



CORE CURRICULUM PRODUCTS

SENIOR PHASE

GRADE 7

(Content of additional subjects available on request)

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MATHEMATICS (PACEs 1073–1084)

The student:

- Reads, writes, and works with whole and mixed numbers, integers, and proper and improper fractions.
- Learns the proper mathematical terminology—dividend, multiplicand, product, simplify, minuend, quotient, numerator, and denominator; changes fractions and decimals to percentages; finds the number when a percentage is known; finds the mean, mode, median, range, and rank; and interprets graphs, stem and leaf plots, and box and whisker plots.
- Is introduced to business and consumer arithmetic—profit and loss, commission, discounts, bills and receipts, and invoices with discounts; ratios, proportions, and percentages.
- Reviews geometric concepts and finds perimeter, circumference, and surface area.
- Learns Biblical principles of finance, budgeting, saving, investing, and bank services.
- Reviews basic geometry concepts and symbols and uses a protractor and compass to find perimeter and area of shapes and solids.
- Is introduced to equations—variable, sets, and set notation; vocabulary; symbols; and word problems.

ENGLISH LEARNING MATERIALS

ENGLISH (PACEs 1073–1084)

The student:

- Identifies, reviews, and diagrams simple, compound, and complex sentence patterns.
- Reviews eight parts of speech and studies prepositions, conjunctions, and interjections.
- Is introduced to infinitives and gerunds.
- Reviews principal parts of regular and irregular verbs—perfect tenses; conjugation of all six tenses; progressive verb forms; transitive and intransitive verbs; and subject-verb agreement.
- Increases noun study—exact, compound, collective, plural, and possessive.
- Develops use of personal pronouns—nominative, objective, and possessive case; demonstrative, interrogative, relative, reflexive, and indefinite pronouns.
- Applies adjectives as indefinite pronouns, nouns, participles, and predicate adjectives.
- Develops writing and communication skills through use of sentence variety, outlining, paragraph writing, composition writing, and proofreading.

- Works with paragraph structure—indenting, main idea, topic sentence, summary, dependent and independent clauses, and phrases.
- Is encouraged in character development through examples given in each PACE.

LITERATURE & CREATIVE WRITING (PACEs 1061-1072)

The student:

- Locates words in a dictionary, identifies word families, and defines new vocabulary words.
- Reads and answers thought questions.
- Uses visual discrimination.
- Writes expository and descriptive paragraphs, essays, simple and detailed explanations, directions, personal diary entries; cause and effect; fact and opinion; and exposition, description, persuasion, and narration.
- Identifies figures of speech, sensory detail, and climax and resolution of story.
- Solves word and logic puzzles.
- Converts information into bar graphs.

WORD BUILDING (PACEs 1073-1081)

The student:

- Reviews word studies—synonyms, homonyms, antonyms, heteronyms, commonly misspelled words,
- Greek word parts, and words of Spanish and French origin.
- Expands grammar usage—regular and irregular verb forms, forming adjectives from nouns and adverbs, interjections, complete subject, and complete predicate.
- Integrates thinking and writing with correct punctuation.
- Reviews, memorizes, and learns abbreviations—days of the week, months, states, and capitals.
- Continues to study phonics rules—different sounds of s and c, ending sounds, prefixes and suffixes, diphthongs, and accent and syllable division.
- Writes about the character traits taught in each PACE.

SCIENCE (PACEs 1073-1084)

The student:

- Learns the scientific method. Characteristics of living things—movement, reactions, use of food and oxygen, cells, growth, regeneration and reproduction. Plant kingdom. Animal kingdom. Man—ruler of the kingdom.
- Viruses. Bacteria—round, rod, and spiral shaped bacteria, growth and reproduction, helpful bacteria, and harmful bacteria. Algae—one celled and many celled. Fungi—yeasts and many celled fungi. Mosses.
- Botany—complex plants. Conducting system—roots, stems, leaves and flowers. Food-making process—photosynthesis. Reproduction—sexual and asexual methods. Needs of plants—light, warmth, water and minerals. Ferns, cone-bearing plants, and flowering plants.
- Invertebrate animals. One-celled—amoeba and paramecium. Simple—sponges, jellyfish, coral, flatworms and roundworms. Complex—mollusks, spiny-skinned animals, segmented worms and arthropods.
- Vertebrates. Characteristics. Body structures. Behavior. Cold-blooded vertebrates—fish, amphibians and reptiles.
- Matter and Materials: properties of matter; Acids, Bases and Neutrals; Separating mixtures; Periodic Table of the Elements

