Meridian International School s.r.o.

Meridian International School Curriculum

Grade 11 / Year 12
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Framework for the Meridian International School Curriculum

Grade 11/Year 12 (Key Stage 4)

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Disclaimer

To ensure the very best standards of learning and a quality education for our students, Meridian International School, Prague, aims to offer an up-to-date, comprehensive, unique, as well as a thoroughly modern curriculum. Combining the high level of British academic standards with a forward-thinking, international outlook, our curriculum intends to be innovative and challenging, whilst also being accessible in addition to making a challenging learning environment enjoyable for any student that is already enrolled or is thinking of joining our school.

In keeping with these high academic standards, the Meridian International School curriculum for Grade 11 has been developed from the following national government and private educational authorities:

- Her Majesty's Government Department for Education
  - https://www.gov.uk/government/organisations/department-for-education
- National Curriculum in England (Secondary Education)
  - https://www.gov.uk/government/publications/national-curriculum-in-england-secondary-curriculum
- Cambridge International Examinations (Secondary)
  - http://www.cie.org.uk/programmes-and-qualifications/cambridge-secondary-2/
- Czech Republic Ministry of Education, Youth and Sports – Framework Educational Programme for Basic Education
  - http://www.msmt.cz/areas-of-work/basic-education-1

Subjects of Study

During Grade 11, students at Meridian International School focus on the following subjects of study.

* English	(4 hours)
* Mathematics	(5 hours)
* Biology	(4 hours)
* Chemistry	(4 hours)
* Physics	(4 hours)
* Geography	(2 hours)
* Global Perspectives	(2 hours)
* History	(2 hours)
* Information Technology	(2 hours)
* Business Studies	(2 hours)
* Modern Languages	(3 hours)
* Physical Education	(2 hours)
* *Economics*	(2 hours)

Each subject is taught in full compliance with the National Curriculum of England.

* *Economics classes are held outside of regular classroom hours*

English (Course Description)

By the beginning of Grade 11, pupils should be able to read and confidently analyse and begin to synthesise a wider range of contemporary and classic fiction and nonfiction texts with accuracy. During Grade 11, teachers should continue to emphasise pupils' enjoyment and understanding of language, especially vocabulary, to support their reading and writing.

They should be able to read and understand most words effortlessly and determine unfamiliar vocabulary using linguistic and contextual clues. Pupils' knowledge of language, gained from stories, plays, poetry, non-fiction and textbooks, will support their increasing fluency as readers, their facility as writers, and their comprehension. Teachers should show pupils how to understand the relationships between words, how to understand nuances in meaning, and how to further develop their understanding of, and ability to use, figurative language. It is important that pupils learn the correct grammatical terms in English and that these terms are integrated within teaching.

Pupils should be reading frequently, outside as well as in school, for pleasure and information. Pupils should be able to summarise and analyze multiple readings of extended lengths accurately and in their own words. They should be able to read independently, with clear understanding, inferring the unstated nuances within the texts based on personal observations, and then discuss their findings in a coherent written and verbal manner.

In Grade 11, pupils should be reading a wide range of high-quality, challenging, classic literature and extended literary non-fiction, such as essays, reviews and journalism from the 19th, 20th, and 21st century. Pupils should understand how language, including figurative language, vocabulary choice, grammar, text structure and organisational features present meaning within and across these texts.

Pupils should be taught to write accurately, fluently, effectively and at length for pleasure and information through by adapting their writing for a wide range of purposes and audiences: to describe, narrate, explain, instruct, give and respond to information, and argue. They should be able to plan, write, and revise their own writing for extended academic writings. These synthesized writings should include independent academic research and reflection. They should be able to use and analyze academic primary sources for neutrality and validity. They should continue making critical comparisons, referring to the contexts, themes, characterisation, style and literary quality of texts, and drawing on knowledge and skills from wider readings.

Teachers should build on the knowledge and skills that pupils have been taught at Key Stage 3. Decisions about progression should be based on the security of pupils' linguistic knowledge, skills and understanding and their readiness to progress to the next stage. Pupils whose linguistic development is more advanced should be challenged through being offered opportunities for increased breadth and depth in reading and writing. Those who are less fluent should consolidate their knowledge, understanding and skills, including through additional practice. By the end of Grade 11, pupils' confidence, and mastery of language should be demonstrated through formal assessments of public speaking, collaborative discussion, and debate in addition to reading and writing. Pupils should use linguistic and literary terminology accurately and confidently in discussing reading, writing and spoken language. They should be able to communicate effectively and expressively by choosing and adjusting tone and style of speech to audience and purpose in addition to appropriate vocabulary and grammar. Pupils should understand nuances in vocabulary choice and age-appropriate, academic vocabulary. This involves consolidation, practice and discussion of language.

Teachers should prepare pupils for IGCSE Examinations by ensuring that they can consciously and coherently express themselves in their writing and speech. Pupils should be able to confidently read and make critical comparisons across texts and create and develop personal opinions with detailed supporting evidence rooted in academic research.

English (Course Objectives)

i) Reading – Word Reading:

- Apply their growing knowledge of root words, prefixes and suffixes (morphology and etymology), both to read and to understand the meaning of new words that they meet.

ii) Reading – Comprehension:

- Maintain positive attitudes to reading and understanding of what they read by:
  - Continuing to read and discuss an increasingly wide range of contemporary and classic fiction, poetry, plays, non-fiction and reference books or textbooks from the 19th, 20th, and 21st centuries
  - Reading whole texts and making detailed comparisons within and across multiple texts that are structured in different ways and reading for a range of purposes
  - Synthesising ideas and information found within texts and evaluating their usefulness for particular purposes
  - Distinguishing between statements that are supported by evidence and those that are not, and identifying bias and misrepresentation of evidence
  - Increasing their familiarity with a wide range of books, including short stories, extended modern fiction, fiction from our literary heritage, and books from other cultures and traditions
  - Drawing on knowledge of author's purpose, intended audience, and cultural, social, or historical context of the text to inform evaluation and analysis of a text
  - Identifying and discussing themes and conventions in and across a wide range of writing
  - Learn and recite a wider, more complex range of poetry keeping in mind intonation, inflection, and dialect
  - Preparing poems and plays to read aloud and to perform, showing understanding through intonation, tone and volume so that the meaning is clear to an audience

- Understand what they read by:
    - Checking that the book makes sense to them, discussing their understanding and exploring the meaning of words in context
    - Asking critical thinking questions to improve their understanding
    - Drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with textual evidence
    - Predicting what might happen from details stated and implied
    - Summarizing the main ideas drawn from more than one text, identifying key details that support the main ideas
    - Identifying how language, structure and presentation contribute to meaning
- Discuss and evaluate how authors use language, including figurative language, considering the impact on the reader
- Retrieve, record, and present information from non-fiction
- Participate in discussions about texts read independently and as a group, building on their own and others' ideas and challenging views courteously and provide reasoned justifications for conflicting viewpoints
- Explain and discuss their understanding of what they have read, including through formal presentations and debates, maintaining a focus on the topic and using notes where necessary

iii) Writing – Composition:

- Write legibly, fluently and with increasing speed and dexterity
- Plan their writing by:
    - Identifying the audience for and purpose of the writing, selecting the appropriate form and using other similar writing as models for their own
    - Noting and developing initial ideas using purposeful organization tools and drawing on reading and research where necessary

- In writing narratives, considering and emulating how authors have developed characters and settings in other texts

➢ Draft and write by:

- Selecting appropriate grammar and vocabulary, understanding how such choices can change and enhance meaning
- In narratives, describing settings, characters and atmosphere and integrating dialogue to convey character and advance the action.
- Continuing to use figurative, poetic, and rhetorical language techniques in both persuasive and expository writings
- Using a wide range of transitional and structural devices such as spacing, headings, and transition words and phrases to build cohesion and fluidity within and across paragraphs
- Using further organizational and presentational devises to structure text and to guide the reader through a text

➢ Evaluate and edit by:

- Assessing the effectiveness of their own and others' writing in a formal and constructive manner
- Proposing and accepting changes to vocabulary, grammar and punctuation to enhance effects and clarify meaning
- Ensuring correct subject and verb agreement when using singular and plural, distinguishing between the language of speech and writing and choosing the appropriate register
- Proof-read for spelling and punctuation errors.

