

SS 3 SCIENCE – FIRST TERM SCHEME OF WORK

New NERDC Approved Curriculum 2025

Federal Republic of Nigeria – Senior Secondary School Three (Science Stream)

Weeks 1–10 | Core Science Subjects | WAEC / NECO Examination Preparation

About This Scheme of Work

This SS3 Science First Term Scheme of Work is based on the New NERDC Approved Curriculum 2025. It covers Weeks 1–10 of the first term for the Science stream of Senior Secondary School Three. Week 1 is a resumption and diagnostic week, and Week 7 is a mid-term review and assessment week. The Subject Overview Table at the end summarises all first-term topics for easy reference by teachers, HODs, and school administrators.

Note on the SS3 Science Stream

Under the NERDC 2025 curriculum, Senior Secondary students take 8–9 subjects. The Science stream core subjects are: English Studies, General Mathematics, Biology, Chemistry, and Physics. Further Mathematics is taken by students targeting Engineering, Medicine, and Mathematical Sciences. Citizenship and Heritage Studies and Digital Technology are compulsory for all streams. CRS or IS is taken according to the student's religious affiliation. Schools may add one approved Trade/Entrepreneurship subject.

WEEK 1

WEEK	SUBJECT	TOPIC / CONTENT
NOTE	<i>Resumption and orientation week. Teachers welcome SS3 students back, distribute materials, brief students on WAEC/NECO examination timetables and registration procedures, and conduct diagnostic revision of SS2 final-term topics before first-term teaching begins.</i>	
WEEK 1	English Studies	Orientation and diagnostic assessment; revision of SS2 key topics: comprehension strategies, grammar, and essay types
	General Mathematics	Orientation; diagnostic test; revision of indices and logarithms – laws of indices, logarithmic equations, and applications
	Biology	Orientation; diagnostic assessment; introduction to evolution – Lamarck's and Darwin's theories of evolution; natural selection
	Chemistry	Orientation; diagnostic assessment; introduction to organic chemistry – definition, sources, and classification of organic compounds; homologous series
	Physics	Orientation; diagnostic assessment; introduction to simple harmonic motion (SHM) – definition, examples, and characteristics; equations of SHM
	Further Mathematics	Orientation; diagnostic assessment; revision of algebraic processes – polynomials, remainder theorem, and factor theorem
	Citizenship & Heritage Studies	Orientation; diagnostic assessment; Nigeria's constitution – review of the 1999 constitution (as amended); key features and provisions
	Digital Technology	Orientation; diagnostic assessment; computer networks – types: LAN, MAN, WAN; network topologies and transmission media

WEEK	SUBJECT	TOPIC / CONTENT
	CRS / IS	CRS: Orientation; revision of SS2 CRS themes / IS: Orientation; revision of SS2 Islamic Studies topics; diagnostic activities

WEEK 2

WEEK	SUBJECT	TOPIC / CONTENT
WEEK 2	English Studies	Reading comprehension – argumentative passages: identifying the writer's stance, claims, counter-arguments, and use of persuasive devices
	General Mathematics	Surds – definition and types; basic operations: simplification, rationalisation of surds; applying surds in solving problems
	Biology	Evidence of evolution – fossil records, comparative anatomy (homologous and analogous structures), embryology, and biochemical evidence
	Chemistry	Hydrocarbons – alkanes: general formula, IUPAC nomenclature, properties, preparation, and reactions (combustion, substitution); uses of alkanes
	Physics	Waves – properties of waves: amplitude, frequency, wavelength, period, wave speed; types of waves (transverse and longitudinal); wave equation $v = f\lambda$
	Further Mathematics	Partial fractions – proper and improper rational fractions; resolving into partial fractions; applications
	Citizenship & Heritage Studies	Fundamental human rights – rights enshrined in Chapter 4 of the 1999 constitution; enforcement and limitations of rights
	Digital Technology	Internet technologies – World Wide Web; web browsers; search engines; internet protocols (HTTP, HTTPS, FTP); cloud computing
	CRS / IS	CRS: Teachings of Jesus on prayer – the Lord's Prayer explained; persistence in prayer; prayer in the life of a Christian / IS: Salah – times, conditions, method, and spiritual significance