- Warm-blooded vertebrates. Characteristics of birds. Characteristics of mammals. Flying mammals, rodents, carnivores, marine mammals, hooved mammals and primates. Man: God's special, unique creation-separate and distinct from animals.
- Energy and energy change: Sources of energy; Potential and Kinetic energy; Heat transfer; Insulation, Energy saving and Energy transfer; National Electricity supply (Including careers)
- Inheritance and genetics. Embryos. Inherited traits-patterns and combinations. Gene alterations-chemical, natural (handicaps), plant and animal types, and diabetes. Gene functions.
- Skeletal. Structure and function. Form. Divisions.
- Muscular system. Functions-body movement, breathing, blood circulation, digestion of the head and face. Structure. Tissue. Circulatory system.
- Ecology-living things and their environments. Populations, communities, and ecosystems. Goals of ecology study. Balance of nature.
- Creation, the flood, the present world, the future world. Cycles of nature. Organisms that live together.
- Ecology-biomes, tundra biome. Tiaga-coniferous forest. Deciduous forest biome. Grassland biome. Desert biome. Tropical rain forest. Marine environment.
- Ecology-air pollution. Types. Effects on man, wildlife, and their environment. Controls. Ecology-water pollution types. Effects. Controls. Energy resources.
- Is encouraged in character development through examples given in each PACE and expands his ability to use each of these Godly traits in real-life situations.

SOCIAL STUDIES (PACEs 1073-1086)

The student:

- Learns about South African history.
- Dutch Settlement at the Cape, Jan van Riebeeck, The French Huguenots, The British Settlers, Frontier Wars, The Great Trek, The Black Nations, The Mfecane
- Learns to always do right, according to God's Word – to be consistent.
- Learns about industrialization.
- Do what God wants me to do, based on His will – to be decisive.
- Learns about colonialism and British control of South Africa.
- Have understanding in making the right decisions – to be discerning.
- Learns about World War I and World War II.
- The Role of South Africa in the War
- Human Rights
- The Declaration of Human Rights
- Human Rights in the United States
- Human Rights in Africa
- Learns to be true to God and others because of love, promise, or honor – to be faithful.
- Learns about South Africa after World War II.
- Apartheid in South Africa
- South Africa in the 1990s
- The Collapse of Apartheid
- The Building of a New Nation
- Use all I have to glorify God because it all belongs to God – to be generous.

- Learns about settlements, transportation and natural resources.
- Meditate upon the most hopeful aspects of any situation – to be optimistic.
- Development issues
- Sustainable use of Resources
- Social and Environmental Conflicts
- Map information
- Map Skills
- The use of Photographs
- Earth as our inheritance
- Earth in space
- Planets of our solar system
- Sun's effect on earth
- Layers of the earth
- Types of rock in the crust
- Topography of the crust

GRADE 8

MATHEMATICS (PACEs 1085–1096)

The student:

- Reviews basic number theory and mathematical terms and operations including integers, fractions, decimals, and percentage.
- Gains mastery of exponents and learns to simplify radicals and estimate the value of numbers that are not perfect squares.
- Solves one, two, and multistep equations and inequalities, including equations containing fractions and exponents.
- Expands his knowledge of ratios and proportions and uses them to solve application and word problems in similarity, scaling, and unit costs.
- Uses the Pythagorean Theorem.
- Uses measures of central tendency to analyse and interpret data and graphs.
- Expresses probability as ratios, decimals, and percentage.
- Finds the number of permutations and combinations using factorial notation and combinations using Pascal's Triangle.
- Reviews basic geometric concepts, symbols, shapes, and constructions, including translations, reflections, and rotations on a coordinate plane.
- Converts between the English and metric systems of measurement and Fahrenheit, Celsius, and Kelvin temperature scales.
- Expands his knowledge of business and consumer mathematics—sales, profit and loss, simple and compound interest, interest payments on loans, property tax, and life and auto insurance.
- Reviews angles.
- Learns to solve geometrical problems using equations.
- Learns about conditions for congruency of triangles.

ENGLISH LEARNING MATERIALS

ENGLISH (PACEs 1085–1096)

The student:

- Reviews verbs and verb tenses, progressive form, and the emphatic mood.
- Concentrates on diagramming pronouns, adjectives, adverbs, prepositional phrases, compound subjects and verbs, and all four sentence patterns.
- Expands noun functions in sentences—compound, collective, plural, possessive, and subject/verb agreement.
- Develops five kinds of pronouns (demonstrative, relative, interrogative, reflexive, and indefinite), the three cases of personal pronouns (nominative, objective, and possessive), subject pronoun/verb agreement (number, person, and gender), and diagrams pronouns.
- Reviews parts of speech.
- Continues to develop writing skills which include topic sentences, outlining, and paragraph development.
- Edits written paragraphs to ensure that correct grammar is used.
- Recognizes sentence fragments and run-on sentences.
- Writes several short biographical sketches.
- Is encouraged in character development through examples given in each PACE.