➢ Orally perform their own compositions, using appropriate intonation, volume, and movement so that meaning is clear.

iv) Writing – Vocabulary, Grammar and Punctuation:

➢ Develop their understanding and continue successful usage of the concepts set out in Key Stage 3. In particular, pupils should master the following grammatical objectives by the end of grade 11:

- Recognizing vocabulary and structures that are appropriate for formal Standard English speech and writing
- Analyse some differences associated with formal and informal registers, and between Standard English and other varieties of English.
- Identifying and analysing the elements of a sentence (parts of speech, subject, object, complement etc.)
- Continuing to diagram sentences of increasing difficulty
- Expand knowledge of morphology, particularly with regard to prefixes, affixes, and suffixes which stem from Greek and Latin
- Recognizing the varying degrees of register within and across texts and purposefully implementing these variations in writing
- Identify and analyze the etymological origin of some modern English vocabulary
- Understand how cultures, languages, and dialect can affect both meaning and pronunciation of modern English

- Use and understand grammatical and literary terminology accurately and appropriately in discussing writing and reading.

Mathematics (Course Description)

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

The national curriculum for mathematics aims to ensure that all pupils:

become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.

reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language

can solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programme of study for key stage 4 is organised into apparently distinct domains, but pupils should develop and consolidate connections across mathematical ideas. They should build on learning from key stage 3 to further develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge wherever relevant in other subjects and in financial contexts. The expectation is that the majority of pupils will move through the programme of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

This programme of study specifies:

the mathematical content that should be taught to all pupils, in standard type

additional mathematical content to be taught to more highly attaining pupils, in bold type and braces { }.

Together, the mathematical content set out in the key stage 3 and key stage 4 programmes of study covers the full range of material contained in the GCSE Mathematics qualification. Wherever it is appropriate, given pupils' security of understanding and readiness to progress, pupils should be taught the full content set out in this programme of study.

Mathematics (Course Objectives)

Course Objectives

Understand coordinates, points and lines and solve problems involving them.

- Find the distance between two points.
- Find the midpoint, gradient of a line segment, given the coordinates of its end points.
- Find the equation of a line through a given point with a given gradient.
- Find the equation of a line joining two points.
- Recognize lines from different forms of their equations.
- Find the point of intersection of two lines.
- Tell from their gradients whether two lines are parallel or perpendicular.

Know how to simplify expressions involving square, cube and other roots

- Be able to simplify expressions involving square, cube and other roots.

Know the rules of indices and negative, zero and fractional indices.

- Know the rules of indices.
- Know the meaning of negative, zero and fractional indices.

Simplify expressions involving indices.

- Be able to simplify expressions involving indices.

Develop an understanding of functions and graphs.

- Understand function notation, and the terms 'domain' and ' range'.

- Know the shapes of graphs of powers of x and functions of the form f(x)=ax^2+bx+c.

- Be able to suggest possible equations of such functions from their graphs.

- Know how to use factors to sketch graphs.

- Be able to find the point(s) of intersection of two graphs.

Understand quadratic functions and solve problems including quadratics.

- Know how to complete the square in a quadratic expression.

- Know how to locate the vertex and axis of symmetry of the quadratic graph y=ax^2+bx+c.

- Be able to solve quadratic equations.

- Know that the discriminant of the quadratic expression ax^2+bx+c is the value of b^2-4ac, and know how to use it.

- Be able to solve a pair of simultaneous equations involving a quadratic equation and a linear equation.

- Be able to recognize and solve equations which can be reduced to quadratic equations by a substitution.

Understand inequalities and solve linear inequalities and quadratic inequalities.

- Know the rules for working with inequality symbols.

- Be able to solve linear inequalities and quadratic inequalities.

Calculate an approximation to the gradient at a point on a curve, given its equation and calculate the exact gradient at a point on a quadratic curve and certain other curves.

- Calculate an approximation to the gradient at a point on a curve, given its equation.

- Calculate the exact gradient at a point on a quadratic curve and certain other curves.

Find the equations of the tangent and normal to a curve at a point.

Appreciate the significance of positive, negative and zero derivatives.

Locate maximum and minimum points on graphs.

Differentiate composite functions of the form $f(F(x))$.

- Know that you can interpret a derivative as a rate of change of one variable with respect to another.

- Be familiar with the notation dy/dx for a derivative.

- Be able to apply these techniques to solve real-world problems.

- Be able to differentiate composite functions of the form f(F(x)).

- Be able to apply differentiation to rates of change, and to related rates of change.

Understand the significance of the second derivative.

- Understand the significance of the second derivative for the shape of graphs and in real-world applications.

- Be able to use second derivatives where appropriate to distinguish minimum and maximum points.

- Understand that at a point of inflexion the second derivative is zero.

Integrate functions which can be expressed as sums of powers of x, and be aware of any exception

- Understand the term 'indefinite integral' and the need to add an arbitrary constant.

- Be able to integrate functions which can be expressed as sums of powers of x, and be aware of any exceptions.

- Know how to find the equation of a graph given its derivative and a point on the graph.

Understand a definite integral and use them to find areas.

- Know how to evaluate a definite integral.

- Be able to use definite integrals to find areas.

Understand geometric and arithmetic sequences and to be familiar with triangle, factorial, Pascal and arithmetic sequences.

- Know that a sequence can be constructed from a formula or an inductive definition.

- Be familiar with triangle, factorial, Pascal and arithmetic sequences.

- Know how to find the sum of an arithmetic series.

- Recognize geometric sequences and be able to do calculations on them.
- Know and be able to obtain the formula for the sum of a geometric series.

- Know the condition for a geometric series to converge, and how to find its limiting sum.

Develop and understating of binomial theorem.

Use Pascal triangle to find expansions.

- Be able to use Pascal's triangle to find the expansion of (x+y)^n, where n is small.

- Know how to calculate the coefficients in the expansion of (x+y)^n when n is large.

- Be able to use notation $(n\,|\,r)$ in the context of the binomial theorem.

Be familiar with trigonometry and solve problems including simple trigonometric equations

- Know the shapes of the graphs of sine, cosine and tangent for all angles.
- Know, or be able to find, exact values of the sine, cosine and tangent of certain special angles.
- Be able to solve simple trigonometric equations.
- Know and be able to use identities involving $\sin\theta$, $\cos\theta$ and $\tan\theta$.

Understand how to combine and invert functions.

