

THE ALTUS INTERNATIONAL SCHOOL

SYLLABUS BOOK 2023-24

CLASS – XI SCIENCE

S. No.	Book Name	Subject	Publisher
1.	English- Hornbill Snapshot	English	N.C.E.R.T N.C.E.R.T
2.	Chemistry – I & II Lab Manual	Chemistry	N.C.E.R.T Modern ABC
3.	Physics – I & II Lab Manual	Physics	N.C.E.R.T SL Arora
4.	Biology Lab Manual	Biology	N.C.E.R.T Modern ABC
5.	Maths	Maths	N.C.E.R.T
6.	Physical Education	Physical	Full marks (Dr. D.S. Yadav)
7.	Computer Science with Python Computer	Computer	Dhanpat Rai

SUBJECT: ENGLISH

Sr. No.	Month	Syllabus to be covered	
1.	April	Hornbill	- A Portrait of a lady
		Writing Skills	- Notice Writing
		Snapshot	- The summer of beautiful white horse
2.	May	Hornbill	- We are not Afraid to die.
		Poem	- Laburnum Top
		Snapshot	- The Address
	June	Writing Skills	- Poster making, Advertisements writing,
		Hornbill	- Discovering tuts the saga
		Poem	- The Voice of the Rain
3.	July	Hornbill	- Landscape of the soul
		Snapshot	- Ranga's marriage
		Unit Test I Begin	
		Syllabus covered April & July.	
		Class Test-	Syllabus covered in the month of July
4.	August	Hornbill	- The Ailing Planet
		Snapshot	- Birth
		Writing Skills	- Report writing
		Activity	Write a paragraph about random act of bravery.
		Class Test-	Syllabus covered in the month of August
5.	September	Hornbill	- The Adventure
		Poem	- Childhood
		Snapshot	- Mother's day
		Writing Skills	- Letter to editor, Letter to authorities
		Half yearly Examination begins	
		Syllabus covered April to September	
6.	October	Hornbill	- The Silk road
		Poem	- Father to son.
		Snapshot	- The Tale of melon City
		Writing Skills	- Notice writing
		Activity	Poster making (make a poster on the topic Save trees)
		Class Test	- Syllabus covered in the month of October
7.	November	Hornbill	- Revision
		Snapshot	- The tale of melon city, Revision
		Writing Skills	- Debate writing
		Activity	'Smart classes are the future of education' Write a debate either or against the motion.
		Unit Test II Begin	
		Syllabus covered October & November	
8.	December	Revision	
9.	January	Revision	
10.	February	Revision	
11.	March	FINAL EXAMS	

SUBJECT : PHYSICS

S. No.	Month	Syllabus to be covered	
1.	April	Chapter-2:	Units and Measurements
		Practical No-1-	To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Callipers and hence find its volume.
		Practical No-2.-	To measure diameter of a given wire and thickness of a given sheet using screw gauge.
		Class Test-	Chapters/ topics covered in month of July
2.	July	Chapter-3:	Motion in a Straight Line
		Chapter-4:	Motion in a Plane
		Chapter-5:	Laws of Motion
		Practical No- 3-	To determine volume of an irregular lamina using screw gauge.
		Class Test-	Chapters/ topics covered in month of August.
		Revision	
		Periodic Test II Begin	
		Syllabus covered in the month of July and August.	
3.	August	Practical No- 4-	To determine the mass of two different objects using a beam balance.
		Practical No-5-	To find the weight of a given body using parallelogram law of vectors.
		Chapter-6:	Work, Energy and Power
		Chapter-7:	System of Particles and Rotational Motion
		Revision-	Chapters covered in month from July to September.
4.	September	Chapter-8:	Gravitation
		Practical No-6-	To study variation of time period of a simple pendulum of a given length by taking bobs of same size but different masses and interpret the result.

