text with clarity and enjoyment , interpret and appreciate characters.	Read out relevant reports published in the newspapers as a class activity. <u>Experiential Learning</u>: Class discussion on newspaper columns and editorial cut outs . <u>Art Integration</u>: Design and make notices for formal display on the notice board . Draft advertisements to be published in the newspaper. Buzz sessions and brainstorming on topics of article writing. <u>Experiential Learning</u>: Students will be asked to gather information about the elderly people in their family(extended), with whom they have been intimately connected and understand the challenges, fears, insecurities faced by them as a result of old age.	Assignments for practice. (CBSE Questions) Worksheets Google Classroom Practice Assignments

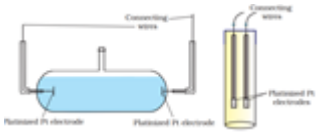
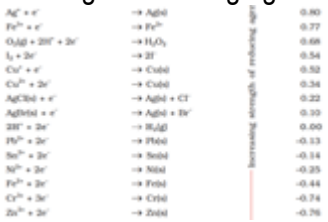
	The Rattrap MAY: <u>VISTAS-</u> Should Wizard Hit Mommy? On The Face of It.	Recite the poem with appropriate expression and intonation. Analyze themes, plots and incidents and give opinions. Understand the explanation, identify and appreciate significant literary devices. Engage in conversation and class-discussion on topics and sub-topics. Compare and contrast the issues raised to everyday life experiences, think critically about the issues highlighted.	Presentation by students on information regarding why people turn into criminals, unrighteous humans, vagabonds. Pair and share. Question Bank prepared by students . Peer review. Class discussion.	Worksheets Google Classroom Quiz sessions
Physics	APRIL (18 / 12) Bridge Course (2)	Each child will be able to: · Write the properties of charges. · Explain quantization of charges. · List and explain two methods	Students will make a presentation on capacitors and their use in daily life. To determine the resistance per cm of a given wire by plotting a graph of potential difference versus current, and hence to determine its resistivity.	**HOTS (ANALYSIS)** 1.A cube with each side '*a*' is kept in an electric field given by **E** = *Cx* î, (as is shown in the figure) where *C* is a positive dimensional

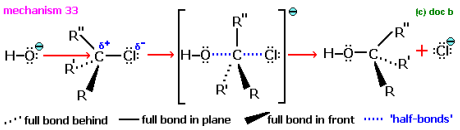
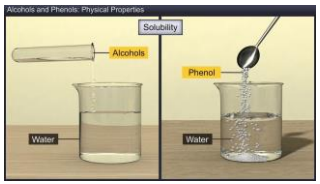
	UNIT 1 Revision : Electrostatics (2) · Electric Charges · Conductors and Insulators · Charging · Coulomb's Law · Electric dipole · Electric field April (8) · Gauss's Law (1) · Application of Gauss's law (2) · Electrostatic MAY (18 / 12) May (6)	of charging. · Differentiate between insulators, conductors and dielectrics. · State coulomb's law and express it mathematically. · Establish a relation between force and electric field. · Draw electric lines of forces due to a positive, negative and combination of charges. Establish relation for electric field due to · an electric dipole. · Mathematically express electric potential. · Establish a relation between electric field and electric potential. · Draw the equipotential surface due to different system of charges · Derive the expression for electric field, potential and energy due to a system of	On OLABS platform **GOOGLE FORM**: After watching a video students would answer the questions related to the practical.(A) To find the resistance of a given wire using a metre bridge and hence determine the specific resistance of its materials. On OLABS	constant. Find out: (*i*) the electric flux through the cube, and (*ii*) the net charge inside the cube. 2. Two isolated hollow metal spheres A and B have radii R and 2R respectively, and same charge q. Find which of the two spheres have greater: (i) Capacitance and (ii) energy density just outside the surface of the spheres. (Evaluate) 3. If Sphere A and B are concentric having charges q1 and q2, calculate the ratio of the charges. (APP) MCQ based assessment on capacitance and

