**Grade 10 HYE Syllabus Focus 2025 – 2026**

| Subject | Syllabus | Paper Component with marks and timings |
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| **Physics** | Grade 8 (Topics): <br><br> Transverse, longitudinal waves, Mechanical and EM waves classification. Characteristics of Waves Wavelength $\lambda$, frequency $f$, time period $T$, and wave speed $v$ applied to wave motion as given by $v = f\lambda = \lambda/T$ Relation between velocity, wavelength and frequency, Numerical problems <br><br> Sound waves, Echo, Sound in different media. Speed of sound Ultrasound and Infrasonic Sound Applications - Radar, Sonar, Medical field. <br><br> Light waves: EM spectrum (range and applications) Properties of light <br><br> 1. Reflection (definition, laws, types of reflection, image in a plane mirror, characteristics of plane mirror image) (ray diagram of image formation included). Mirrors and types of spherical mirrors, Applications – (ray diagrams of image formation for convex and concave mirrors included) <br><br> 2. Refraction (definition, laws, refraction through a glass slab), Refractive index definition and calculation - $n = c/v$ Lenses and its types, applications (Introduction (simple ray diagrams required) Human eye in terms of image formation. (Corrective measures of myopia and hypermetropia included) TIR and conditions for TIR (Critical angle definition only- no calculation of critical angle) Optical fibre and applications <br><br> 3. Scattering and dispersion (colour of sky, rainbow) | Criteria A, B, C C D - 25 Mark each criterion <br> Total Mark - 100 <br><br> Time - 2hrs |

4. Diffraction definition

<u>Grade 9 (Topics):</u>

## **Unit 1: Thermal Physics**

- Heat and Temperature
- Internal Energy
- Kinematic molecular theory
- Brownian motion
- Modes of heat transfer - Convection, Conduction & Radiation
- Qualitative analysis of rate of thermal energy transfer by conduction in terms of the type of material and cross-sectional area of the material and the temperature gradient
- Thermal expansion in solids, liquids and gases
-  Cooling/Heating curve experiment
- Specific heat Capacity and Latent Heat
- Discuss the significance of water's high specific heat capacity in moderating climate and supporting life.
- Evaporation and factors affecting evaporation such as temperature, humidity, surface area
- Kinetic theory of Gases
- Gas Laws : (Boyle's Law, Charles's Law, Gay-Lussac's Law).

## **Unit 2:  Forces and motion**

### **2.1 : Motion**

- Distance, displacement
- Speed, velocity
- Instantaneous and average values of velocity
- Acceleration
- Motion graphs
- Equations of motion

### **2.2 : Types of Forces and Newton's Laws**

- Forces acting on a body and free-body diagram
- Calculating Resultant Force from the free body diagram
- Type of forces (Gravitational Forces, Normal force FN, Surface frictional force, Tension, Viscous drag force and Buoyancy- only directions of these forces and that they are examples of resistive forces)
- Newton's First Law
- Newton's second law

- Linear momentum
- Impulse
- Applications of impulse in crumple zones, air-bags, safety padding, follow-through in sports
- Conservation of momentum in elastic, inelastic collisions and explosions of two bodies.

**2.3 Effects of Forces**

- Terminal Velocity
- Hooke's Law
- Uniform Circular Motion
- Centre of Mass
- Moment of force
- Pressure
- Solid pressure
- Pressure exerted by liquids and gases, Barometer.

## Unit 3: Energy and Work

- Types of energy
- Transformation of energy
- Conservation of energy
- Work done
- In the absence of frictional, resistive forces, the total mechanical energy of a system is conserved.
- Kinetic energy
- Gravitational potential energy, Elastic potential energy
- Power
- Efficiency $\eta$
- Sankey diagrams (interpretation and calculation of efficiency)
- renewable energy sources

## Unit 4: Astrophysics

- Primary source of energy - Sun, Fusion reaction in stars
- Big-bang theory
- Red-shift, Doppler effect, cosmic wave background radiation as evidence of Big-Bang theory and expansion theory
- Dark Matter, Dark Energy [basics]
- Hubble's Law and graph
- Universal Law of gravitation
- The relation between mass and weight using Universal law of gravitation and connect it to laws of motion.

- Kepler's Laws
- Life cycle of stars
- Classification of stars based on spectral class and luminosity
- H-R Diagram
- Satellites and uses of satellites
- scope of space exploration and space-based research

G-10 (Topics)

Unit 1: Electricity and Magnetism

**Static Electricity:**
- Type of charges
- Like and unlike charges attract and repel
- Quantization of charge
- Method of charging (electric charge can be transferred between bodies using friction, electrostatic induction and by contact, including the role of grounding (earthing))
- Application of static Electricity.
- The direction of forces between the two types of electric charge, Coulomb's law
- Electric field lines, the relationship between field line density and field strength, Electric field lines of single point charges and that of parallel plate showing uniform electric field.
- Van De Graff Generator (Application of static charges.

**Current Electricity:**

- Introduction to current Electricity
- Sources of emf, chemical cells and solar cells.
- direct current (dc) $I = q/t$
- Electric potential difference $V = W/q$).
- Definition of Resistance
- Resistivity as given by $\rho = RA/L$
- Properties of electrical conductors and insulators in terms of mobility of charge carriers
- Drift Velocity.
- Voltmeter and ammeter (current and voltage measurements)
- Ohm's law
- The ohmic and non-ohmic behaviour of electrical conductors.