LITERATURE (PACEs 1086-1096)

The student reads:

- *God's Adventurer* by Phyllis Thompson, a story about the life and adventures of missionary Hudson Taylor.
- *Little One, Maid of Israel* by Bill Harvey. This is an exciting story about the young maid whose life affected the Syrian captain Naaman.
- *When Science Fails* by John Hudson Tiner. Documented cases of major scientific discoveries in the modern era present a powerful testimony to the validity of the Scriptures.
- *Abraham Lincoln* by David R. Collins, the story of our 16th president, his rise to the White House, and his dependence on Jesus.
- *Ann of Ava* by Ethel Daniels Hubbard, the life story of Ann Judson, wife of Adoniram Judson, missionary to Burma.
- *In His Steps* by Charles M. Sheldon. This selection is one of the great books for Christians today and will be a tremendous help to each student.

WORD BUILDING (PACEs 1082-1088)

The student:

- Expands his knowledge and use of phonics rules—vowel sounds and spelling; and special sound consonants s, c, j, g, and k.
- Learns the semaphore alphabet code.
- Correct use of some confusing word pairs.
- Accented and stressed syllables.
- Interjections, apostrophes and commas.
- Root words: tact, steed, form, tend, part, gener, cite, strict, log, sist, sign, solve, pend, verse, cess.
- Increases his understanding of grammar—verb forms, tenses, nouns, and plurals.
- Writes about the character traits taught through concept examples in each PACE.

SCIENCE (PACEs 1085-1102)

The student:

- Learns about atoms,
- Elements and compounds and molecules.
- Decomposition of substances by heating, electrical energy.
- Particle model of matter; solids, liquids, gases.
- Change of state; diffusion.
- Density, Mass, Volume, States of matter
- Expansion and contraction
- Gas pressure
- Chemical reactions: reactants and products; Chemical equations,; Careers in Chemistry
- Static electricity
- Energy transfer in Electrical systems: Circuits and current electricity; Components of a circuit; Effects of an electric current
- Series and Parallel circuits; History of electricity ; Careers in electricity
- Radiation of light and the visible spectrum.
- Absorption and reflection of light
- Refraction of Light and Careers in the Light industry
- Is encouraged in character development through examples given in each PACE.

- Learns about birds, feathers, major body structures, body systems and functions.
- Mammals, characteristics, body systems, migration and hibernation, types.
- Fish, Amphibians, and Reptiles.
- Dinosaurs.
- Scientific proof for Creation of fish, amphibians and reptiles.
- Sponges, Coelenterates, Mollusks, and Echinoderms.
- Scientific proof for Creation of invertebrates.
- Worms and Arthropods.
- Crustaceans.
- Centipedes and millipedes.
- Insects.
- Plants.
- Vascular plants.
- Nonvascular plants.

SOCIAL STUDIES (PACEs 1085-1102)

The student:

- Learns about the Blue Planet
- Structure of the hydrosphere
- Oceanography
- The atmosphere's makeup
- The atmosphere's measureable qualities (temperature, humidity, pressure)
- Meteorology
- Weather factors
- Weather forecasting
- Climates
- Earthquakes
- Causes of earthquakes
- Measurement of earthquakes
- Results of earthquakes
- Is encouraged in character development through examples given in each PACE.
- God's Creation of the Universe and man's earliest history. The civilizations of Mesopotamia and Egypt
- How God brought the Hebrews into existence. The influence of each major figure in Hebrew history. The Persians, Hittites, Phoenicians, and Philistines
- Greek history and culture. Alexander the Great. The Roman Republic
- The Roman Empire. The advent of Jesus Christ, His Life, Death and Resurrection. History of the early church.
- History of the early middle ages. Asian civilizations
- The later middle ages. The development of feudalism, manorialism, rise of towns, the Crusades, the rise of the nation-states

GRADE 9

MATHEMATICS (PACEs 1097–1108)

Basic algebraic concepts (definitions, signs, and expressions) are introduced in a carefully structured way to make the learning material understandable. This curriculum includes principles for logically solving, transposing, and cancelling algebraic equations.

The student works with:

- Monomial and polynomial expressions.
- Algebraic addition, subtraction, multiplication, and division.
- Complex fractions: reducing, simplifying, and solving word problems.
- Algebraic graphs—linear equations, consistent, inconsistent, and dependent in word problems.
- Hyperbola equations.
- Graphs exponential equations.
- Quadratic equations, factoring, positive and negative numbers, averages, percentages, interest, ratios, and proportions, and translating word problems to algebraic equations.
- The Pythagorean Theorem.
- Functional notation.

Twelve DVDs reinforce this course.