	· Expression of resistance(1) · Internal resistance(1) · Kirchoff's Laws (1) · Combination of cells (1) · Wheatstone Bridge (1) · Metre Bridge (1) · Potentiometer and its application (2) <u>UNIT 3</u> (8) · Magnetic Force(1) · Lorentz Force(1) · Magnetic force on a current carrying conductor (1) · Motion in a magnetic field(1)	charges • Define current, give its unit, factors affecting the flow of current • Explain the difference between emf and potential difference. • Mathematically express resistance of conductors. • Draw the I V curve of metals insulators and semiconductors. • Derive the expression for the current. • List the a factors on which internal resistance depends on • Solve the given networks to find the value of current, resistances • Analysis of the heating effects of current. • Explain the working of a metre bridge and a potentiometer. • Demonstrate how	**<u>GOOGLE FORM</u>**: After watching a video students would answer the questions related to the practical.(A)	potential. Class test On Gauss's law and its application AB is 1m long uniform wire of 10Ω resistance. The other data are shown in the circuit diagram. Calculate (i) Potential gradient along AB, and (ii) length AO of the wire, when the galvanometer shows no deflection. •A storage battery of emf 8.0 volts and internal resistance 0.5 ohm is being charged by a 120 volt DC supply using a series resistor of 15.5

		potentiometer can be used to find the internal resistance of a cell. Demonstrate that electric current gives rise to magnetism. · Predict the direction of the magnetic field in any current carrying element · Calculate the force experienced by a moving charged particle in a crossed electric and magnetic field · Solve numerical based on Lorentz force.		ohms. What is the terminal voltage of the battery during charging? What is the purpose of having a series resistor in the charging circuit? Class Test on • Application of Kirchhoff's Laws WEEKLY TEST Electrostatics Current and electricity A charge 'q' moving along the X axis with a velocity v is subjected to a uniform magnetic field B acting along the Z-axis as it crosses the origin O (i) Trace its trajectory[SEP](ii) Does

				the charge gain kinetic energy as it enters the magnetic field? Justify your answer
Chemistry	April 4 TD Bridge course Hybridisation +R and – R effect and directive influence in benzene compounds Electro chemical cell ,electrode potential ,electrode reaction and EMF of cell No.of classes =11 Electrochemical cells and Emf calculation (2)	Each student is able to: explain the different types of hybridization involving *s*, *p* and *d* orbitals Predict the directive influence of substituents in mono substituted benzene ring. Describe an electrochemical cell and differentiate between galvanic and electrolytic cells; ▪Describe an electrochemical cell and differentiate between galvanic	To prepare p-chloronitrobenzene choose the correct substrate from the following: (a)chlorobenzene (b)nitro benzene Activity: Find the shape of 5 molecules around you.  In Zn Cu cell Cu works as cathode. Why? Study the working of cell used in wall clocks  . Virtual construction of electrochemical cell (Zn –	Oral questions . Google form Short class test(MCI)

	Relation between Equilibrium constant and Gibb's free energy change (1) Movement of ions and conductivity Measurement of conductivity of electrolytic solutions (2) Kohlrausch law and its applications;	and electrolytic cells; ▪apply Nernst equation for calculating the emf of galvanic cell and define standard potential of the cell; ▪derive relation between standard potential of the cell, Gibbs energy of cell reaction and its equilibrium constant; ▪define resistivity , conductivity and molar conductivity of ionic solutions; ▪ differentiate between ionic (electrolytic) and electronic conductivity; ▪measurement of conductivity of electrolytic solutions and calculation of their molar conductivity;▪justify the variation of conductivity and molar conductivity of solutions with	Cu cell)Integrated with physics (olab) Identify the different part of given electrochemical cell  <u>Activity:</u> <u>Picture prompt</u> Identify 1.strongest reducing agent 2.strongest oxidising agent  Technology integration Animation of SN1and SN2	

	Haloalkanes and haloarenes (7) Types and Methods of preparation(1) Phy-chem properties (2) May W.D=18 No.of classes=15 SN1 andSN2 mechanism (2) Stereochemical aspect of Alkyl halides	change in their concentration and ▪define molar conductivity at zero concentration or infinite dilution); ▪enunciate Kohlrausch law and learn its applications; ▪Follow IUPAC rules of nomenclature of these organic compounds. ▪Classify haloalkanes and haloarenes into various categories. ▪Enlist atleast four methods of preparation of these compounds (two each) . ▪compare Physical properties of haloalkanes and haloarenes. ▪conceptualise o-p substitution of haloarenes ▪Visualize the nucleophilic mechanism for sym and chiral compounds ▪explain stereo chemical aspect of	https://www.youtube.com/watch?v=QAyriEIN-30  Activity -Solubility of alcohol and phenol  activity to Show acidic nature	Class test (reactions) Individual Written work Research:Polyhalogen compounds and their harmful effect

	(1) Alcohol,Phenol, Ethers(6) nomenclature and methods of preparation (1) physical properties (1) chemical properties(1) mechanism of important reactions (1) comparing alcohols and phenols(1) Ethers Preparation and properties(1)	alkyl halides . ▪State rules for nomenclature of these organic compounds. ▪Describe methods of preparation of these compounds (at least two) ▪Discuss and compare Physical properties of alcohol and phenol ▪Explain ring substitution of phenol and ethers ▪Predict major products in the reactions. ▪Outline industrial method of preparation of ethanol and	www.library.thinquest.org/3659/orgchem/alcohols.wrl.	Short test on name reactions given in the chapter Google form