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| | • Simple circuit, Series, and parallel circuit. [Circuit diagrams Series and Parallel with numericals.] | |
| **Chemistry** | **Unit 1. Acids, bases and salts** <br> 1. Definitions of Acids and Bases: • Understand and compare Arrhenius, and Brønsted-Lowry theories of acids and bases • Identify acids and bases according to each theory • Explain the limitations <br> 2. Properties of Acids and Bases • Weak and strong acids • Identify common strong and weak acids and bases • Describe the characteristic properties of acid base and salts <br> 3. Acids and Bases in the Periodic Table - Oxides: • Predict the acidic, basic, or amphoteric nature of oxides based on their position in the periodic table • Explain trends in acid-base behavior of oxides across the periodic table • Types of oxides (Acidic Basic and neutral) • Write equations for the reactions of oxides with water <br> 4. pH Scale and Indicators: • State the color change in various solutions using methyl orange, universal indicator and phenolphthalein <br> 5. Neutralization Reactions and Titrations: • Write balanced and ionic equations for neutralization and precipitation reactions • Perform titrations and calculate concentrations from titration data (LAB) <br> 6. Impact of Acid Deposition on the Environment: • Explain the causes and effects of acid rain <br> 7. Formation of soluble and insoluble salts <br> 8. Factors Affecting Solubility: • Describe how temperature, pressure influence solubility <br> 9. Preparation and Testing of Various Gases: • Describe methods for preparing common gases (e.g., hydrogen, oxygen, carbon dioxide, Chlorine C Ammonium) • Explain and perform tests to identify specific gases • Understand safety precautions when working with gases <br> 10. Practical Skills and Analysis: • Conduct acid-base titrations and interpret the results • Use indicators to determine the pH of | Criteria A, B, C C D - 25 Mark each criterion <br> Total Mark – 100 <br><br> Time - 2hrs |

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| | various solutions • Prepare salts using various methods (acid + base, acid + metal, acid + carbonate)<br><br>**Unit 2 - Chemical equilibrium**<br><br>1. Reversible Reactions and Equilibrium: • Define and explain reversible reactions • Describe the dynamic nature of chemical equilibrium • Explain the characteristics for system to reach equilibrium<br>2. Factors Affecting Position of Equilibrium - Le Chatelier's Principle: • State Le Chatelier's Principle, outline the factors (Con. Pressure catalyst temperature) effecting the position of equilibrium<br>3. Applying Le Chatelier's Principle: • Predict the direction of shift in equilibrium when conditions are changed • Explain the reasons for the predicted shifts using Le Chatelier's Principle<br>4. Haber Process: • Write the balanced equation for the production of ammonia • Describe the optimal conditions for the Haber process (temperature, pressure, catalyst) • Discuss the importance of ammonia in agriculture and industry<br>5. Environmental and Economic Impact of the Haber Process: • Explain the environmental concerns associated with ammonia production • Discuss the economic significance of the Haber process<br>6. Contact Process: • Write the balanced equations for all 4 steps in sulfuric acid production • Describe the optimal conditions for the Contact process • Explain the role of the catalyst ($V_2O_5$) in the process • Discuss the importance of sulfuric acid in various industries<br>7. Environmental and Economic Impact of the Contact Process: • Describe the potential environmental hazards of sulfuric acid production • Discuss measures to mitigate the environmental impact of the process • Explain the economic importance of sulfuric acid as an industrial chemical<br>8. Comparing Industrial Processes: • Compare and contrast the Haber and Contact processes in terms of conditions and | |

principles • Discuss how equilibrium principles are applied in both processes • Evaluate the sustainability of these processes • Explain why certain reaction conditions are chosen in industrial processes

9. Practical Skills and Analysis: • Conduct simple experiments to demonstrate reversible reactions

## Unit 3 - Mole concept

1. Concept of the Mole: • Define the mole as a unit of amount of substance • Explain the relationship between moles, mass, and number of particles • Solve problems involving conversions between moles, mass, and number of particles

2. Avogadro's Number: • State Avogadro's number ($6.022 \times 10^{23}$) • Explain the significance of Avogadro's number in chemistry • Use Avogadro's number in calculations involving moles and particles

3. Molar Volume: • Define molar volume of gases at STP (Standard Temperature and Pressure) • Use molar volume in calculations involving gases

4. Relative Molecular and Atomic Mass: • Define relative atomic mass and relative molecular mass • Calculate relative molecular mass from relative atomic masses • Understand the concept of isotopes and their effect on relative atomic mass

5. Concentration Calculations: • Perform calculations involving concentration, volume, and amount of substance

6. Empirical and Molecular Formulas: • Distinguish between empirical and molecular formulas • Determine empirical formulas from experimental data ($MgO$) • Calculate molecular formulas given empirical formula and molar mass

7. Percentage Yield and Composition: • Calculate theoretical yield from balanced equations • Determine percentage yield from experimental data • Calculate percentage composition of compound

8. Accuracy and precision: • Define and distinguish between the accuracy and precision • Identify sources of error in experimental procedures • Suggest ways to improve accuracy and precision in measurements

9. Significant figures: • Understand the rules of determining significant figures • Apply scientific figure rules in calculations • Explain the importance of significant figures in reporting scientific data

10. Impact of scientific figures on calculations • Perform calculations maintaining the correct number of significant figures • Explain how significant figures affect the reliability of calculation results

11. Quality assurance and Quality control. • Define quality assurance and quality control in scientific contexts • Explain the importance of standardization in scientific measurements • Discuss methods used to ensure data quality in scientific research

12. Practical Skills and Analysis: • Perform titrations and analyze the results • Use appropriate equipment to measure mass and volume accurately

13. Problem-Solving and Applications: • Solve multi-step problems involving moles, concentration, and stoichiometry • Apply concepts of yield and purity to real-world chemical processes • Evaluate the reliability of experimental data based on significant figures and error analysis

14. Advanced Concepts (for higher-achieving students): • Introduce the concept of limiting reagents in chemical reactions