WEEK 3

WEEK	SUBJECT	TOPIC / CONTENT
WEEK 3	English Studies	Writing – argumentative essays: structure (introduction, argument, counter-argument, rebuttal, conclusion); language of argumentation; practice essay
	General Mathematics	Quadratic equations – solving by factorisation, completing the square, and the quadratic formula; nature of roots using the discriminant
	Biology	Ecology – ecosystems: biotic and abiotic components; food chains and food webs; trophic levels; producers, consumers, and decomposers
	Chemistry	Hydrocarbons – alkenes: general formula, IUPAC nomenclature, structure (double bond), preparation, and reactions (addition reactions: hydrogenation, halogenation, hydration); Markovnikov's rule

WEEK	SUBJECT	TOPIC / CONTENT
	Physics	Sound waves – production and propagation; characteristics (pitch, loudness, quality); speed of sound; reflection (echo), refraction, and diffraction of sound; applications
	Further Mathematics	Binomial expansion – the binomial theorem for positive integer index; Pascal's triangle; finding specific terms; applications
	Citizenship & Heritage Studies	Rule of law and democracy – meaning and principles of rule of law; Dicey's doctrine; importance of rule of law in a democratic state; rule of law in Nigeria
	Digital Technology	E-commerce – meaning and types of e-commerce (B2B, B2C, C2C); benefits and challenges of e-commerce; popular e-commerce platforms
	CRS / IS	CRS: Teachings of Jesus on faith – healing miracles and faith; the importance of faith in Christian living; practical applications / IS: Iman (Faith) – the Six Articles of Faith; strengthening faith through worship and knowledge

WEEK 4

WEEK	SUBJECT	TOPIC / CONTENT
WEEK 4	English Studies	Writing – formal letter writing: types (letters of application, complaint, request); correct format; register and tone; practice formal letters
	General Mathematics	Coordinate geometry – the straight line: distance between two points; midpoint formula; gradient; equation of a line ($y = mx + c$); parallel and perpendicular lines
	Biology	Energy flow in ecosystems – energy pyramids (number, biomass, energy); ecological efficiency; carbon, nitrogen, and water cycles
	Chemistry	Hydrocarbons – alkynes: general formula, IUPAC nomenclature, structure (triple bond), preparation, and reactions; acetylene (ethyne) and its industrial uses
	Physics	Light waves – diffraction and interference of light; Young's double-slit experiment; constructive and destructive interference; application in thin film interference
	Further Mathematics	Differentiation – basic principles: limits and first principles; rules of differentiation (power rule, product rule, quotient rule, chain rule); derivatives of trigonometric functions
	Citizenship & Heritage Studies	Duties and responsibilities of citizens – civic obligations: obedience to law, payment of taxes, voting, military/national service; comparing rights and duties
	Digital Technology	Cyber security – cyber threats: hacking, phishing, malware, ransomware, identity theft; data protection strategies; firewalls and antivirus tools; safe online practices
	CRS / IS	CRS: The death and resurrection of Jesus Christ – events of Holy Week; theological significance of the crucifixion and resurrection; the empty tomb accounts / IS: The life and death of the Prophet Muhammad (PBUH) – his final years, illness, and departure; lessons for Muslims