		,phenol ▪Appreciate use of organic compounds in everyday life.		
Computer Science	UNIT 1: Programming and computational thinking **Ch : Revision Tour (Bridge Course)** • Revision of Python basics • Flow of Control • Lists and Tuples • Dictionaries UNIT 1: Programming and computational thinking **Ch : User Defined Functions**	Students will be able to: ● use keywords and differentiate among various tokens. ● implement matrices using python nested lists ● Implement mutable and immutable data type concepts in programming **Students will be able to:** ● use inbuilt functions and modules ● create their own functions and modules	Learning Activity: Implementing lists and tuples to solve various codes like: ● Find the sum of even numbers from a list and a tuple ● Calculate the mean of elements in a tuple ● Programs based on nested loops to draw patterns Using predefined methods like sort(), reverse(), index() etc in programming. **Learning Activity** ● Implementation of inbuilt functions using case studies (Assignments will be given to them to work on real life problems) ● implementing mathematical matrices using python programming . **Assessment Activity** ● Solving output questions from worksheets ● Programming questions from worksheets ● Questions (HOTS/Value based)	● Worksheets ● Assignments in Google Classroom ● Error/ output based assignments ● Discussion on online classes ● Outputs provided by the students during online classes

	● Introduction to User Defined functions ● Functions : scope, parameter passing ● Functions: Mutable / immutable properties of data objects ,passing arrays as parameters, returning values No. of Periods: 36	● differentiate between default , keyword and named parameters ● understand and implement the various kinds of parameters in programming ● define the scope of data objects used in a program ● use global keyword and implement it in programming applications too ● Describe the execution of any program containing functions. ● Create Python packages and Libraries	● Python Program to Take in Two Strings and Display the Larger String without Using Built-in Functions	
Economics	**APRIL** Liberalisation Globalisation Privatisation Reasons for adoption of the New Economic Policy Privatisation-Need of the Hour? **APRIL/MAY**	**Each student will be able to**: Understand the background of the reform policies. -the mechanism through which reform policies were introduced Discuss the causes for the adoption of the New Economic policy. Understand different methods for the measurement of national income	Observe around you— you will find State Electricity Boards (SEBs),BSES and many public and private organizations supplying electricity in a city and states. Compare the differences . There are private buses on roa Why has private transport increased? Make a list of government agencies that have been privatized recently. Analyse the reasons for the same.	Class tests Peardeck revision question- for classroom assessment Google forms Jam boards Worksheets

	National Income and Related aggregates. a.Basic concepts b. Circular flow of Income c.derive the formulae D.basic concepts Methods of calculating national income Deriving the formulae Aggregates related to national income Real and Nominal GDP	Define income method Know expenditure method Classify factor income Analyze the circular flow of income Discover the flow of income in various sectors Understand different sectors. Calculate numerical Compare between real and nominal income Justify the importance of real GDP	An ambassador in the US embassy in India stays in his job for a period exceeding one year.Would he be treated as a resident or a non-resident of India? Why is income earned by foreigners working in a branch of a foreign bank in India a part of the domestic factor income? In what sense can defense and security provided by the government be treated as intermediate service? Poetry Increase in per capita income means increase in per capita availability of goods and services. Does it necessarily mean a rise in the welfare of the people in the country? Give two arguments in support of your answer and explain the same	Class tests Peardeck revision question- for classroom assessment Google forms Jam boards Worksheets
Psychology	**<u>APRIL (17 periods):</u>** 1. **<u>Week 1-Bridge Course-</u>** Grade XI- Revision of concepts from Lessons 1-9: Core theoretical concepts revised **5 periods** **2. <u>Week 2-</u>**	Students will be able to : ○ Understand and revise core theoretical concepts from chapters 1-9 of NCERT ○ Apply concepts learned to real life situations Students will be able to:	● Quizzes ● Assignment ● Group Discussions ● Abstract Art representation	● MCQ's ● Assignments ● Video/audio clip submission ● Classwork ● Presentation