## Unit 4 - Redox reactions

1. Definition of Oxidation and Reduction: • Define oxidation and reduction in terms of electron transfer • Recognize that oxidation is loss of electrons and reduction is gain of electrons • Understand that oxidation and reduction always occur simultaneously (redox reactions)

2. Oxidation Numbers: • Define oxidation number (oxidation state) • State and apply

|  |  | the rules for assigning oxidation numbers • Calculate oxidation numbers for atoms in elements, ions, and compounds <br><br>3. Rules for Assigning Oxidation Numbers: • Memorize and apply the standard rules for assigning oxidation numbers (e.g., Group 1 metals are +1, oxygen is usually -2) • Determine oxidation numbers in molecules and ions • Use oxidation numbers to identify oxidation and reduction processes <br><br>4. Oxidizing and Reducing Agents: • Define oxidizing agent and reducing agent • Identify the oxidizing and reducing agents in a redox reaction <br><br>5. Writing Half Equations: • Write half equations for oxidation and reduction processes • Combine half equations to write overall redox equations <br><br>6. Principles of Corrosion: • Define corrosion as an electrochemical process • Explain the chemistry of rust formation • Identify factors that accelerate corrosion (e.g., presence of electrolytes, temperature) <br><br>7. Prevention of Corrosion: • Describe methods to prevent corrosion (e.g., painting, galvanization, cathodic protection) • Explain how sacrificial anodes work in corrosion prevention • Discuss the economic importance of corrosion prevention <br><br>8. Practical Skills and Analysis: • Conduct simple experiments to demonstrate redox reactions • Observe and explain the results of metal displacement reactions • Investigate factors affecting the rate of corrosion <br><br>9. Problem-Solving and Applications: • Identify redox reactions in everyday life and industrial processes • Solve problems involving the calculation of oxidation numbers <br><br>10. Electrochemistry Basics: • Introduce the concept of electrochemical cells (Fuel cell and Galvanic cells) • Explain how redox reactions are used to generate electricity in batteries • Discuss the principles of electrolysis <br><br>11. Environmental and Industrial Applications: • Discuss the role of redox reactions in energy |  |
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| | storage and conversion (e.g., fuel cells) • Explore the environmental impact of corrosion and its prevention methods<br><br>**Unit 5 – Metallurgy**<br><br>1. Composition of Metals in Earth's Crust: • Identify the most abundant metals in Earth's crust • Understand the concept of mineral resources and their distribution • Explain the difference between minerals and ore<br>2. Metal Ores: • Define what constitutes a metal ore • Identify common metal ores and their chemical compositions<br>3. Physical and Chemical Properties of Metals: • Predict reactivity of elements based on their position in the periodic table • Describe typical physical properties of metals (e.g., luster, malleability, conductivity) • Explain chemical properties of metals (e.g., reactivity with oxygen, acids, water) • Relate the properties of metals to their atomic structure and bonding<br>4. Metals in Competition: • Understand displacement reactions involving metals • Explain how carbon can reduce metal oxides • Describe metal displacement reactions in aqueous solutions<br>5. Reactivity Series: • Define and construct the reactivity series of metals • Explain the trends in reactivity across the series • Use the reactivity series to pedict the outcomes of displacement reactions<br>6. Uses of Reactivity Series: • Apply knowledge of the reactivity series to explain corrosion processes • Use the reactivity series for native and active metals for specific applications • Understand the importance of the reactivity series in designing extraction methods<br>7. Principles of Metallurgy: • Define metallurgy and its importance in human civilization • Describe the general steps involved in metal extraction (mining, concentration, reduction, purification) • Understand the economic and environmental considerations in metallurgy<br>8. Properties of Metals and Alloys: • Explain how the properties of metals relate to their | |

uses • Define alloys and explain how they differ from pure metals • Describe how alloying can enhance the properties of metals

9. Extracting Metals from Ores: • Describe different methods of extracting metals (e.g., smelting, electrolysis, hydrometallurgy) • Explain why different extraction methods are used for different metals • Describe the extraction of iron from aluminum

10. Recycling metals: • Explain the importance of metal recycling from economic and environmental perspectives • Describe methods used to recycle different metals • Discuss the challenges and benefits of metal recycling

11. Definition of alloy. Why alloys are strong give examples

12. Practical Skills and Analysis: • Conduct simple experiments to compare reactivity of different metals • Perform electrolysis experiments

13. Advanced Concepts: • Introduce the concept of electrochemical series and its relation to the reactivity series

## Unit 6 – Electrolysis

1. Introduction to Electrolysis:
• Define electrolysis as the decomposition of a compound using electricity
• Explain the difference between electrolytes and non-electrolytes
• Understand the role of ions in electrolysis

2. Identification of Simple Electrolytic Cell:
• Identify the components of an electrolytic cell (anode, cathode, electrolyte, power source)
• Explain the function of each component in the electrolytic process
• Distinguish between electrolytic cells and galvanic cells

3. Products Formed at Electrodes:
• Predict the products of electrolysis for molten lead (II) bromide
• Explain the differences in products when electrolyzing concentrated aqueous