WEEK 5

WEEK	SUBJECT	TOPIC / CONTENT
WEEK 5	English Studies	Summary writing – skills of condensation: identifying main points; removing examples and repetition; writing a concise summary; timed practice
	General Mathematics	Mensuration – surface area and volume of prisms, cylinders, cones, pyramids, and spheres; solving real-life application problems
	Biology	Pollution – types (air, water, soil, noise); causes and effects on living organisms and ecosystems; methods of pollution control and management
	Chemistry	Aromatic hydrocarbons – benzene: structure (Kekulé), properties, preparation, and reactions (substitution reactions); naming simple benzene derivatives; importance of aromatics
	Physics	Electromagnetic waves – the electromagnetic spectrum: properties common to all EM waves; types and examples (radio, microwave, infrared, visible, UV, X-rays, gamma rays); applications and dangers
	Further Mathematics	Differentiation – applications: gradient at a point; equations of tangents and normals; increasing and decreasing functions; maximum and minimum values (turning points); curve sketching
	Citizenship & Heritage Studies	National integration and unity – meaning of national integration; factors promoting and hindering unity in Nigeria; the role of NYSC, unity schools, and national symbols
	Digital Technology	Databases – concepts: data, information, database, DBMS; advantages of databases over flat-file systems; types of databases; database terminology (tables, records, fields, primary keys)
	CRS / IS	CRS: The Great Commission and the coming of the Holy Spirit – Matthew 28:18–20; Acts 2 – Pentecost and its significance for the early church / IS: The Khulafa al-Rashidun – the four rightly guided caliphs; their contributions to Islam and governance

WEEK 6

WEEK	SUBJECT	TOPIC / CONTENT
WEEK 6	English Studies	Vocabulary development – word registers (scientific, legal, medical, sports); understanding vocabulary in context; building word families; collocations and idioms
	General Mathematics	Trigonometry – sine rule, cosine rule, and their applications in solving triangles; angles of elevation and depression; bearings
	Biology	Conservation of natural resources – biodiversity; endangered species; deforestation and desertification; methods of conservation (game reserves, national parks, legislation)
	Chemistry	Alcohols and ethers – classification of alcohols (primary, secondary, tertiary); preparation; physical and chemical properties; reactions; ethers: nomenclature and preparation; industrial uses
	Physics	Nuclear physics – radioactivity: types of radiation (alpha, beta, gamma); properties; nuclear equations; half-life; uses of radioactivity; nuclear fission and fusion; nuclear energy

WEEK	SUBJECT	TOPIC / CONTENT
	Further Mathematics	Integration – basic principles: integration as the reverse of differentiation; rules of integration; indefinite and definite integrals; integration of algebraic and trigonometric functions
	Citizenship & Heritage Studies	Corruption – definition; types (bribery, embezzlement, nepotism, fraud); causes and effects on Nigeria's development; role of citizens in fighting corruption
	Digital Technology	Database Management Systems (DBMS) – functions of a DBMS; creating and managing a simple database; queries and reports; SQL basics (SELECT, INSERT, UPDATE, DELETE)
	CRS / IS	CRS: The missionary journeys of Paul – Paul's three journeys; the spread of Christianity; perseverance in ministry / IS: The spread of Islam in West Africa – trade routes; scholars; effects on culture, governance, and education in Nigeria

WEEK 7

WEEK	SUBJECT	TOPIC / CONTENT
NOTE	<i>Mid-term review and assessment week. Teachers administer mid-term tests across all subjects, return marked scripts with detailed feedback, and conduct targeted revision of topics from Weeks 2–6. Given SS3 examination pressure, teachers should also address common WAEC/NECO question patterns.</i>	
WEEK 7	English Studies	Mid-term revision of comprehension, argumentative essay, formal letter, and summary writing; mid-term test under exam conditions
	General Mathematics	Mid-term revision of surds, quadratic equations, coordinate geometry, mensuration, and trigonometry; mid-term test on Weeks 2–6 topics
	Biology	Mid-term revision of evolution, ecology, energy flow, pollution, and conservation; mid-term test with WAEC-style questions
	Chemistry	Mid-term revision of alkanes, alkenes, alkynes, aromatic hydrocarbons, and alcohols; mid-term practical and written chemistry test
	Physics	Mid-term revision of SHM, waves, sound, light, electromagnetic waves, and nuclear physics; mid-term Physics test
	Further Mathematics	Mid-term revision of partial fractions, binomial expansion, differentiation, and integration; mid-term Further Mathematics test
	Citizenship & Heritage Studies	Mid-term revision of the constitution, rights, rule of law, citizens' duties, national unity, and corruption; mid-term test
	Digital Technology	Mid-term revision of computer networks, internet, e-commerce, cyber security, databases, and DBMS; mid-term practical and theory test
	CRS / IS	CRS / IS: Mid-term review of all first half topics; scripture-based application questions; mid-term test