- Be able to use correct language and notation associated with functions.
- Know when functions can be combined by the operation of composition, and be able to form the composite function.
- Appreciate that a sequence can be regarded as a function whose domain is the natural numbers, or a consecutive subset of the natural numbers.

Know the 'one-one' condition for a function to have an inverse, and be able to form the inverse function and the relationship between the graph of a one-one function and the graph of its inverse function.

Find the components of vectors, including position vectors

- Understand the idea of a translation, and how it can be expressed either in column form or in terms of basic unit factors.

Work with vector diagrams and use vectors to prove geometric facts.

- Understand the idea of displacement and position vectors, and use these to prove geometrical results.

- Appreciate similarities and differences between geometry in two and three dimensions.

- Know the definition of the scalar product and its expression in terms of components.

- Be able to use the rules of vector algebra which involve scalar products.

- Be able to use scalar products to solve geometrical problems in two and three dimensions, using general vector algebra or components.

Determine an understanding of volume of revolution.

- Be able to find the volume of revolution about either the x or y – axis.
-

Determine an understanding of radian and be familiar with conversion from degrees to radian and vice versa.

- Know how to convert from degrees to radian and vice versa.

- Be able to use the formula r θ for the length of circular arc, and 1/2 r^2 θ for the area of a circular sector.

Know the graphs and symmetry properties of sin θ, cos θ and tan θ when θ is in radians and their inverse functions.

- Know the meaning of cos^ (-1) x, sin^ (-1) x and tan^ (-1) x, their domains and ranges.

- Be able to solve trigonometric equations with roots expresses in radians.

Biology (Course Description)

The main aim of Biology teaching in key stage 4 (grades 11 and 12) is to prepare students for AS and/or A level tests in Biology and for future university studies. Teaching Biology in key stage 4 continues with the process of building upon and deepening understanding of ideas developed in earlier key stages in the subject disciplines of biology. For some students, studying biology in key stage 4 provides the platform for more advanced studies, establishing the basis for a wide range of careers. For others, it will be their last formal study of a subject that provides the foundations for understanding the natural world and will enhance their lives in an increasingly technological society. Scientific understanding is changing our lives and is vital to the world's future prosperity, and all students will be taught essential aspects of the knowledge, methods, processes and uses of science. Students will be helped to appreciate the achievements of science in showing how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are inter-linked, and which are of universal application. The scope and nature of biology studies will be broad, coherent, practical and satisfying, and thereby encourage students to be inspired, motivated and challenged by the subject and its achievements

Biology will be taught in ways that help students to develop curiosity about the natural world, insight into working scientifically, and appreciation of the relevance of science to their everyday lives, so that students will develop scientific knowledge and conceptual understanding through the specific disciplines of biology, they will develop understanding of the nature, processes and methods of science, through different types of scientific enquiry that help them to answer scientific questions about the world around them. They will also develop and learn to apply observational, practical, modelling, enquiry, problem-solving skills and mathematical skills, both in the laboratory, in the field and in other learning environments and they will develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.

Biology (Course Objectives)

i) Cell Structure

- Use an eyepiece graticule and stage micrometer scale to measure cells and be familiar with units used in cell studies
- Explain and distinguish between resolution and magnification, with reference to light microscopy and electron microscopy
- Describe and interpret drawings and photographs of typical animal and plant cells, as seen using the electron microscope, recognizing the following: rough endoplasmic reticulum and smooth endoplasmic reticulum, Golgi body, mitochondria, ribosomes, lysosomes, chloroplasts, cell membrane, nuclear envelope, centrioles, nucleus, nucleolus, microvilli, cell wall, the large permanent vacuole and tonoplast and plasmodesmata and outline their functions
- Compare the structure of typical animal and plant cells
- Draw and label low power plan diagrams of tissues and organs (including a transverse section of stems, roots and leaves)
- Calculate linear magnification of drawings and photographs
- Calculate actual sizes of specimens from drawings and photographs
- Outline key structural features of typical prokaryotic cells (including: unicellular, 1-5μm diameter, peptidoglycan cell walls, lack of membrane-bound organelles, naked circular DNA, 70S ribosomes) and compare and contrast the structure of prokaryotic cells with eukaryotic cells

ii) Biological Molecules

- Carry out tests for reducing and non-reducing sugars (including using color standards as a semi-quantitative use of the Benedict's test), the iodine in potassium iodide solution

test for starch, the emulsion test for lipids and the biuret test for proteins

- Describe the ring forms of α-glucose and β-glucose
- Describe the formation and breakage of a glycosidic bond with reference both to polysaccharides and to disaccharides including sucrose
- Describe the molecular structure of polysaccharides including starch (amylose and amylopectin), glycogen and cellulose and relate these structures to their functions in living organisms
- Describe the molecular structure of a triglyceride and a phospholipid and relate these structures to their functions in living organisms
- Describe the structure of an amino acid and the formation and breakage of a peptide bond
- Explain the meaning of the terms primary structure, secondary structure, tertiary structure and quaternary structure of proteins and describe the types of bonding (hydrogen, ionic, disulfide and hydrophobic interactions) that hold the molecule in shape
- Describe the molecular structure of haemoglobin as an example of a globular protein, and of collagen as an example of a fibrous protein and relate these structures to their functions
- Describe and explain the roles of water in living organisms and as an environment for organisms

iii) Enzymes

- Explain that enzymes are globular proteins that catalyze metabolic reactions
- Explain the mode of action of enzymes in terms of an active site, enzyme-substrate complex, lowering of activation energy and enzyme specificity (including the lock and key hypothesis and the induced fit hypothesis)

- Follow the progress of an enzyme-catalyzed reaction by measuring rates of formation of products or rates of disappearance of substrate
- Investigate and explain the effects of temperature, pH, enzyme concentration and substrate concentration on the rate of enzyme-catalyzed reactions
- Explain the effects of competitive and non-competitive inhibitors on the rate of enzyme activity

iv) Cell Transport

- Describe and explain the fluid mosaic model of membrane structure, including an outline of the roles of phospholipids, cholesterol, glycolipids, proteins and glycoproteins
- Outline the roles of cell surface membranes
- Describe and explain the processes of diffusion, facilitated diffusion, osmosis, active transport, endocytosis and exocytosis
- Investigate the effects on plant cells and the effect on animal cells of immersion in solutions of different concentrations of solutions

v) Cell Division

- Explain the importance of mitosis in the production of genetically identical cells, growth, repair and asexual reproduction
- Outline the cell cycle, including growth, DNA replication, mitosis and cytokinesis
- Describe, with the aid of diagrams, the behavior of chromosomes during the mitotic cell cycle and the associated behavior of the nuclear envelope, cell membrane, centrioles and spindle, including the names of the main stages

- Explain how uncontrolled cell division can result in the formation of a tumor and identify factors that can increase the chances of cancerous growth

- Explain the meanings of the terms haploid and diploid and the need for a reduction division (meiosis) prior to fertilization in sexual reproduction

vi) Genetic Control

- Describe the structure of RNA and DNA and explain the importance of base pairing and the different hydrogen bonding between bases, including references to adenine and guanine as purines and to cytosine, thymine and uracil as pyrimidines.