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| | | sodium chloride versus its molten form<br>• Predict and explain the products of electrolysis for dilute sulfuric acid using<br>inert electrodes<br>4. Factors Affecting Electrolysis Products:<br>• Understand how the nature of electrodes (inert vs. active) affects the products<br>• Explain the influence of concentration on the products of electrolysis in<br>aqueous solutions<br>• Describe how the position of ions in the electrochemical series affects the<br>products<br>5. Products of Aqueous C Molten Ionic Compounds:<br>• Compare and contrast the products of electrolysis for molten and aqueous<br>ionic compounds<br>• Explain why water can be preferentially discharged in some aqueous<br>electrolysis reactions<br>• Predict products based on the reactivity series and the nature of the<br>electrolyte<br>6. Practical Skills and Analysis:<br>• Set up and conduct simple electrolysis experiments<br>• Measure and record voltage and current in electrochemical processes<br>• Analyze the products of electrolysis using appropriate tests | |
| **Biology** | Unit 2 and 3 (Grade 7)<br>1. Factors affecting the rate of photosynthesis<br>2. Limiting factors of photosynthesis<br>3. Equation of Photosynthesis<br>4. Aerobic and Anaerobic Respiration<br>5. Experiments<br>**Unit 4 – Homeostasis**<br><br>- Negative feedback mechanism – components involved and block diagram. -<br>Thermoregulation – vasodilation, importance of sweating, vasoconstriction, importance of shivering , - Glucose regulation – mechanism of regulating blood glucose levels, importance of insulin and glucagon, diabetes (type 1 and | Criteria A, B, C C D - 25 Mark each criterion<br>Total Mark – 100<br><br>Time - 2hrs | |

2). - Cardiovascular system – delivery of substances like glucose and oxygen throughout the body and maintain homeostasis - Effect of physical activity on rate of respiration. - Water regulation – function of water and mechanism of regulating water levels in the body, movement of water across cell membranes (osmosis and diffusion), role of kidneys, importance of salt concentration in the body.

**Unit 2 Excretory System**

- Kidneys and other excretory organs - Parts of excretory system. - Internal structure of kidneys and their role in waste removal - Composition of urine - Functions of the kidney
- Factors affecting urine output - Disorders of the excretory system (kidney failure, urinary tract infection) - Dialysis- Working principle and role in health care - Kidney transplants, organ donation, advantages and disadvantages –

**Unit 3 – Reproduction**

Parts and functions of the male and female reproductive system · Adaptive features of sperm and ovum · Menstrual cycle – · Fertilization, implantation · Structure and function of placenta · HIV – mechanism of infection and progression of condition · Vaccination- Ag-Ab response Passive and active

**Unit 4**

**(Genetics and Inheritance)**

Structure of DNA, chromosomes and proteins and role of DNA in inheritance. · Cell division – mitosis and meiosis – main stages and key changes occurring in each stage · Inheritance of sex · Mendelian genetics – monohybrid, co-dominance, incomplete dominance. · Sex-linked inheritance – colour blindness, haemophilia · Genetic code, gene expression and protein synthesis – transcription

| | | and translation · Gene and chromosome mutations – sickle- celled anaemia, Down's syndrome.<br><br>**Unit 5. Variation and Adaptation**<br><br>Phenotypic and genetic variation:<br><br>Continuous and discontinuous variation:<br><br>Genetic change:<br><br>Heterozygote superiority:<br><br>Adaptation: Plant adaptations - Hydrophytes and Xerophytes:<br><br>Investigating variation (practical work) | |
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| **History** | | **Unit 1: Technology & Revolutions**<br>• Industrial Revolution- Change in everyday life, impact of mass production.<br>• Case studies- Britain and Japan.<br>• Pioneers- Captain Meriwether Lewis and Captain William Clark<br>• Thomas Edison<br>• Josphine Cochrane<br>**Unit-2 Imperialism, Nationalism & Civil Rights**<br>• Reason and causes of Imperialism<br>• Different theories of Imperialism-White man's burden, Opium war and imperialism.<br>• Case studies of Colonization<br>• Belgium Congo<br>• British India [Battle of Plassey and Buxar]<br>• Meaning and Features of Nationalism How countries enforce/practice Nationalism?<br>• Indian National Movement – Role of British, Salt Satyagraha, Cripps Commission and Quit India<br>• Movement, Role of Congress, Role of Individuals movements – Gandhi, Subhash Chandra Bose (Comparative approaches in brief)<br>• Kenyan struggle for Independence – Causes of the Mau revolt and impact | Criteria A, B, C C D<br>Total Mark – 80<br><br>Time - 2hrs |

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| | <ul><li>Role of Individuals in movements- Jomo Kenyatta</li><li>Spice Trade, Silk route, Slave Trade.</li><li>Movements against racism in the 20th century- Martin Luther King Jr and the Civil Rights Movement, Malcolm X, Black power</li><li>Importance of aid</li></ul>**Unit-3 Ideologies**<ul><li>Meaning and features of ideologies</li><li>Feminism – Waves of Feminism (linking to Civil Right protests and women liberation movement in America)</li><li>Anarchism and Famous Anarchists – Proudhon</li><li>Goodwin, Creation of Anarchist society, Anarcho-Feminism</li><li>Marxism - Marxism and Russian Revolutions</li><li>Marxism and Naxal movement</li><li>Social Darwinism (connect to fascism)</li><li>Fascism- 7 signs, Fascist Italy, Signs of Fascism in democracies</li><li>Liberalism- Political and Economic ideology</li><li>Existentialism – Features, Sartre, Kafka</li><li>Humanism – Maslow</li></ul>**Unit-4 Nations, War & Peace making**<ul><li>Empires of Europe- Germany, Austria-Hungary</li><li>World War I</li><li>Peace Treaties of 1919 – 1923</li><li>League of Nation - Successes and Failures</li><li>How did League of Nations respond to the challenge of the aggressor states – Japan, Italy and German</li><li>World War II- Causes and Consequences</li><li>Formation of UNO</li></ul> | |

| Geography | **Unit 1: Settlement and urbanisation** | Criteria A, B, C C D - 20 Mark each criterion |
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| | • Settlement – Site, Situation, Patterns | Total Mark – 80 |
| | • Settlement types – Rural and Urban | |
| | • Settlement hierarchy, functions and services | Time - 2hrs |
| | • Urban Landuse Models – Burgess, Hoyt's | |
| | • Urban environment- Urbanization, changes in land use, problems of urbanisation, slums and squatter settlement. | |
| | • Rural-urban fringe, urban sprawl and counter-urbanization | |
| | • Megacities and world cities | |
| | • Solutions for sustainable urbanisation: Sustainable and smart cities | |
| | **Unit 2: Understanding Hazards** | |
| | • Structure of the earth's interior | |
| | • Continental Drift Theory | |
| | • Plate tectonics- Theory, plate boundaries and movements [Convergent, divergent and transform] | |
| | • Earthquakes – Causes, impact and measures | |
| | • Volcanoes – Types, Causes, impact and measures | |
| | • Landslides - Causes, impact and measures | |
| | • Avalanches - Causes, impact and measures | |
| | • Tsunami - Causes, impact and measures | |
| | • Floods- Causes, impact and measures | |
| | • Droughts - Causes, impact and measures | |
| | • Tropical cyclones- Causes, impact and measures | |