WEEK 8

WEEK	SUBJECT	TOPIC / CONTENT
WEEK 8	English Studies	Grammar – comprehensive review of tenses: simple, continuous, perfect, and perfect continuous tenses; common errors and corrections; tense consistency in writing
	General Mathematics	Differentiation – basic principles and rules; gradient of a curve at a point; application to rates of change; velocity and acceleration from displacement-time functions
	Biology	Adaptations of organisms – structural, physiological, and behavioural adaptations to terrestrial, aquatic, and aerial habitats; relationship between adaptation and natural selection
	Chemistry	Carboxylic acids and esters – structure, nomenclature, and properties of carboxylic acids; esterification reaction; properties and uses of esters; soaps and detergents (saponification)
	Physics	Modern physics – photoelectric effect: explanation, work function, threshold frequency, Einstein's photoelectric equation; wave-particle duality; quantum theory introduction
	Further Mathematics	Integration – applications: area under a curve; volume of solid of revolution; kinematics using integration
	Citizenship & Heritage Studies	Anti-corruption measures in Nigeria – EFCC, ICPC, TI; roles and achievements; whistle-blowing policies; global anti-corruption frameworks; the role of youth
	Digital Technology	Computer programming – review of programming concepts: variables, data types, control structures (if/else, loops); introduction to a programming language (Python or pseudocode)
	CRS / IS	CRS: Christian living in society – applying Christian values to social issues: justice, service, integrity; the role of the church in Nigerian society / IS: Islamic ethics in society – justice, honesty, tolerance; the role of Muslims in nation building

WEEK 9

WEEK	SUBJECT	TOPIC / CONTENT
WEEK 9	English Studies	Grammar – direct and indirect speech: rules for reporting statements, questions, commands, and exclamations; tense shifts; pronoun and time/place reference changes
	General Mathematics	Integration – introduction: integration as the reverse of differentiation; basic rules; indefinite integrals; simple applications
	Biology	Biotechnology – meaning and applications: genetic engineering; recombinant DNA technology; GMOs; cloning; applications in medicine (vaccines, insulin), agriculture, and industry; ethical considerations
	Chemistry	Polymers – natural polymers (starch, proteins, rubber) and synthetic polymers (polyethylene, PVC, nylon); addition and condensation polymerisation; properties and uses; environmental impact of plastics
	Physics	Electronics – p-n junction diode; forward and reverse biasing; rectification (half-wave and full-wave); transistors: npn and pnp; transistor as an amplifier and as a switch; logic gates (AND, OR, NOT)

WEEK	SUBJECT	TOPIC / CONTENT
	Further Mathematics	Differential equations – introduction: formation of simple differential equations; solving first-order differential equations by separation of variables; applications to growth and decay
	Citizenship & Heritage Studies	National identity and symbols – the Nigerian national flag, coat of arms, anthem, pledge, and currency; their history and meaning; responsibility to uphold national identity
	Digital Technology	Web design basics – HTML structure: tags, elements, and attributes; creating a simple webpage; CSS: styling text, colours, and layout; introduction to responsive design
	CRS / IS	CRS: Persecution of the early Christians – Acts of the Apostles; Stephen, Peter, Paul; lessons on courage, faith, and steadfastness / IS: Persecution of early Muslims – the Makkan period; lessons on patience (Sabr) and trust in Allah (Tawakkul)