HALF YEARLY EXAMS

5.	October	<p>Practical No-7-To study the relationship between force of limiting friction and normal reaction and to find the co- efficient of friction between a block and a horizontal surface.</p> <p>Chapter-9: Mechanical Properties of Solids</p> <p>Practical No-8- To determine Young's modulus of elasticity of the material of a given wire.</p> <p>Practical No-9- To find the force constant of a helical spring by plotting a graph between load and extension.</p> <p>Practical No-10- To determine the surface tension of water by capillary rise method.</p> <p>Class Test- Chapters/ topics covered in month of November.</p>
7.	November	<p>Chapter-10: Mechanical Properties of Fluids</p> <p>Chapter-11: Thermal Properties of Matter</p> <p>Chapter-12: Thermodynamics</p> <p>Practical No-11- To determine specific heat capacity of a given solid by method of mixtures.</p> <p>Class Test- Chapters/ topics covered in month December</p>
8.	December	<p>Chapter-13: Kinetic Theory</p> <p>Chapter-14: Oscillations</p> <p>Practical No-12- To find the speed of sound in air at room temperature using a resonance tube by two resonance positions.</p> <p>Class Test- Chapters/ topics covered in month of January.</p>
9.	January	REVISION
10.	February	REVISION
11.	March	FINAL EXAMS

SUBJECT- CHEMISTRY

S. No.	Month	Syllabus to be covered
1.	April	Unit I: Some Basic Concepts of Chemistry Unit II: Structure of Atom Class Test- Chapters/ topics covered in month of July.
2.	May	Unit III: Classification of Elements and Periodicity in Properties Class Test- Chapters/ topics covered in month of August. PRACTICAL Micro-chemical methods are available for several of the practical experiments, wherever possible such techniques should be used. A. Basic Laboratory Techniques <ol style="list-style-type: none">1. Cutting glass tube and glass rod2. Bending a glass tube3. Drawing out a glass jet4. Boring a cork B. Characterization and Purification of Chemical Substances <ol style="list-style-type: none">1. Determination of melting point of an organic compound.2. Determination of boiling point of an organic compound.3. Crystallization of impure sample of any one of the following: Alum, Copper Sulphate, Benzoic Acid. C. Experiments based on pH <ul style="list-style-type: none">• Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper or universal indicator. <ol style="list-style-type: none">1. Any one of the following experiments:<ul style="list-style-type: none">• Comparing the pH of solutions of strong and weak acids of same concentration. Study the pH change in the titration of a strong base using universal indicator.2. Study the pH change by common-ion in case of weak acids and weak bases. Revision. Periodic Test II Begin Syllabus covered in the month of July and August.
3.	June	Unit IV: Chemical Bonding and Molecular Structure Revision- Chapters covered in month from July to September. PRACTICALS :- D. Chemical Equilibrium One of the following experiments: <ol style="list-style-type: none">1. Study the shift in equilibrium between ferric ions and thiocyanate ions by increasing/decreasing the concentration of either of the ions.

2. Study the shift in equilibrium between $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ and chloride ions by changing the concentration of either of the ions.

4.	July	Unit VI: Chemical Thermodynamics Unit VII: Equilibrium PRACTICALS:- E. Quantitative Estimation 1. Using a mechanical balance/electronic balance. 2. Preparation of standard solution of Oxalic acid. 3. Determination of strength of a given solution of Sodium hydroxide by titrating it against standard solution of Oxalic acid. 4. Preparation of standard solution of Sodium carbonate. 5. Determination of strength of a given solution of hydrochloric acid by titrating it against standard Sodium Carbonate solution. Class Test- Chapters/ topics covered in month of October.
5.	August	Unit VIII: Redox Reactions PRACTICALS:- F. Qualitative Analysis 1. Determination of one anion and one cation in a given salt Cation: Pb^{2+} , Cu^{2+} , As^{3+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Zn^{2+} , Ni^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , NH_4^+ Anions: $(\text{CO}_3)^{2-}$, S^{2-} , $(\text{SO}_3)^{2-}$, $(\text{NO}_2)^-$, $(\text{SO}_4)^{2-}$, Cl^- , Br^- , I^- , $(\text{PO}_4)^{3-}$, $(\text{C}_2\text{O}_4)^{2-}$, CH_3COO^- , NO_3^- (Note: Insoluble salts excluded) 2. Detection of -Nitrogen, Sulphur, Chlorine in organic compounds. Class Test- Chapters/ topics covered in month of November.
6.	September	HALF YEARLY EXAMS
7.	October	Unit XII: Organic Chemistry -Some Basic Principles and Techniques Class Test- Chapters/ topics covered in month December
8.	November	Unit XIII: Hydrocarbons Class Test- Chapters/ topics covered in month January
9.	December	PRACTICALS REVISION LAB MANUAL WRITTEN WORKS REVISION
10.	January	REVISION
11.	February	REVISION
12.	March	FINAL EXAMS