- Explain how DNA replicates semi-conservatively during interphase

- State that a polypeptide is coded for by a gene and that a gene is a sequence of nucleotides that forms part of a DNA molecule and state that a mutation is a change in the sequence that may result in an altered polypeptide

- Describe the way in which the nucleotide sequence codes for the amino acid sequence in a polypeptide with reference to the nucleotide sequence for HbA (normal) and HbS (sickle cell) alleles of the gene for the β-globin polypeptide

Describe how the information on DNA is used during transcription and translation to construct polypeptides, including the role of messenger RNA (mRNA), transfer RNA (tRNA) and the ribosomes

Chemistry (Course Description)

The main aim of Chemistry teaching in key stage 4 (grades 11 and 12) is to prepare students for AS and/or A level tests in Chemistry and for future university studies. Teaching Chemistry in key stage 4 continues with the process of building upon and deepening understanding of ideas developed in earlier key stages in the subject disciplines of chemistry. For some students, studying chemistry in key stage 4 provides the platform for more advanced studies, establishing the basis for a wide range of careers. For others, it will be their last formal study of a subject that provides the foundations for understanding the natural world and will enhance their lives in an increasingly technological society. Scientific understanding is changing our lives and is vital to the world's future prosperity, and all students will be taught essential aspects of the knowledge, methods, processes and uses of science. Students will be helped to appreciate the achievements of science in showing how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are inter-linked, and which are of universal application. The scope and nature of chemistry studies will be broad, coherent, practical and satisfying, and thereby encourage students to be inspired, motivated and challenged by the subject and its achievements.

Chemistry will be taught in ways that help students to develop curiosity about the natural world, insight into working scientifically, and appreciation of the relevance of science to their everyday lives, so that students will develop scientific knowledge and conceptual understanding through the specific disciplines of chemistry, they will develop understanding of the nature, processes and methods of science, through different types of scientific enquiry that help them to answer scientific questions about the world around them. They will also develop and learn to apply observational, practical, modelling, enquiry, problem-solving skills and mathematical skills, both in the laboratory, in the field and in other learning environments and they will develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.

Chemistry (Course Objectives)

i) Atoms, Molecules and Stoichiometry

- Define and use the terms relative atomic, isotopic, molecular and formula masses, based on the 12C scale
- Define and use the term mole in terms of the Avogadro constant
- Analyse mass spectra in terms of isotopic abundances and molecular fragments
- Calculate the relative atomic mass of an element given the relative abundances of its isotopes, or its mass spectrum
- Define and use the terms empirical and molecular formulae
- Calculate empirical and molecular formulae, using combustion data or composition by mass
- Write and/or construct balanced equations
- Perform calculations, including use of the mole concept, involving reacting masses, volumes of gases, volumes and concentrations of solutions
- Deduce stoichiometric relationships from calculations

ii) Atomic Structure

- Identify and describe protons, neutrons and electrons in terms of their relative charges and relative masses
- Deduce the behavior of beams of protons, neutrons and electrons in electric fields
- Describe the distribution of mass and charges within an atom
- Deduce the numbers of protons, neutrons and electrons present in both atoms and ions given proton and nucleon numbers (and charge)

- Describe the contribution of protons and neutrons to atomic nuclei in terms of proton number and nucleon number
- Distinguish between isotopes on the basis of different numbers of neutrons
- Recognize and use the symbolism yA x for isotopes, where x is the nucleon number and y is the proton number
- Describe the number and relative energies of the s, p and d orbitals for the principal quantum numbers 1, 2 and 3 and also the 4s and 4p orbitals
- Describe the shapes of s and p orbitals and d orbitals
- State the electronic configuration of atoms and ions given the proton number (and charge), using the convention 1s2 2s2 2p6 explain and use the terms ionization energy and electron affinity
- Explain the factors influencing the ionization energies of elements
- Explain the trends in ionization energies across a Period and down a Group of the Periodic Table
- Deduce the electronic configurations of elements from successive ionization energy data
- Interpret successive ionization energy data of an element in terms of the position of that element within the Periodic Table

iii) Chemical Bonds

- Describe ionic (electrovalent), covalent and co-ordinate (dative covalent) bonding including the use of 'dot-and-cross' diagrams
- Explain the shapes of, and bond angles in, molecules by using the qualitative model of electron-pair repulsion (including lone pairs), using as simple examples

- Describe covalent bonding in terms of orbital overlap, giving σ and π bonds, including the concept of hybridization to form sp, sp2 and sp3 orbitals

- Explain the shape of, and bond angles in, the ethane, ethene and benzene molecules in terms of σ and π bonds

- Understand, in simple terms, the concept of electronegativity and apply it to explain the properties of molecules such as bond polarity the dipole moments of molecules the behavior of oxides with water and the acidities of chlorine-substituted ethanoic acids

- Explain the terms bond energy, bond length and bond polarity and use them to compare the reactivities of covalent bonds

- Describe intermolecular forces (van der Waals' forces), based on permanent and induced dipoles

- Describe, interpret and/or predict the effect of different types of bonding on the physical properties of substances

- Deduce the type of bonding present from given information

- Show understanding of chemical reactions in terms of energy transfers associated with the breaking and making of chemical bonds

iv) States of Matter

- State the basic assumptions of the kinetic theory as applied to an ideal gas

- Explain the conditions necessary for a gas to approach ideal behavior and the limitations of ideality at very high pressures and very low temperatures qualitatively in terms of intermolecular forces and molecular size

- State and use the general gas equation pV = nRT in calculations, including the determination of Mr

- Describe, using a kinetic-molecular model: the liquid state, melting, vaporization, vapor pressure

- Describe, in simple terms, the lattice structure of ionic, simple molecular, giant molecular, hydrogen-bonded and metallic crystalline solid
- Explain the strength, high melting point and electrical insulating properties of ceramics in terms of their giant molecular structure
- Relate the uses of ceramics, based on magnesium oxide, aluminium oxide and silicon(IV) oxide, to their properties
- Discuss the finite nature of materials as a resource and the importance of recycling processes
- Outline the importance of hydrogen bonding to the physical properties of substances, including ice and
- Suggest from quoted physical data the type of structure and bonding present in a substance

v) Chemical Energetics

- Explain that some chemical reactions are accompanied by energy changes, principally in the form of heat energy; the energy changes can be exothermic (ΔH, negative) or endothermic (b) explain and use the terms enthalpy change of reaction and standard conditions, with particular reference to: formation, combustion, hydration, solution, neutralization, atomization; bond energy (ΔH positive, i.e. bond breaking); lattice energy (ΔH negative, i.e. gaseous ions to solid lattice)
- Calculate enthalpy changes from appropriate experimental results, including the use of the relationship enthalpy change, $\Delta H = -mc\Delta T$
- Explain, in qualitative terms, the effect of ionic charge and of ionic radius on the numerical magnitude of a lattice energy
- Apply Hess' Law to construct simple energy cycles, and carry out calculations involving such cycles and relevant energy terms, with particular reference to: (i) determining enthalpy changes that cannot be found by direct experiment, e.g. an

enthalpy change of formation from enthalpy changes of combustion (ii) average bond energies (iii) the formation of a simple ionic solid and of its aqueous solution (iv) Born-Haber cycles