WEEK 10

WEEK	SUBJECT	TOPIC / CONTENT
WEEK 10	English Studies	Oral English – word stress and sentence stress; intonation patterns (rising and falling); common mispronunciations; reading aloud practice; literature appreciation – unseen prose and poetry analysis
	General Mathematics	Statistics – measures of central tendency: mean (including grouped data), median, and mode; frequency distribution tables; cumulative frequency; revision of first term topics; first term test
	Biology	Revision of genetics – Mendelian genetics; laws of segregation and independent assortment; monohybrid and dihybrid crosses; codominance; sex-linked inheritance; revision and first term test
	Chemistry	Industrial chemistry – petrochemical industry: fractional distillation of crude oil; cracking; qualitative analysis – tests for functional groups; revision and first term test
	Physics	Electronics revision and consolidation; relativity – introduction: Einstein's special theory; $E = mc^2$; mass-energy equivalence; revision of all first term topics; first term test
	Further Mathematics	Matrices and determinants – definition; types of matrices; matrix operations (addition, subtraction, multiplication); determinants (2×2 and 3×3); inverse of a matrix; solving simultaneous equations using matrices; revision and first term test
	Citizenship & Heritage Studies	Agencies promoting good governance – INEC, NPC, EFCC, CBN, National Assembly; their roles in strengthening Nigerian democracy; revision of all first term topics; first term test
	Digital Technology	Emerging technologies – artificial intelligence (AI): definition and applications; blockchain technology: concept and uses; Internet of Things (IoT); revision of all first term topics; first term test
	CRS / IS	Revision and first term test covering all first term CRS / IS topics; scripture recitation and application questions; reflection on values for examination season

SUBJECT OVERVIEW – First Term Topics (Science Stream)

SUBJECT	First TERM FOCUS AREAS
English Studies	Comprehension: argumentative passages; Writing: argumentative essay, formal letter, summary; Vocabulary: registers; Grammar: tenses, direct/indirect speech; Oral English: stress and intonation; Literature: unseen prose and poetry
General Mathematics	Indices and logarithms revision; Surds; Quadratic equations; Coordinate geometry; Mensuration; Trigonometry (sine and cosine rules); Differentiation (introduction); Integration (introduction); Statistics
Biology	Evolution (theories and evidence); Ecology (ecosystems, energy flow); Pollution and conservation; Adaptations; Biotechnology; Genetics revision
Chemistry	Organic chemistry: alkanes, alkenes, alkynes; Aromatic hydrocarbons (benzene); Alcohols and ethers; Carboxylic acids and esters; Polymers; Industrial chemistry and petrochemicals; Qualitative analysis
Physics	Simple harmonic motion; Waves (transverse and longitudinal); Sound waves; Light (diffraction and interference); Electromagnetic spectrum; Nuclear physics and radioactivity; Modern physics (photoelectric effect); Relativity introduction; Electronics (diodes, transistors, logic gates)
Further Mathematics	Algebraic processes revision; Partial fractions; Binomial expansion; Differentiation (rules and applications); Integration (rules and applications); Differential equations; Matrices and determinants
Citizenship & Heritage Studies	Nigeria's constitution; Fundamental human rights; Rule of law and democracy; Citizens' duties; National integration and unity; Corruption: causes and anti-corruption measures; National identity and symbols; Good governance agencies
Digital Technology	Computer networks (LAN, MAN, WAN); Internet technologies; E-commerce; Cyber security; Databases and DBMS; Computer programming (review); Web design basics; Emerging technologies (AI, blockchain, IoT)
CRS / IS	CRS: Prayer, faith, death and resurrection of Christ, Great Commission, Pentecost, Paul's journeys, Christian living, persecution of early Christians / IS: Salah, Iman, Prophet's final years, Khulafa al-Rashidun, Islam in West Africa, Islamic ethics, patience under persecution

IMPORTANT NOTES

Week 11: Revision Week – intensive revision of all first term topics; past question marathon sessions recommended across all subjects.

Weeks 12–13: First Term Examinations – written and practical assessments as applicable per subject.

WAEC/NECO Note: SS3 students should consistently practise past WAEC/NECO questions throughout the term. Teachers are encouraged to incorporate WAEC-style questions into weekly assessments. Practicals (Biology, Chemistry, Physics) should be given equal emphasis alongside theory.

Abbreviations: CRS = Christian Religious Studies | IS = Islamic Studies | SHM = Simple Harmonic Motion | DBMS = Database Management System | WAEC = West African Examinations Council | NECO = National Examinations Council | AI = Artificial Intelligence

Source: New NERDC Approved Curriculum 2025 | Federal Republic of Nigeria | For SS3 Science students, First Term, 2025/2026 session.