- Phases of disaster management

**Unit 3: Sustainable Management of Ecosystems**

- Factors affecting biomes
- Importance of biodiversity
- Tropical rainforest biomes
- Coniferous forests (Taiga)
- Tropical grasslands (savannah)
- Temperate grasslands
- Hot deserts
- Cold deserts (Tundra)
- Aquatic biomes – Freshwater and marine biomes
- Strategies of the conservation of biomes

**Unit 4: Resources and Human Development**

- What is a resource?
- Dual role of man in resource creation and consumption
- Natural resources, natural capital and natural income
- Non-renewable, renewable and replenishable resources
- Renewable v/s non-renewable resource- Advantages and disadvantages
- Types of mines- Open cast and deep shaft, stages of mining
- Impact of mining- Positive and negative
- Sustainable mining
- Food security
- Water security
- Environmental issues in the consumption of resources
- Sustainable development
- Linear vs circular economy
- Sustainable Development Goals
- Factors affecting globalization, advantages and disadvantages of globalization, anti-globalization, glocalization
- Impact of globalization on resource consumption and the environment- Ecological footprint and food miles
- International trade – Definitions (import, export, surplus, deficit, tariff, quota), the balance of trade, impact of globalization on world trade (free trade)
- Fair Trade

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| | • Aid- Bilateral, multilateral, short term and long term, aid from NGOs<br><br>Unit 1: **Demographics and human movement**<br><br>• Demography Basics:Understand key demographic terms and indicators, Concept of exponential growth and doubling time, Factors affecting population growth (birth rate, death rate, migration)<br>• Population Distribution and Density:<br>• Population Structure:Types of age-sex pyramids (Broad-based, bee-hive-shaped, rectangular)<br>• Demographic Transition Model: Stages, Limitation<br>• Population Issues: Optimum population, overpopulation and underpopulation, The merits and demerits of dependent populations (ageing and youth), The concept of demographic dividend and its implications.<br>• Population Policies: Pro-natal and anti-natal policies<br>• Population Theories: Malthusian and Boserup's theory<br>• Migration: Its role, types, Push and pull factors, impacts and effects.<br>• Voluntary and forced migration: Causes of voluntary and forced migration, Distinguish between illegal migrants, refugees and asylum seekers | |
| **Business Management** | **Unit 1: Introduction to Business Management**<br><br>1.1 What is a business?<br>1.2 T ypes of business entities<br>1.3 Business Objectives<br>1.4 Stakeholders<br>1.5 Growth and evolution<br>1.6 Multinational Companies<br>**Unit 2: Finance and Accounts**<br><br>2.1 Introduction to finance | No. of Paper : 01<br><br>Duration : 2 hours<br><br>Total marks: 50<br><br>Section A: Three compulsory questions (30 marks)<br><br>Section B: Answer any One question ( 20 marks)<br><br>Assessment objectives: AO1, AO2, AO3, AO4 |

| | 2.2 Sources of finance<br>2.3 Costs and revenues including BEP<br>2.4 Final accounts<br>2.5 Profitability and liquidity ratios<br>2.6 Cash flow<br>2.7 Investment appraisal<br><br>**Unit 3: Marketing**<br>3.1 Introduction to marketing<br>3.2 Marketing planning<br>3.3 Market research<br>3.4 The 7Ps of marketing | |
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| **Economics** | Unit 1- The basic economic problem<br><br>· The nature of economic problem<br>· Factors of production<br>· Opportunity cost<br>· Production possibility curves<br><br>Unit 2- The allocation of resources<br>· Microeconomics and macroeconomics<br>· The role of markets in allocating resources<br>· Demand<br>· Supply<br>· Price determination<br>· Price changes<br>· Price elasticity of demand<br>· Price elasticity of supply<br>· Market economic system<br>· Market failure<br>· Mixed economic system | Paper pattern :<br>Time : 1 hr 30 mins<br>Section A –MCQ – 6 marks<br>Section B – Structured questions -<br>3 case study will be provided from<br>which students are expected to<br>answer 2 case study – 54 marks<br><br>Total paper ( 6+ 54) = 60 marks<br><br>( DP paper 2 style – instead of<br>15 marker they will have 10<br>marker. For each case study –<br>the rest of the 17 marks could<br>be short questions ranging from<br>1- 4 marks same like DP paper ) |

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| | Unit 3- Microeconomic decision makers<br><br>· Money and banking<br>· Households<br>· Workers<br>· Trade unions<br>· Firms<br>· Firms and production<br>· Firms, costs, revenue and objectives<br>· Market structure<br><br>Unit 4- Macro Economics<br><br>• Measuring economic activity and illustrating its Variations<br>• Variations in economic activity—aggregate demand and aggregate supply | |
| **Mathematics (Standard)** | ==**Numerical and abstract reasoning**==<br><br>**Numbers:**<br><br>Representing and solving inequalities including compound and double inequalities,<br>absolute values,<br>laws of exponents( integer, negative )<br>surds, roots and radicals including simplifying,<br>scientific notation,<br>**Algebra:** | Criteria A, B, C C D - 25 Mark each criterion<br>Total Mark – 100<br><br>Time - 2hrs |