SUBJECT- BIOLOGY

S. No.	Month	Syllabus to be covered
1.	April	Chapter-1: The Living World Chapter-2: Biological Classification
2.	May	Chapter-3: Plant Kingdom Class Test- Chapters/ topics covered in month July Chapter-4: Animal Kingdom Experiment 1:- Study and describe locally available common flowering plants, from family Solanaceae (Poaceae, Asteraceae or Brassicaceae can be substituted in case of particular geographical location) including dissection and display of floral whorls, anther and ovary to show number of chambers (floral formulae and floral diagrams), type of root (tap and adventitious); type of stem (herbaceous and woody); leaf (arrangement, shape, venation, simple and compound). Class Test- Chapters/ topics covered in month of August. Revision.
3.	June	Chapter-5: Morphology of Flowering Plants Chapter-6: Anatomy of Flowering Plants Experiment 2. Preparation and study of T.S. of dicot and monocot roots and stems (primary). Experiment 3. Study of osmosis by potato osmometer. Experiment 4. Study of plasmolysis in epidermal peels (e.g. Rhoeo/lily leaves or flashy scale leaves of onion bulb). Class Test- Chapters/ topics covered in month of september.
4.	July	Chapter-7: Structural Organisation in Animals Chapter-8: Cell-The Unit of Life Periodic Test II Begin Syllabus covered in the month of April to July.
5.	August	Chapter-9: Biomolecules Experiment 5. Study of distribution of stomata on the upper and lower surfaces of leaves. Experiment 6. Comparative study of the rates of transpiration in the upper and lower surfaces of leaves. Class Test- Chapters/ topics covered in month of October
6.	September	Chapter-10: Cell Cycle and Cell Division HALF YEARLY EXAMS
7.	October	Chapter-13: Photosynthesis in Higher Plants Chapter-14: Respiration in Plants

Experiment 7. Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials.

Experiment 8. Separation of plant pigments through paper chromatography.

Experiment 9. Study of the rate of respiration in flower buds/leaf tissue and germinating seeds.

Class Test- Chapters/ topics covered in month of November.

8. November

Chapter-15: Plant - Growth and Development

Chapter-17: Breathing and Exchange of Gases

Chapter-18: Body Fluids and Circulation

Study and Observe the following (spotting):

1. Parts of a compound microscope.

2. Specimens/slides/models and identification with reasons - Bacteria, *Oscillatoria*, *Spirogyra*, *Rhizopus*, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen.

3. Virtual specimens/slides/models and identifying features of - *Amoeba*, *Hydra*, liverfluke, *Ascaris*, leech, earthworm, prawn, silkworm, honey bee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.

Class Test- Chapters/ topics covered in month of December

9. December

Chapter-19: Excretory Products and their Elimination

Chapter-20: Locomotion and Movement

Chapter-21: Neural Control and Coordination

Chapter-22: Chemical Coordination and Integration

Class Test- Chapters/ topics covered in month of January

10. January

Study and Observe the following (spotting):

4. Mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides.

5. Different types of inflorescence (cymose and racemose).

6. Human skeleton and different types of joints with the help of virtual images/models only.

REVISION

11. February

REVISION

12. March

FINAL EXAMS

SUBJECT: MATHEMATICS

S. No.	Month	Syllabus to be covered
1.	April	Chapter-1 Sets Chapter-2 Relations & Functions
2.	May	Chapter-3 Trigonometric Functions Chapter-5 Complex Numbers and Quadratic Equations Class Test- Chapters/ topics covered in month of April and May.
3.	June	Chapter-6 Linear Inequalities
4.	July	Chapter-7 Permutations and Combinations Periodic Test I Begin Syllabus covered in the month of April to July.
5.	August	Chapter-8 Binomial Theorem Chapter-9- Sequence and Series Revision.
6.	September	Chapter-10 Straight Lines HALF YEARLY EXAMS
7.	October	Class Test- Chapters/ topics covered in month of October. Chapter-11 Conic Sections Chapter-12- Introduction to Three-dimensional Geometry
8.	November	Chapter-13 Limits and Derivatives Chapter-14- Statistics Class Test- Chapters/ topics covered in month of November.
9.	December	Chapter-15 Probability Class Test- Chapters/ topics covered in month of December. Periodic Test II Begin Syllabus covered in the month of October to December.
10.	January	REVISION
11.	February	REVISION
12.	March	FINAL EXAMS