- Construct and interpret a reaction pathway diagram, in terms of the enthalpy change of the reaction and of the activation energy

vi) Electrochemistry

- Calculate oxidation numbers of elements in compounds and ions
- describe and explain redox processes in terms of electron transfer and/or changes in oxidation number (oxidation state)
- use changes in oxidation numbers to help balance chemical equations
- explain, including the electrode reactions, the industrial processes of: (i) the electrolysis of brine, using a diaphragm cell (ii) the extraction of aluminium from molten aluminium oxide/ cryolite (iii) the electrolytic purification of copper
- define the terms standard electrode (redox) potential and standard cell potential
- describe the standard hydrogen electrode
- describe methods used to measure the standard electrode potentials of:
- metals or non-metals in contact with their ions in aqueous solution
- ions of the same element in different oxidation states
- calculate a standard cell potential by combining two standard electrode potentials

- use standard cell potentials to explain/deduce the direction of electron flow from a simple cell and to predict the feasibility of a reaction
- construct redox equations using the relevant half-equations
- predict qualitatively how the value of an electrode potential varies with the concentration of the aqueous ion
- state the possible advantages of developing other types of cell, e.g. the H2/O2 fuel cell and improved batteries in terms of smaller size, lower mass and higher voltage
- state the relationship, F = Le, between the Faraday constant, the Avogadro constant and the charge on the electron
- predict the identity of the substance liberated during electrolysis from the state of electrolyte (molten or aqueous), position in the redox series (electrode potential) and concentration
- calculate the quantity of charge passed during electrolysis calculate the mass and/or volume of substance liberated during electrolysis
- describe the determination of a value of the Avogadro constant by an electrolytic method

vii) Equilibria

- Explain, in terms of rates of the forward and reverse reactions, what is meant by a reversible reaction and dynamic equilibrium
- State Le Chatelier's Principle and apply it to deduce qualitatively the effects of changes in temperature, concentration or pressure, on a system at equilibrium
- State whether changes in concentration, pressure or temperature or the presence of a catalyst affect the value of the equilibrium constant for a reaction

- Deduce expressions for equilibrium constants in terms of concentrations, Kc, and partial pressures, Kp [treatment of the relationship between Kp and Kc is not required]
- Calculate the values of equilibrium constants in terms of concentrations or partial pressures from appropriate data
- Calculate the quantities present at equilibrium, given appropriate data
- Describe and explain the conditions used in the Haber process and the Contact process, as examples of the importance of an understanding of chemical equilibrium in the chemical industry
- Show understanding of, and use, the Brønsted-Lowry theory of acids and bases, including the use of the acid-I, base-II concept
- Explain qualitatively the differences in behavior between strong and weak acids and bases and the pH values of their aqueous solutions in terms of the extent of dissociation
- Explain the terms pH, Ka, pKa, Kw and use them in calculations (k) calculate [H+ (aq)] and pH values for strong and weak acids and strong bases
- Explain the choice of suitable indicators for acid-base titrations, given appropriate data
- Describe the changes in pH during acid-base titrations and explain these changes in terms of the strengths of the acids and bases
- Explain how buffer solutions control pH and describe and explain their uses
- Calculate the pH of buffer solutions, given appropriate data
- Show understanding of, and use, the concept of solubility product, Ksp (q) calculate Ksp from concentrations and vice versa
- Show understanding of the common ion effect

viii) Reaction Kinetic

- Explain and use the terms: rate of reaction, activation energy, catalysis, rate equation, order of reaction, rate constant, halflife of a reaction, rate-determining step
- Explain qualitatively, in terms of collisions, the effect of concentration changes on the rate of a reaction
- Show understanding, including reference to the Boltzmann distribution, of what is meant by the term activation energy
- Explain qualitatively, in terms both of the Boltzmann distribution and of collision frequency, the effect of temperature change on the rate of a reaction
- Explain that, in the presence of a catalyst, a reaction has a different mechanism, i.e. one of lower activation energy and interpret this catalytic effect in terms of the Boltzmann distribution
- Describe enzymes as biological catalysts (proteins) which may have specific activity
- Construct and use rate equations of the form rate = k[A]m[B]n (limited to simple cases of single step reactions and of multistep processes with a rate-determining step, for which m and n are 0, 1 or 2
- Show understanding that the half-life of a first-order reaction is independent of concentration
- Use the half-life of a first-order reaction in calculations
- Calculate a rate constant, for example by using the initial rates or half-life method
- Devise a suitable experimental technique for studying the rate of a reaction, from given information
- Outline the different modes of action of homogeneous and heterogeneous catalysis

Physics (Course Description)

The main aim of Physics teaching in key stage 4 (grades 11 and 12) is to prepare students for AS and/or A level tests in Physics and for future university studies. Teaching Physics in key stage 4 continues with the process of building upon and deepening understanding of ideas developed in earlier key stages in the subject disciplines of physics. For some students, studying physics in key stage 4 provides the platform for more advanced studies, establishing the basis for a wide range of careers. For others, it will be their last formal study of a subject that provides the foundations for understanding the natural world and will enhance their lives in an increasingly technological society. Scientific understanding is changing our lives and is vital to the world's future prosperity, and all students will be taught essential aspects of the knowledge, methods, processes and uses of science. Students will be helped to appreciate the achievements of science in showing how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are inter-linked, and which are of universal application. The scope and nature of physics studies will be broad, coherent, practical and satisfying, and thereby encourage students to be inspired, motivated and challenged by the subject and its achievements.

Physics will be taught in ways that help students to develop curiosity about the natural world, insight into working scientifically, and appreciation of the relevance of science to their everyday lives, so that students will develop scientific knowledge and conceptual understanding through the specific disciplines of physics, they will develop understanding of the nature, processes and methods of science, through different types of scientific enquiry that help them to answer scientific questions about the world around them. They will also develop and learn to apply observational, practical, modelling, enquiry, problem-solving skills and mathematical skills, both in the laboratory, in the field and in other learning environments and they will develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.

Physics (Course Objectives)

i) Atoms, Molecules and Stoichiometry

- Define and use the terms relative atomic, isotopic, molecular and formula masses, based on the 12C scale
- Define and use the term mole in terms of the Avogadro constant
- Analyse mass spectra in terms of isotopic abundances and molecular fragments
- Calculate the relative atomic mass of an element given the relative abundances of its isotopes, or its mass spectrum
- Define and use the terms empirical and molecular formulae
- Calculate empirical and molecular formulae, using combustion data or composition by mass
- Write and/or construct balanced equations
- Perform calculations, including use of the mole concept, involving reacting masses, volumes of gases, volumes and concentrations of solutions
- Deduce stoichiometric relationships from calculations

ii) Atomic Structure

- Identify and describe protons, neutrons and electrons in terms of their relative charges and relative masses
- Deduce the behavior of beams of protons, neutrons and electrons in electric fields
- Describe the distribution of mass and charges within an atom
- Deduce the numbers of protons, neutrons and electrons present in both atoms and ions given proton and nucleon numbers (and charge)

- Describe the contribution of protons and neutrons to atomic nuclei in terms of proton number and nucleon number
- Distinguish between isotopes on the basis of different numbers of neutrons
- Recognize and use the symbolism yA x for isotopes, where x is the nucleon number and y is the proton number
- Describe the number and relative energies of the s, p and d orbitals for the principal quantum numbers 1, 2 and 3 and also the 4s and 4p orbitals
- Describe the shapes of s and p orbitals and d orbitals
- State the electronic configuration of atoms and ions given the proton number (and charge), using the convention 1s2 2s2 2p6 explain and use the terms ionization energy and electron affinity
- Explain the factors influencing the ionization energies of elements
- Explain the trends in ionization energies across a Period and down a Group of the Periodic Table
- Deduce the electronic configurations of elements from successive ionization energy data
- Interpret successive ionization energy data of an element in terms of the position of that element within the Periodic Table

iii) Chemical Bonds

- Describe ionic (electrovalent), covalent and co-ordinate (dative covalent) bonding including the use of 'dot-and-cross' diagrams
- Explain the shapes of, and bond angles in, molecules by using the qualitative model of electron-pair repulsion (including lone pairs), using as simple examples