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| • arithmetic and geometric sequences, Quadratic sequence,<br>• Solving simultaneous equations, including algebraically and graphically<br> • Factorizing quadratic expressions<br>• Solving quadratic equations using factorization, the quadratic formula and graphically<br> • Rearranging formulae<br>**<mark>Thinking with models</mark>**<br>• Mapping<br>• Function notation • Linear functions of the form $f\ x = mx + c$<br>• Parallel and perpendicular lines<br>• Systems of equations/ simultaneous equations including solving algebraically and graphically<br>• Quadratic functions in the form:<br>$$f(x) = ax^2 + bx + c$$<br>$$f(x) = a(x - p)(x - q)$$<br>$f(x) = a(x - h)^2 + k$ including the significance of their parameters<br>• Representation and shape of exponential functions and their horizontal asymptotes<br><br><br>**<mark>Spatial reasoning</mark>**<br>**<u>Geometry</u>**<br>• Metric conversions<br>• Circle geometry and theorems, including angles, radius, diameter and tangent<br>• Length of arc and chord, perimeter and area of sector and segment<br>• Volume, surface area and nets of pyramids, cones and compound three dimensional shapes<br>• $y = mx + c$, gradients and intercepts<br>• Gradients of parallel lines<br>• Coordinate geometry, including distance, midpoint and gradient formulae<br>• Rotation around a given point • Similarity and congruence, including proving similar and congruent triangles • Movement on a plane— isometric transformations, enlargements and tessellations<br>**<u>Trigonometry:</u>** | |

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| | • Triangle properties • Bearings • Pythagoras' theorem • Trigonometric ratios in right-angled triangles | |
| **Mathematics**<br><br>**(Enrichment)** | **Unit 1: NUMERICAL & ABSTRACT REASONING**<br><br>**Extended:**<br><ul><li>Absolute values, Upper & Lower Bounds</li><li>Representing inequalities, including compound and double inequalities</li><li>Number sequences (prediction, description)</li><li>Surds, roots and radicals including simplifying</li><li>Logarithms, including laws of logarithms and use of technology to find values</li><li>Laws of exponents including integer and negative exponents</li><li>Laws of exponents, including fractional/rational exponents</li><li>Standard form (scientific notation</li><li>Factorizing quadratic expressions</li><li>Solving quadratic equations</li><li>Changing the subject of an equation</li><li>Arithmetic and Geometric Sequences</li></ul><br>**Enrichment:**<br><br>• Exponential equations<br>• Rationalizing the denominator<br>• Number bases<br>• Arithmetic and geometric series and summation<br>• Sigma notation<br><br><br>**Unit 2: THINKING WITH MODELS**<br><br>**Extended:**<br><ul><li>Mapping</li><li>Domain and Range</li><li>Function notation</li><li>Linear functions of the form $f(x) = mx + c$</li><li>Rational functions of the form $f(x) = ax+b/cx+d$</li><li>Parallel and perpendicular lines</li></ul> | **Criteria wise marks:**<br> A: 25 Marks<br>B: 25 Marks<br>C: 25 Marks<br>D :25 Marks<br><br>**Total Marks – 100**<br><br>**Time – 2 Hours** |

- Systems of equations/ simultaneous equations including solving algebraically and graphically
- Linear programming, including inequalities
- Quadratic functions of different forms including the significance of their parameters.
- Transformation of quadratic functions, including translation, reflection and dilation
- Representation and shape of exponential functions and their horizontal asymptotes
- Representation and shape of cubic, rational, trigonometric and logarithmic functions and their asymptotes.

**Enrichment:**
• Exponential functions
• Transforming cubic and trigonometric functions
• Functions including In and e
• Composite functions
• Inverse functions
• Logarithmic functions

## Unit 3: SPATIAL REASONING

**Extended:**
- Metric conversions
- Circle geometry and theorems, including angles, radius, diameter and tangent
- Length of arc and chord, perimeter and area of sector and segment
- Volume, surface area and nets of pyramids, cones and compound three-dimensional shapes
- Capacity
- $y = mx + c$, gradients and intercepts
- Gradients of parallel lines
- Relationship between gradients of perpendicular lines
- Coordinate geometry, including distance, midpoint and gradient formulae
- Rotation around a given point
- Similarity and congruence, including proving similar and congruent triangles

|  | • Movement on a plane— isometric transformations, enlargements and tessellations<br>• Enlargement around a given point<br>• Enlargement by a rational factor<br>• Identical representation of transformations<br>• Triangle properties<br>• Bearings<br>• Pythagoras' theorem<br>• Converse of Pythagoras' theorem<br>• Trigonometric ratios in right-angled triangles<br>• Sine rule and cosine rule, including applications (link to trigonometric functions)<br><br>**Enrichment:**<br><br>• Inscribing and circumscribing shapes<br>• Arc length and sector using radians<br>• Three-dimensional coordinate geometry<br>• Area of a triangle rule<br>• Unit circle<br>• Radians<br>• Equation of a circle with center at the origin<br>• Trigonometric identities<br><br>**Unit 4: REASONING WITH DATA**<br><br>Extended:<br>• Sampling techniques<br>• Data manipulation and misinterpretation<br>• Graphical representations, including bivariate graphs/ scatter graphs, box-and-whisker plots, cumulative frequency graphs<br>• Histograms for continuous fixed interval groups<br>• Lines of best fit<br>• Data processing, including mean, median (measure of central tendency) and mode, for continuous data, and quartiles and percentiles for discrete and continuous data<br>• Measures of dispersion, including interquartile range (including application and relationship with the median) |  |