SUBJECT : PHYSICAL EDUCATION

S. No.	Month	Syllabus to be covered
1.	April	Unit I Changing Trends & Career in Physical Education <ul style="list-style-type: none">• Concept, Aims & Objectives of Physical Education• Changing Trends in Sports- playing surface, wearable gears and sports equipment, technological advancements• Career Options in Physical Education• Khelo-India and Fit-India Program
2.	May	Unit II Olympism <ul style="list-style-type: none">• Ancient and Modern Olympics• Olympism – Concept and Olympics Values (Excellence, Friendship & Respect)• Olympics - Symbols, Motto, Flag, Oath, and Anthem• Olympic Movement Structure - IOC, NOC, IFS, Other members Unit III Yoga <ul style="list-style-type: none">• Meaning & Importance of Yoga• Introduction to Ashtanga Yoga• Introduction to Yogic Kriyas (Shat Karma)
3.	June	Unit IV Physical Education & Sports for CWSN (Children with Special Needs - Divyang) <ul style="list-style-type: none">• Concept of Disability and Disorder• Types of Disability, its causes & nature (Intellectual disability, Physical disability)• Aim & Objective of Adaptive Physical Education• Role of various professionals for children with special needs (Counsellor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist & Special Educator)
4.	July	Unit V Physical Fitness, Health and Wellness <ul style="list-style-type: none">• Meaning and Importance of Wellness, Health and Physical Fitness• Components/Dimensions of Wellness, Health and Physical Fitness• Traditional Sports & Regional Games for promoting wellness Periodic Test II Begin Syllabus covered in the month of July and August.
5.	August	Unit VI Test, Measurement & Evaluation <ul style="list-style-type: none">• Concept of Test, Measurement & Evaluation in Physical Education & sports.• Classification of Test in Physical Education and Sports.• Test administration guidelines in physical education and sports Revision.

6.	September	<p>Unit VII Fundamentals of Anatomy, Physiology in Sports</p> <ul style="list-style-type: none"> • Definition and Importance of Anatomy and Physiology in exercise and sports • Functions of Skeletal system, classification of bone and types of joints. • Function and Structure of Circulatory system and heart. • Function and Structure of Respiratory system. <p>Half Yearly Examination Begin Syllabus covered from April to September.</p>
7.	October	<p>Unit VIII Fundamentals of Kinesiology and Biomechanics in Sports</p> <ul style="list-style-type: none"> • Definition and Importance of Kinesiology and Biomechanics in sports • Principles of Biomechanics • Types of Body Movements - Flexion, Extension, Abduction, Adduction, Rotation, Circumduction, Supination & Pronation • Axis and Planes – Concept and its application in body movements
8.	November	<p>Unit IX Psychology & Sports</p> <ul style="list-style-type: none"> • Definition & Importance of Psychology in Physical Education & Sports • Adolescent Problems & Their Management • Team Cohesion and Sports
9.	December	<p>Unit X Training and Doping in Sports</p> <ul style="list-style-type: none"> • Concept and Principles of Sports Training • Training Load: Over Load, Adaptation, and Recovery • Concept of Doping and its disadvantages <p>Revision. Periodic Test II Begin Syllabus covered in the month of October and November Class Test- Syllabus covered in the month of December.</p>
10.	January	<p>Pre Board I begins Syllabus covered from July to December.</p>
11.	February	<p>Pre Board I begins Revision</p>
12.	March	<p>Board Exams Begin.</p>