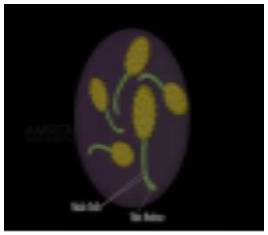
	Self and Personality- Grade XII- Chapter 2- Identifying personality and its core approaches, evaluating measurement of personality and theoretical frameworks **6 periods**	○ Define and conceptualize personality ○ Identify theoretical approaches of personality ○ Critically evaluate personality theories ○ Understand and evaluate ways to measure personality	● Abstract art representation ● Assignments ● Class quizzes and case discussions ● Group Discussions	
	3. Week 3- Psychological Disorders Grade XII- Chapter 4 Understanding abnormality and its historical evolution, conceptualizing classification and factors underlying abnormality, understanding range of psychological disorders and their	Students will be able to: ○ Understand and define abnormality ○ Classify abnormality and underlying factors ○ Identify the range of disorders with symptoms ○ Form a thorough understanding of the range of core disorders such as anxiety, depression, neurological disorders	● Group discussions ● Presentations ● Videos ● Case studies	● Sample files ● Soft copy material ● Handwritten files to be created

	representation across individuals **6 periods** **1. <u>Week 4- Psychological Disorders</u>** Continuation **<u>MAY (18 periods):</u>** **<u>1.Week 1- Developing Psychological Skills</u>** Grade XII- Chapter 9 Understanding psychological skills, general, observational and specific skills. Discussing components of communication, counseling and interviewing skills and ethics to be followed. **- 6 periods** **<u>2. Week 2- Practicals</u>** Preparation for practical files and case study project as per CBSE guidelines for evaluation	Students will be able to: ○ Understand core psychological skills and categories ○ Identify and apply the range of skills required to be an effective psychologist ○ Practice and evaluate tools and techniques of psychological evaluation Students will be able to: ● Understand the CBSE requirements of the case study project and psychological tests ● Organize written material as per normative guidelines for file making Students will be able to: ○ Understand the human environment relationship	● Group discussions ● Role play ● Case studies	based on guidelines ● Classwork ● Assignments

	-3 periods **<u>3.Week 3- Psychology and Life</u>** Grade XII- Chapter 8 Understanding the human environment relationship and ecology, environmental effects on health and behavior, promoting pro-environmental behavior and understanding social concerns of poverty and discrimination **-6 periods**	○ Understand environmental impact on behavior and health ○ Identify and elaborate on concepts of promoting environmental behavior and eliminating social concerns arising out of environmental factors Students will be able to: ● Understand the CBSE requirements of the case study project and psychological tests ● Organize written material as per normative guidelines for file making	● Audio clips and podcasts ● Situation based quizzes and MCQs ● Structure test material and file content ● Create and discuss content for practical files ● Group discussion ● Presentation ● Art work ● Videos	● Sample files ● Soft copy material ● Handwritten files to be created based on guidelines
Biology	**<u>1.Bridge course</u>** **Biomolecules-DNA structure and function (2 classes)**	● Identify the role of genetic material. ● Classify genetic material on the basis of molecular arrangement, into DNA & RNA ● Draw conclusion traits are passed from parents to the progeny. ● Draw the labelled diagram of	<u>Experiential learning;</u> **<u>https://www.youtube.com/watch?v=DFA1zviCd_0</u> DNA structure** **AR for basic DNA structure.**	Practice worksheet Google docs and Online discussion as reflection of learning PADLET AND PEARDECK FOR REFLECTION .

	Unit 1 Reproduction **1.. Reproduction In Plants.** **(7 classes)**	DNA. • Explain the structure of anther & carpel mainly in the flower & process of development of	 **DNA puzzle game**  Art integration- Making & presenting-Comic strip  Learning activity- 1. If two strands of DNA don't run anti parallel , how will it affect DNA structure? 2. Between DNA and RNA which one is more diverse by function? Justify your answer. 3. Why do we mark two ends of DNA as 3' and 5' end?	Google form for mcq Google docs-assignment PADLET AND

		male & female gametophytes diagramatically. ● Specify the modes of pollination, ● Explain the significance of out breeding & devices in plants to achieve it, ● Discuss the compatibility between pollens & stigmatic surface, ● Specify the process of double fertilization. Explain the structures formed in ovary after fertilization e.g. embryo, seed, (monocot & dicot) & fruit diagramatically. ● Define the terms polyembryony,Apomixis. ● Apply scientific knowledge to	For the flipped class- **https://dikha.gov.in/play/content/do_3132295647968051201664** Reproduction in organisms https://www.youtube.com/watch?v=dgFY7WUTASQ- fertilization in flowering plants https://www.youtube.com/watch?v=f6ctdQtz6do- - structure of ovule https://www.youtube.com/watch?v=ejM3FtMHr1A__--microsporogenesis https://www.toppr.com/ask/content/story/amp/introduction-to-pollination-85636/- General pollination https://www.youtube.com/watch?v=mix5torjiYc for pollination & fertilization **Experiential learning** **Study pollen germination in flowering plants**.using Olab link https://www.youtube.com/watch?v=Su6fxJQ5q3o	PEARDECK FOR REFLECTION popplet/mindmeister for graphic organizers