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| | • Measure of dispersion, including standard deviation (including application and relationship with the mean)<br>• Describing correlation, including positive, negative, none, strong and weak<br>• Use of technology to find the numerical value for correlation and its meaning<br>• Sets, including notation and operations up to three sets<br>• Probability calculations with Venn Diagrams, tree diagrams, and sample space<br>• Probability calculations for dependent and independent events (using the addition and multiplication rules) including conditional probability.<br><br>**Enrichment:**<br><br>• Manual calculation of standard deviation, correlation coefficient<br><br>• Histograms and frequency polygons | |
| **Mathematics (Extended)** | Unit 1: Number & Algebra | **Numbers:**<br>• Representing and solving inequalities including compound and double inequalities,<br>• absolute values,<br>• laws of exponents including integer, negative and fractional/rational exponents,<br>• number sequences (prediction, description), logarithms: including laws of logarithms and the use of technology to find values,<br>• arithmetic and geometric sequences,<br>• Quadratic sequence, surds, roots and radicals including simplifying,<br>• scientific notation,<br>• upper and lower bounds<br>• Operating algebraic expressions and equations, substitution,<br>• expansion and factorization of algebraic expressions and equations |

| | Unit 2: Thinking with model | <ul><li>Factorizing quadratic expressions and solving equations</li><li>Changing the subject of equation</li><li>Functions: • Domain and range • Mappings • Function notation</li><li>Roots, asymptotes, intercepts</li><li>Linear functions – parallel and perpendicular lines</li><li>Simultaneous equations</li><li>Quadratic functions and modelling</li><li>Transformations - symmetry, reflection, translation and dilation</li><li>Exponential function and Modelling</li><li>Rational functions</li></ul> |
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| | Unit 3: Geometry & Trigonometry | <ul><li>Angle properties – parallel and transversal</li><li>Perimeter, area and volume • Surface area • Capacity • Transformations (2D)</li><li>Circle geometry and Circle theorems</li><li>Bearings</li><li>Trigonometric ratios</li><li>Sine rule and cosine rule</li></ul> |
| **Visual Arts** | Students prepare e-portfolio for the assessment. They will be assessed on these criteria: **Criteria B: Developing:** A selection of evidence to show: the practical exploration of artistic ideas to inform development of a final artwork or performance the development of the student's artistic intention in line with the statement of inquiry and justification of their artistic choices. **Criteria 3: Creating:** Students submit an artwork that shows their technical and creative skills and meets the MYP expectations. | |

| MUSIC | **Introduction to Minimalism in Music**: Historical background: 1660s USA, cultural context, Key characteristics: repetition, phasing, gradual change, drones | **ePortfolio Submission Criteria A, B, C, and D:** Investigating the genre, Music analysis, Composition or performance showcasing minimalist techniques, Process journal documentation, Reflection on aesthetic impact and artistic decisions |
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| | **Pioneers of Minimalism**: Steve Reich: *Clapping Music*, *Different Trains*, Philip Glass: *Einstein on the Beach*, *Glassworks* | |
| | **Musical Elements in Minimalism**: Repetition and ostinato, Phasing and layering, Additive and subtractive processes, Static harmony and tonal centres, Texture and timbre over melody | |
| | **Minimalism Across Genres**: Film music: *Philip Glass*, *Michael Nyman*, Pop/electronic influences: *Brian Eno*, *Aphex Twin*, *Mike Oldfield*, Modern minimalist composers and crossover artists | |
| | **Listening and Analysis Skills**: Guided listening: identifying techniques, Comparing minimalist pieces, Graphic scores and visual representations of minimalism | |
| | **Composition Techniques**: Creating short minimalist motifs, Developing through layering, phasing, and transformation, Using DAWs or live instruments to build minimalist pieces | |
| | **Performance Skills**: Ensemble performance of minimalist pieces (e.g., *Clapping Music*), Developing timing, focus, and group awareness | |
| | **Critiquing and Reflecting**: Responding to minimalist works, How does minimalism affect listeners emotionally and intellectually, Student-led discussion and critique | |
| | **Personal Voice in Minimalism**: Student compositions that express a personal or cultural narrative using minimalist techniques, Interdisciplinary connections (visual art, dance, architecture) | |
| **Theatre Arts** | # Unit 1 : Theatre of cruelty : <br><br> ## Introduction to Artaud and Theatre of Cruelty <br><br> • Starter: Discuss "What makes theatre powerful or shocking?" | **ePortfolio Submission Criteria A, B, C, and D:** Investigating the genre, critical analysis, Scripting or performance showcasing TOC techniques, Process journal documentation, Reflection on |

| | | aesthetic impact and artistic decisions |
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| | • Brief biography of Antonin Artaud. <br> • Explain the main aims: to shake audiences from passivity, confront uncomfortable truths, use the body and senses over text <br><br> **Key Features and Techniques** <br><br> • Interactive presentation on core features: <br>     o Non-linear narrative <br>     o Use of sound, light, and movement to engage senses <br>     o Symbolism and surreal imagery <br>     o Breaking audience/actor boundaries <br>     o Guided practicals: <br>     o Ritualistic group movement <br>     o Heightened gesture and mask work <br>     o Creating "soundscapes" to unsettle the room <br><br> **Performance and Critical Reflection** <br><br> • Perform devised pieces. <br> • Audience role: Note use of Artaudian elements and personal reactions. <br> • Explore critiques or limits of theatre of cruelty in the avante – grande theatre set up. | |
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| **English** | **Non Lit texts: Photographs, Manifestos, Short films, Blog**<br><br>**Poems: "Heidi blue hair", dulce et decorum est (Unseen-poetry analysis)** | |
| **Design** | Unit title: Designing for well-being<br><br>Global context:<br><br>Scientific and technical innovation<br><br>Key concept: Development<br><br>Related concept: Adaptation<br><br>Statement of inquiry:<br><br>Healthy practices can shape well-being. | **Criterion A: Inquiring and analysing**<br><br>Ai. Explain and justify the need for a solution to a problem for a specified client/target audience.<br><br>ii. Identify and prioritize primary and secondary research needed to develop a solution to the problem.<br><br>iii. Analyse a range of existing products that inspire a solution to the problem.<br><br>iv. Develop a detailed design brief which summarizes the analysis of relevant research<br><br>**Criterion B: Developing ideas**<br><br>i. develop a design specification which outlines the success criteria for the design of a solution based on the data collected<br><br>ii. present a range of feasible design ideas, which can be correctly interpreted by others<br><br>**Marks: 50** |
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| **French Emergent** | **Identity and culture**<br><br>• Self, family, friends<br>• Free time and leisure<br>• Food and drink and health | |