SUBJECT - COMPUTER

S. No.	Month	Syllabus to be covered
1.	April	<p>Computer System and Organisation.</p> <p>Basic computer organisation: description of a computer system and mobile system, CPU, memory, hard disk, I/O, battery.</p> <p>Types of software: application, System, utility</p> <p>Memory Units: bit, byte, MB, GB, TB, and PB</p> <p>Boolean logic: OR, AND, NAND, NOR, XOR, NOT, truth tables, De Morgan's laws</p> <p>Information representation: numbers in base 2, 8, 16, binary addition</p> <p>Strings: ASCII, UTF8, UTF32, ISCII (Indian script code), Unicode</p> <p>Basic concepts of Flowchart</p> <p>Concept of Compiler & Interpreter</p> <p>Running a program: Notion of an operating system, how an operating system runs a program, idea of loading, operating system as a resource manager.</p> <p>Concept of cloud computing, cloud (public/private), introduction to parallel computing.</p>
2.	May	<p>Unit –II Computational Thinking and Programming</p> <p>Basics of Computational Thinking: Decomposition, Pattern Recognition/ Data representation, Generalization/ Data Abstraction and algorithm.</p> <p>Familiarization with the basics of Python programming: a simple "hello world" program, process of writing a program (Interactive & Script mode), running it, and print statements; simple data-types: integer, float, string</p> <ul style="list-style-type: none">• Features of Python, Python Character Set, Token & Identifiers, Keywords, Literals, Delimiters, operators.• Comments: (Single line & Multiline / Continuation statements), Clarity & Simplification of expression.• Introduce the notion of a variable, and methods to manipulate it (concept of L-value and R-value even if not taught explicitly).• Knowledge of data types and operators: accepting input from the console, assignment statement, expressions, operators and their precedence.
3	July	<p>Unit –II Computational Thinking and Programming</p> <p>Operators & types: Binary operators-Arithmetic, Relational operators, Logical Operators, Augmented Assignment operators.</p> <ul style="list-style-type: none">• Conditional statements: if, if-else, if- elif-else; simple programs: e.g.: absolute value, sort 3 numbers, and divisibility.

- Notion of iterative computation and control flow: for range(), len(), while, flowcharts, suggested programs: interest calculation and factorials, etc.
- Idea of debugging: errors and exceptions; debugging: pdb, break points.
- Lists, tuples and dictionary: finding the maximum, minimum, mean; linear search on list/ tuple of numbers, and counting the frequency of elements in a list using a dictionary. Introduce the notion of accessing elements in a collection using numbers and names.
- Sorting algorithm: bubble and insertion sort; count the number of operations while sorting.
- Strings: Traversing, compare, concat, substring.
- Introduction to Python modules: Importing math (sqrt, cell, floor, pow, abs, sin, cos, tan, random (random, randint, randrange), statistics (mean, median, mode) modules.

Make 10 programs on if, if else, elif and iterative statements

Periodic Test - I Begin

Syllabus covered up to July

5. August Unit 3 Data Management

- Relational databases: Concept of a database, relations, attributes and tuples, keys- candidate key, primary key, alternate key, foreign key; Degree and cardinality of a table. Use SQL – DDL/ DML commands to CREATE TABLE, INSERT INTO, UPDATE TABLE, DELETE FROM, ALTER TABLE, MODIFY TABLE, DROP TABLE.

Class test- Syllabus covered in the month of August

Activity - Make 10 basic programs in python

6 September Unit 4 Data Management

- keys, and foreign keys; to view content of a table: SELECT-FROM- WHERE-ORDER BY along with BETWEEN, IN, LIKE, (Queries only on single table)
 - Aggregate functions – MIN,MAX,AVG,COUNT,SUM
 - Basics of NoSQL databases.

Class test- Syllabus covered up to September

Half Yearly Examination Begin

Syllabus covered From April to September

7. October Unit 5 Society, Law and Ethics - Cyber safety

- Cyber safety: safely browsing the web, identity protection, confidentiality, social networks, cyber trolls and bullying

- Appropriate usage of social networks: spread of rumours, and common social networking sites (Twitter, LinkedIn, and Facebook) and specific usage rules.

Class test - Syllabus covered in the month of October

Activity Make 10 programs on list, tuple and Dictionary

8. **November Unit 6 Society, Law and Ethics - Cyber safety**

- Safely accessing web sites: adware, malware, viruses, Trojans
- Safely communicating data: secure connections, eavesdropping, phishing and identity verification

Periodic Test - II Begin

Syllabus covered in the month of October & November

Class test- Syllabus covered in the month of November

9. **December Class test- Syllabus covered in the month December**
Make a chart on Cyber safety and Rules.

10. **January Class test and Revision of whole Syllabus covered**

11. **February Class test and Revision of whole Syllabus covered**

12. **March Annual Examination Begins**
Syllabus covered from April to February