	2.Reproduction in Humans **(8 classes)**	daily life	 **2.Attempting cross pollination involving hybridization.** **https://www.youtube.com/watch?v=FCDW_loKId0** **Link for controlled pollination.** **Learning Activity-** 1.Do all plants shed pollens gradually? If not,list the plants where plants shed pollen's as a bunch from each theca of the anther. 2.What is meant by pollen viability? Can pollen be transported to distant places for the pollination process? Why or why not? 3. Make flow charts for microsporogenesis & megasporogenesis. 4. Draw labelled diagram of microsporangium & megasporangium ● Label the given diagram in	

	3.Reproductive Health (4 classes)	● Explain the structure of male & female reproductive system. ● Specify the function of each part labelled. ● ● Draw the labeled diagram oh human secondary Oocyte and Human sperm. ● Draw the labelled diagram of male and female reproductive systems. ● Write one main function of each labeled part. ● Graphically explain gametogenesis ● Specify the role of hormones in the process of gametogenesis. ● List the stages of	the Activity sheet **ART INTEGRATION:: Create a batik design on the card or fabric**  ● List 20 vocabulary words related to the topic ● Choose the correct options from the MCQ Sheet. ● Make Graphical Flow Chart for Spermatogenesis & Oogenesis ● Worksheet based on ametogenesis & Menstrual cycle. ● Make a flowchart on stages of Fetal growth based on text & vi ● Completing graphic organizer on ART and Birth control measures.	

	UNIT-GENETICS and EVOLUTION **Principles of Inheritance (8 classes)** **Molecular basis of Inheritance (4 classes)**	embryogenesis & developments in the uterus after pregnancy & at the time of parturition. ● Relate the changes taking place during various phases of menstruation to changes in the hormones in the female reproductive system. ● Reason the factors responsible for STD,s ● List the various methods of birth control & their functioning ● Specify the method to be used for assisting couples wanting to give birth to a	For the flipped classes: www.flipcart.com.org.nz/.inheritance/ on Mendel https://www.youtube.com/watch?v=cWt1RFnWNzk-- Mendel’s expt. https://www.youtube.com/watch?v=Wuk0W10EveU-- pedigree https://www.youtube.com/watch?v=svtHWJdQYOk-- analysis of pedigree https://www.youtube.com/watch?v=GieZ3pk9YVo-- mutations https://www.youtube.com/watch?v=uXdzuz5Q-hs-- https://www.youtube.com/watch?v=uXdzuz5Q-hs-- DNA https://www.youtube.com/watch?v=t9xBHPz_3ro –Griffiths expt. https://www.youtube.com/watch?v=X1cd68YkVdM –Hersey chase expt. https://www.youtube.com/watch?v=uXdzuz5Q-hs-- DNA	● Activity Sheets ● Brainstorming ● Google Docs ● Google Forms ● Online Class Test

		child. ● Recall various laws. ● Explain the method used by Mendel in his experiments. ● Interpret the law by studying the ratios of F_2 generation. ● Draw the analogy between gene inheritance & chromosomal behaviour. ● Relate Morgan's work to discovery of phenomenon of Linkage ● Explain the relationship of linkage & crossing over. ● Analyze human genetic disorders using pedigree. ● Explain the scientific process that led to identifying the process of sex determination in different organisms ● Write differences as well as symptoms of Mendelian & chromosomal disorders. ● Identify DNA as the genetic material giving its	https://www.youtube.com/watch?v=t9xBHPz_3ro –Griffiths expt. https://www.youtube.com/watch?v=X1cd68YkVdM –Hersey chase expt. Learning activity: Compare Mendel's Monohybrid & Dihybrid cross. ● List conclusions drawn from each cross. ● List Mendel's deviations & conclusions drawn about inheritance. ● Attempt a cross between two Heterozygous parents & write the ratio based on Activity sheet on Human	

		features. ● Describe the structure of molecules making DNA. ● Recall the experiment for establishing DNA as the genetic material	Genetic Disorders. ● Draw the structure of a single & double Polynucleotide strand of DNA molecule. ● Make a flowchart on Griffiths & Hershey & Chase experiment. ● Make a well labelled diagram of Replication fork, Transcription unit & Translation process. Experiential activity:: Study & Draw the two plants adapted to aquatic habitats & two plants adapted to xerophytic conditions.	