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| | • Festivals and celebrations<br><br>**Local area, travel and tourism**<br><br>• House and home<br>• Travel/ local area<br>• Holidays<br>• Culture and communities<br><br>**Education and the world of work**<br>• School life<br>• Future plans<br>• Jobs<br><br>**The world we live in**<br><br>• The Environment<br><br>**Writing Formats**<br>• Diary Writing<br>• Email writing<br>• Blog writing<br>• Article writing<br>• Formal and Informal Letter | |
| **French Capable** | **Identity and culture**<br><br>• Self, family, friends<br>• Free time and leisure<br>• Food and drink and health<br>• Festivals and celebrations<br>**Local area, travel and tourism**<br><br>• House and home<br>• Travel/ local area<br>• Holidays<br>• Culture and communities<br><br>**Education and the world of work**<br>• School life<br>• Future plans<br>• Jobs<br><br>**The world we live in**<br><br>• The Environment | |

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| | **Writing Formats**<br>• Diary Writing<br>• Email writing<br>• Blog writing<br>• Article writing<br>• Speech writing<br>• Formal and Informal Letter | |
| **PHE** | The student produces an ePortfolio which provides evidence of a unit where they act as both a coach (to another student) and a client (in response to another student coach), drawing from provided PCUPs and aligning with MYP standards. | **Criterion A—Knowing and understanding**<br><br>i: Explain factual, procedural and conceptual knowledge of physical and health education.<br><br>ii: Apply physical and health education knowledge to analyse issues and solve problems set in familiar and unfamiliar situations.<br><br>iii: Apply physical and health terminology effectively to communicate understanding.<br><br>**Criterion B—Planning for performance**<br><br>i: Develop goals to enhance performance.<br><br>ii: Design, explain and justify a plan to improve physical performance and health.<br><br>**Criterion C—Applying and performing**<br><br>i: Demonstrate and apply a range of skills and techniques.<br><br>ii: Demonstrate and apply a range of strategies and movement concepts. |

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| | | **Criterion D—Reflecting and improving performance**<br><br>i: Explain and demonstrate strategies to enhance interpersonal skills.<br><br>ii: Analyse and evaluate the effectiveness of a plan based on the outcome.<br><br>iii: Analyse and evaluate performance. |
| **Hindi Emergent** | **Identity and culture**<br><br>• Self, family, friends<br>• Free time and leisure<br>• Food and drink and health<br>• Festivals and celebrations<br><br>**Local area, travel and tourism**<br><br>• House and home<br>• Travel/ local area<br>• Holidays<br>• Culture and communities<br><br>**Education and the world of work**<br>• School life<br>• Future plans<br>• Jobs<br><br>**The world we live in**<br><br>• The Environment<br>•<br>**Writing Formats**<br>• Diary Writing<br>• Email writing<br>• Blog writing<br>• Article writing<br>• Formal and Informal Letter | |
| **Hindi Capable** | **Identity and culture**<br><br>• Self, family, friends<br>• Free time and leisure | |

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| | • Food and drink and health<br>• Festivals and celebrations<br><br>**Local area, travel and tourism**<br><br>• House and home<br>• Travel/ local area<br>• Holidays<br>• Culture and communities<br><br>**Education and the world of work**<br>• School life<br>• Future plans<br>• Jobs<br><br>**The world we live in**<br><br>• The Environment<br>•<br>**Writing Formats**<br>• Diary Writing<br>• Email writing<br>• Blog writing<br>• Article writing<br>• Speech writing<br>• Formal and Informal Letter | |
| **Spanish Emergent** | **Identity and culture**<br><br>• Self, family, friends<br>• Free time and leisure<br>• Food and drink and health<br>• Festivals and celebrations<br>**Local area, travel and tourism**<br><br>• House and home<br>• Travel/ local area<br>• Holidays<br>• Culture and communities<br><br>**Education and the world of work**<br>• School life<br>• Future plans<br>• Jobs | |

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| | **The world we live in**<br><br>• The Environment<br>•<br>**Writing Formats**<br>• Diary Writing<br>• Email writing<br>• Blog writing<br>• Article writing<br>    Formal and Informal Letter | |
| **Spanish Capable** | **Identity and culture**<br><br>• Self, family, friends<br>• Free time and leisure<br>• Food and drink and health<br>• Festivals and celebrations<br><br>**Local area, travel and tourism**<br><br>• House and home<br>• Travel/ local area<br>• Holidays<br>• Culture and communities<br><br>**Education and the world of work**<br>• School life<br>• Future plans<br>• Jobs<br><br>**The world we live in**<br><br>• The Environment<br>•<br>**Writing Formats**<br>• Diary Writing<br>• Email writing<br>• Blog writing<br>• Article writing<br>• Speech writing<br>• Formal and Informal Letter | |