- Describe covalent bonding in terms of orbital overlap, giving σ and π bonds, including the concept of hybridization to form sp, sp2 and sp3 orbitals

- Explain the shape of, and bond angles in, the ethane, ethene and benzene molecules in terms of σ and π bonds

- Understand, in simple terms, the concept of electronegativity and apply it to explain the properties of molecules such as bond polarity the dipole moments of molecules the behavior of oxides with water and the acidities of chlorine-substituted ethanoic acids

- Explain the terms bond energy, bond length and bond polarity and use them to compare the reactivities of covalent bonds

- Describe intermolecular forces (van der Waals' forces), based on permanent and induced dipoles

- Describe, interpret and/or predict the effect of different types of bonding on the physical properties of substances

- Deduce the type of bonding present from given information

- Show understanding of chemical reactions in terms of energy transfers associated with the breaking and making of chemical bonds

iv) States of Matter

- State the basic assumptions of the kinetic theory as applied to an ideal gas

- Explain the conditions necessary for a gas to approach ideal behavior and the limitations of ideality at very high pressures and very low temperatures qualitatively in terms of intermolecular forces and molecular size

- State and use the general gas equation pV = nRT in calculations, including the determination of Mr

- Describe, using a kinetic-molecular model: the liquid state, melting, vaporization, vapor pressure

- Describe, in simple terms, the lattice structure of ionic, simple molecular, giant molecular, hydrogen-bonded and metallic crystalline solid
- Explain the strength, high melting point and electrical insulating properties of ceramics in terms of their giant molecular structure
- Relate the uses of ceramics, based on magnesium oxide, aluminium oxide and silicon(IV) oxide, to their properties
- Discuss the finite nature of materials as a resource and the importance of recycling processes
- Outline the importance of hydrogen bonding to the physical properties of substances, including ice and
- Suggest from quoted physical data the type of structure and bonding present in a substance

v) Chemical Energetics

- Explain that some chemical reactions are accompanied by energy changes, principally in the form of heat energy; the energy changes can be exothermic (ΔH, negative) or endothermic (b) explain and use the terms enthalpy change of reaction and standard conditions, with particular reference to: formation, combustion, hydration, solution, neutralization, atomization; bond energy (ΔH positive, i.e. bond breaking); lattice energy (ΔH negative, i.e. gaseous ions to solid lattice)
- Calculate enthalpy changes from appropriate experimental results, including the use of the relationship enthalpy change, $\Delta H = -mc\Delta T$
- Explain, in qualitative terms, the effect of ionic charge and of ionic radius on the numerical magnitude of a lattice energy
- Apply Hess' Law to construct simple energy cycles, and carry out calculations involving such cycles and relevant energy terms, with particular reference to: (i) determining enthalpy changes that cannot be found by direct experiment, e.g. an

enthalpy change of formation from enthalpy changes of combustion (ii) average bond energies (iii) the formation of a simple ionic solid and of its aqueous solution (iv) Born-Haber cycles

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- Devise a suitable experimental technique for studying the rate of a reaction, from given information
- Outline the different modes of action of homogeneous and heterogeneous catalysis

Geography (Course Description)

In Grade 11 and Grade 12, Geography at Meridian International School follows the Cambridge International AS and A Level Geography. Successful candidates gain lifelong skills, including:

• an appreciation of the need for understanding, respect and co-operation in conserving the environment and improving the quality of life both at a global scale and within the context of different cultural settings

• an awareness of the usefulness of geographical analysis to understand and solve contemporary human and environmental problems

• a sense of relative location, including an appreciation of the complexity and variety of natural and human environments

• an understanding of the principal processes operating within Physical and Human Geography • an understanding of the causes and effects of change on the natural and human environments

• an awareness of the nature, value, limitations and importance of different approaches to analysis and explanation in geography

• a concern for accuracy and objectivity in collecting, recording, processing, analysing, interpreting and reporting data in a spatial context

• the ability to handle and evaluate different types and sources of information

• the skills to think logically, and to present an ordered and coherent argument in a variety of ways • an excellent foundation for studies beyond Cambridge International A-Level in Geography, in further or higher education, and for professional courses.

Geography as a subject discipline

The aims are to: develop candidates' awareness of the relevance of geographical analysis to understanding and solving contemporary human and environmental problems; • introduce candidates to the main elements of Physical and Human Geography and the inter-relationships between these components; encourage understanding of the principal processes operating at different scales within Physical and Human Geography; develop candidates' sense of relative location, including an appreciation of the complexity and variety of natural and human environments; demonstrate and explain the causes and effects of change over

space and time on the natural and human environments; show the importance of scale in understanding Physical and Human Geography; make candidates aware of the problems of explanation (including data collection and processing) in Physical and Human Geography, and give them an appreciation of the nature, value, limitations and importance of different approaches to analysis and explanation in Geography.

Skills and attitudes

The aims are to: increase candidates' knowledge of, and ability to use and apply, appropriate skills and techniques relevant to greater understanding and interpretation of facts and relationships in Physical and Human Geography; encourage a concern for accuracy and objectivity in collecting, recording, processing, analysing, interpreting and reporting data in a spatial context; develop candidates' ability to handle and evaluate different types and sources of information; develop candidates' ability to think logically, and to present an ordered and coherent argument in a variety of ways; and promote candidates' awareness of the need for understanding, respect and co-operation in conserving the environment and improving the quality of life both at a global scale and within the context of different cultural settings.

Geography (Course Objectives)

A number of the following core units will be covered across Grades 11 and 12:

Hydrology and fluvial geomorphology

i) The Drainage Basin System

- The hydrological cycle as it applies to drainage basins. The terminology and processes operating within drainage basins. Candidates should study examples from a variety of climatic environments. The drainage basin as a system; inputs, outputs, stores and flows. These should include precipitation, evaporation, evapotranspiration, interception, throughfall, stemflow, overland flow, infiltration, percolation, throughflow, baseflow, water tables, groundwater, recharge, springs.

ii) Rainfall – Discharge Relationships Within Drainage Basins

- The components of hydrographs (storm and annual), climatic influences on hydrographs to include precipitation type and intensity, temperature, evaporation, transpiration, evapotranspiration, antecedent moisture. The influence on hydrographs and stores and flows of drainage basin characteristics including size and shape, drainage density, porosity and permeability of soils, rock type, slopes, vegetation type, land-use.

iii) River Channel Processes and Landforms

- Channel processes of load transport (traction, saltation, suspension and solution), deposition and sedimentation (the Hjulstrom curve), erosion processes (abrasion, corrasion, solution, hydraulic action), velocity and discharge, patterns of flow (laminar, turbulent and helicoidal), channel types (straight, braided, meandering), channel landforms (thalweg, riffle and pool sequences, gorges, rapids, waterfalls, bluffs, river cliffs, point bars, floodplains, levées, alluvial fans, deltas). 1.4 The human impact Modifications to catchment flows and stores and to channel flows by land-use changes (including urbanisation), abstraction and water storage; the causes and effects of floods and droughts, prediction of flood

risk, and recurrence. The prevention and amelioration of floods.