ENGLISH LEARNING MATERIALS

ENGLISH (PACEs 1097–1108)

The student:

- Learns about the history of the English language.
- Practices using resources—dictionary, thesaurus, concordance, encyclopedia, and the library.
- Reviews outlining.
- Writes a biographical sketch and answers essay questions.
- Continues to review and write with verbs—action/linking, transitive/intransitive, active/passive voice, tenses, progressive form, and emphatic mood.
- Reads and analyses *The Swiss Family Robinson* by Johann Wyss and *Twice Freed* by Patricia St. John.
- Learns the parts of a book; the elements of a short story and a novel—chronological order, spatial order, and order of importance; the exposition, complication, and resolution of story plots.
- Diagrams simple, compound, and complex sentences.
- Is introduced to new vocabulary words.
- Identifies and uses the literal and figurative meanings of words and understands word derivations.
- Writes a composition unified by a single coherent thesis with a consistent tone and focus.
- Demonstrates an understanding of sentence construction by correctly using clauses, phrases, and the mechanics of punctuation.
- Is encouraged in character development through examples given in each PACE.

WORD BUILDING (PACEs 1089-1096)

- Dictionary skills.
- Root words: fuse, hand, divide, use, spect, tract, dict, cern, med, pol, form, corp, doubt, loc, miss, gress, vert, serve, leg, gener, merge, punct, flex
- Commonly misspelled words.
- Greek word parts.
- Accented and stressed syllables.
- Semaphore alphabet code.

SCIENCE (PACEs 1097-1108)

The student:

- Learns about Pressure, Calculating Pressure, Liquids, The Gas Phase, Air Pressure, Atmospheric pressure.
- Electricity.
- Electrostatics.
- What is Electricity?
- Measuring Current with an Ammeter, Effect of the Number of Cells on the Current in a Circuit, Measuring Potential Difference in the Circuit, Resistance, Safety Precautions, Fuses, Trip Switch.
- Introduction to Light.
- Interesting Facts about Light, Formation of an Image, Reflection of Light, Regular or Diffused Reflection, Refraction of Light, Spectrum of White Light.
- Revision of Grade 8 Chemistry.
- Acids and Bases.
- Indicators, Reaction of Dilute Acids with Metals, The Reaction of Acids with Metal Oxides, Neutralisation of an Acid, Neutralisation Reaction between HCl and NaOH, Reaction of Dilute Acids with carbonates.
- Learns about Microorganisms. Protists. Algae. Protozoa. Fungi. Microscope. Cell theory. Plant cells. Animal cells. Bacteria and viruses.
- Man: skin, skeleton, and muscles. Integumentary system. Function. Layers of skin. Structures. Skeleton. Function. Major bones. Structure of bones. Types of joints. Muscles. Types and functions. Action.
- Man: nerves, circulation, and respiration. Nerves. Organs of central nervous system. The brain. Neurons. Sensory organs. Drugs. Circulation. Heart. Veins, arteries, capillaries. Blood. Red and white blood cells and platelets. Blood types. Organs. Phases.
- Man: nutrition and growth. Digestive system. Nutrients. Sugars. Vitamins. Food groups. Sweat glands and kidneys. Exocrine and endocrine glands.
- Man: reproduction, genetics, and embryology. Reproduction. Steps of mitosis. Difference between mitosis and meiosis. Reproduction. Abortion. Genetics. Inheritance of physical traits. Applied genetics. Refuting mutations as a basis for theory of evolution. Embryology.
- Ecology and conservation. Earth's pre-flood environment. Major biomes of Earth. Ecological succession. Biotic and abiotic factors. Modern environment problems. Pollution. Endangered species.

SOCIAL STUDIES (PACEs 1097-1108)

The student:

- Learns about the topography of the world (continents, mountain ranges, mountain shapes, Islands, Plains and deserts)
- Mapping of the world (cartography, maps, time zones, globes)
- Understanding Mineral resources
- Classifying mineral resources
- Using mineral resources
- Appreciating mineral resources
- Cycles of Creation (circadian rhythm; tides; seasons; climates; constellations; time)
- Resources of Creation (life –sustaining resources; fuel resources)
- Weathering and erosion
- Soil formation
- Soil conservation
- Mass soil movements
- Glaciers
- The stars
- Telescopes
- Galaxies
- Star's purposes
- Creation proofs (from scientific laws; from astronomy; from geology; from biology)
- Flood proofs (Noah's Ark; from the fossil record; from archaeology; geology; hydrology)
- Proofs from population, linguistics, history
- Major events and important people during the Renaissance and the Reformation
- The age of exploration
- The emergence of modern Europe
- The history of the world 1850-1950. World War 1 and World War 2
- The Postwar period. Events of recent history
- Recent events in world history