Atmosphere and Weather

i) Local Energy Budgets

- Daytime: incoming solar radiation, reflected solar radiation, energy absorbed into the surface and subsurface, sensible heat transfer, long wave earth radiation, latent heat transfer – evaporation. Night-time: long wave earth radiation, latent heat transfer – dew, sensible heat transfer, absorbed energy returned to earth. Weather phenomena associated with local energy budgets (mist, fog, dew, temperature inversions, land and sea breezes).

ii) The Global Energy Budget

- The latitudinal pattern of radiation excesses and deficits and resultant atmospheric transfers; seasonal variations in pressure and wind belts; the influence of latitude, land/sea distribution and ocean currents on the global distribution of temperature, pressure and wind.

iii) Weather Processes and Phenomena

- Atmospheric moisture (vapour, liquid, solid); the processes of changes to atmospheric moisture (evaporation, condensation, freezing, melting, deposition and sublimation); humidity (relative and absolute) and precipitation, radiation cooling, environmental and adiabatic lapse rates, convection and orographic uplift of air; stability, instability and conditional instability; resultant weather phenomena (clouds, rain, hail, snow, frost, dew, fog).

iv) The Human Impact

- The greenhouse effect and global warming (greenhouse gases and the energy budget, climatic and other impacts); urban effects on climate in comparison with surrounding rural areas (temperature – heat island, humidity, precipitation, pollution, winds).

Rocks and Weathering

i) Elementary Plate Tectonics

- Global patterns of plates, sea floor spreading, processes at divergent and convergent plate boundaries; mountain building, ocean ridges, ocean trenches, island arcs.

ii) Weathering and Rocks

- Physical weathering processes (freeze-thaw, heating/cooling, wetting/drying, exfoliation/spheroidal, salt crystal growth, pressure release); chemical weathering processes (hydrolysis, hydration, carbonation, solution, oxidation, organic action – humic acids and chelation). Types of weathering and effectiveness in different climates (Peltier diagram); general factors influencing weathering (climate, rock type, structure, vegetation, relief); properties of granite and limestone, their chemical composition and physical nature in relationship to weathering and erosion.

iii) Slope Processes and Development

- Slope development (rock type and structure, climate, soil, vegetation, gradient, aspect). Slope processes of mass movement, heaves, flows, slides and falls (conditions under which each occurs and effects on slopes).

iv) The Human Impact

- The impact of human activities on rocks, weathering and slopes (quarrying, mining, pollution, acid rain, dumping material on the Earth's surface).

Population

i) Natural Increase as a Component of Population Change

- Natural increase rate; birth rate and death rate; fertility rate; infant mortality rate. The factors affecting levels of fertility and mortality. The interpretation of age/sex pyramids.

Population structure (age, gender, dependency and dependency ratio).

ii) Demographic Transition

- Changes in birth rate and death rate over time. A critical appreciation of the demographic transition model, Stages 1–4, and the possible addition of Stage 5. Issues of ageing populations. The link between population and development: changes in demographic indices over time (e.g. life expectancy).

iii) Population–Resource Relationships

- Carrying capacity. Causes and consequences of food shortages. The roles of technology and innovation in resource development (e.g. food production); the role of constraints (e.g. war, climatic hazards) in relation to sustaining changing populations. A critical appreciation of the concept of overpopulation, optimum population and under population. The concept of a population ceiling and population adjustments over time (the J-curve and the S-curve).

iv) The Management of Natural Increase

- A case study of one country's population policy regarding natural increase, illustrating the difficulties faced and evaluating the attempted solution(s). The case study should include attempts to control population and to manage the results of population change.

Migration

i) Migration as a Component of Population Change

- Movements of populations (excluding all movements of less than one year's duration). Causes of migration; push factors and pull factors; processes and patterns of migration; the role of constraints, obstacles and barriers (e.g. distance, cost, national borders).

ii) Internal Migration (within a country)

- Rural–urban and urban–rural movements; their causes and impacts on source and receiving areas including population structures. Stepped migration within the settlement hierarchy and urban–urban movements. Causes and impacts of intra-urban movements (within urban settlements).

iii) International Migration

- Voluntary and forced (involuntary) movements. Causes and patterns of international migrations including economic migration and refugee flows and impacts on source and receiving areas.

iv) A Case study of International Migration

- A case study of one international migration stream, its causes, character, scale, pattern and impacts on source and receiving areas. (The chosen case may or may not involve an element of management.)

Settlement Dynamics

i) Changes in Rural Settlements

- Contemporary issues in rural settlements in LEDCs and MEDCs, including the impacts of rural–urban and urban–rural migration and the consequences of urban growth. A case study of a rural settlement (village or hamlet) or a rural area illustrating some of the issues of its development and growth (or decline) and evaluating the responses.

ii) Urban Trends and Issues of Urbanisation

- The process of urbanisation in LEDCs and MEDCs, including counterurbanisation and re-urbanisation, competition for land, urban renewal, gentrification, changing accessibility and lifestyles. The concept of a world city; causes of the growth of world cities; the development of a hierarchy of world cities.

iii) The Changing Structure of Urban Settlements

- Factors affecting the location of activities within urban areas (including planning) and how urban locations change over time for retailing, services and manufacturing. Functional zonation and competition for space (spatial competition) in urban areas and the concept of bid-rent. The changing Central Business District (CBD). Residential segregation and the process basis of residential zonation.

iv) The Management of Urban Settlements

- A case study illustrating the difficulties of, and evaluating the attempted solutions in, each of the following: shanty towns and/or squatter settlement in an LEDC; the provision of infrastructure for a city; the inner city in an MEDC; strategies for reducing urbanisation in LEDCs

Global Perspectives (Course Description)

In Grade 11 and Grade 12, Geography at Meridian International School follows the Cambridge International AS and A Level Global Perspectives.

It is widely recognised that we live in an increasingly digitised and inter-connected world. The means by which we access information and the pace with which this takes place are profoundly changing the way we learn, communicate and work. Increasingly, young people are faced with access to a multiplicity of competing ideas. In such an information-rich society, young people need the skills and dispositions to be able to think critically. In the broadest sense this means that they need to: deconstruct arguments, differentiate between the ways in which people express their perspectives, views and arguments, assess and evaluate claims and develop strong lines of reasoning. This will ensure that the learner has the twenty-first century skills to communicate and collaborate in today's society.

Cambridge International AS Level Global Perspectives & Research aims to encourage young people to think about and explore issues of global significance. Studying this syllabus will appeal to young people because it enables them to explore and make judgements about global issues of relevance and importance to their own lives. It offers learners opportunities to acquire, develop and apply skills in critical thinking, problem solving, research, communication and collaboration. In short, this course encourages the development within young people of global competency – the ability to define a global problem, reflect and take action. This syllabus is firmly based on skills rather than specific content. Through the study of a range of global issues, learners will explore different and sometimes opposing perspectives. Recognising these perspectives will help to nurture a climate of cross-cultural awareness and promote cultural agility. Cambridge International AS Level Global Perspectives & Research encourages transformative learning, whereby learners become more aware of their own beliefs and assumptions and more-able to be self-critical. This leads to an increased willingness to modify their standpoints and be open to different views and ways of thinking. In short, this course will develop learners who are capable of understanding, assessing and taking action on global issues with competence and confidence. By studying this course-learners will develop research skills that will enable them to obtain information, evaluate its reliability and usefulness and use the evidence gathered to construct their own arguments and lines of reasoning. Through well-defined stages, called the Critical Path, learners will be encouraged to apply a logical approach to thinking and reasoning. By following this path, they will be able to analyse the structure and context of arguments, assess the impact and limitations of evidence and make well-reasoned judgements. Learners will build skills in organising and communicating their findings in appropriate multimedia formats. By developing thinking and reasoning skills, as well as research and

communication skills, Cambridge International AS Level Global Perspectives & Research will enable learners to meet the demands of the twenty-first century and to make a successful transition to higher education, employment and lifelong learning.

Cambridge International A-Level Global Perspectives & Research provides learners with the opportunity to further develop their research skills through the in-depth study of an academic topic of their own choice. Cambridge International AS and A Level Global Perspectives & Research 9239 syllabus Introduction 6 www.cie.org.uk/ Back to contents page Learners should be supported in identifying a suitable research topic, devising and developing an appropriate research question and engaging fully in the research process. As such this syllabus builds on the higher-order thinking skills of analysis, evaluation and synthesis but focuses primarily on developing learners' research and communication skills. Learners who have completed Cambridge International AS Level Global Perspectives & Research can therefore embark with confidence on the A Level syllabus, having already developed the skills involved in identifying questions, locating and evaluating sources and perspectives, and setting out a realistic and meaningful research agenda. The Critical Path provides learners with the skills and aptitudes to be successful in both AS and A Level Global Perspectives & Research. Through constructing a research report, A Level learners are offered the opportunity to apply the tools for independent, proactive, interdisciplinary study. They may engage more deeply in a chosen specialism and may make a new departure with a study in a non-school subject, perhaps one that they plan to read at university. Learners are encouraged to cross academic boundaries with an interdisciplinary enquiry. Cambridge International A Level Global Perspectives & Research encourages critical and creative thinking, with communication an important culminating feature of the process. By taking forward the emphasis on an interdisciplinary, independent and reflective approach, and by building on an awareness of the issues involved in setting up a research proposal, identifying an appropriate question, and undertaking a literature review or its equivalent, learners are well placed to make a successful transition to higher education, employment and lifelong learning.

The syllabus aims to encourage learners to develop by:

• providing opportunities to acquire disciplined and scholarly research skills

• promoting a critical, questioning approach to information using the language of reasoning

• prompting self-reflection and independence of thought

• creating opportunities to understand and engage with key global issues wherever they live and work

• nurturing an awareness and understanding of, and respect for, the diversity of perspectives on global issues

• offering an interdisciplinary approach to global issues

• encouraging development of independent learning skills in preparation for study in higher education and lifelong learning

• promoting an understanding of appropriate research skills

• engaging in the research process on an academic topic of their own choice which reflects their interest

• providing opportunities for the exercise of the higher-order thinking skills of analysis, synthesis and evaluation

• providing opportunities to develop oral presentation and communication skills.

Global Perspectives (Course Objectives)

i) Research, Analysis and Evaluation

- analyse arguments to understand how they are structured and on what they are based
- analyse perspectives and understand the different claims, reasons, arguments, views and evidence they
- contain
- synthesise relevant and credible research in support of judgements about arguments and perspectives
- critically evaluate the strengths, weaknesses and implications of reasoning in arguments and overall
- perspectives
- critically evaluate the nature of different arguments and perspectives
- use research to support judgements about arguments and perspectives
- design and manage own research project using appropriate research methods and methodology

(A Level only)

- select and analyse appropriate concepts, arguments, perspectives and evidence from a range of source
- material and use these in own research report (A Level only)
- evaluate specific research methods and methodology as used in own research report (A Level only).

ii) Reflection

- research and consider alternative perspectives objectively and with empathy
- consider the ways in which personal standpoints may have been affected by the research process
- evaluate the impact of alternative perspectives and conclusions on personal standpoint
- identify the need for further research in light of the research findings
- reflect on the scope, nature and limitations of own research report (A Level only).

iii) Communication and collaboration

- work effectively in a group to identify an appropriate local problem with global relevance and consider a range of possible solutions (AS Level only)
- select and present relevant information in an engaging, coherent and well-structured way to a non-specialist audience (AS Level only)
- present complex global concepts, perspectives and arguments effectively using multimedia (audio and/or visual) appropriate to the presentation (AS Level only)
- use appropriate technical terms and cited references effectively
- provide an oral explanation and justification of own report findings, choice and use of research methods and methodology (A Level only).

iv) Conflict

- What is conflict?

- Somalia and piracy
- Captain Phillips
- What are the main causes of conflict?
- Group presentations on Conflict
- Is the main cause of war and conflict economic inequality?
- Is conflict part of human nature and inevitable?
- How do beliefs and values affect attitudes to conflict?
- Individual Research Project

v) Belief Systems

- Key issues in beliefs
- Vocabulary and language
- Public Beliefs
- How far should we tolerate other people's beliefs?

vi) Individual Research Project

- Project planning
- Individual Research
- Peer Editing
- Individual Research / Revision
- Individual Presentations

vii) Group Project

- Project planning
- Project Research
- Peer Editing

- Project Presentations

ix) Terrorism

- What are the causes and consequences of terrorism?
- How might conflict be resolved peacefully?
- How do social movements create change?
- How can conflicts be resolved?

x) Written Examination

- Demographic change
- Education
- Fuel and Energy
- Globalization
- Law and criminality

x) Debate

- Debate Preparation
- Debates

History (Course Description)

In Grade 11 and Grade 12, Geography at Meridian International School follows the Cambridge International AS and A Level History.

Cambridge International AS/A Level History is accepted by universities and employers as proof of knowledge and understanding of History. Successful candidates gain lifelong skills including:

• assessing different interpretations of an argument

• formulating their own ideas about a subject

• presenting clear and logical arguments

• evaluating historical evidence

• developing an understanding of historical concepts such as cause and effect, similarity and difference and continuity and change.

The syllabus aims to develop:

• an interest in the past and an appreciation of human endeavor

• a greater knowledge and understanding of historical periods or themes

• a greater awareness of historical concepts such as cause and effect, similarity and difference, and change and continuity

• an appreciation of the nature and diversity of historical sources available, and the methods used by historians

• an exploration of a variety of approaches to different aspects of history and different interpretations of particular historical issues

• the ability to think independently and make informed judgements on issues

• an empathy with people living in different places and at different times

• a firm foundation for further study of History

History (Course Objectives)

i) International Option: The Search for International Peace and Security, 1919 – 1945

- What were the origins and aims of the League of Nations?
    - The role of US President Wilson
    - Cecil (UK), Smuts (South Africa), Bourgeois (France) and Hymans (Belgium)
    - Peacekeeping, collective security and international co-operation
- How was the League of Nations organised?
    - Reasons why the USA, Russia and Germany were not involved
    - The General Assembly and The Council
    - Permanent Court of International Justice, The Secretariat, Commissions and Committees
- What were the successes and failures of the League of Nations?
    - Successes – organisations for labour, refugees, health; Mandates Commission; minor political disputes
    - Failures – Disarmament Commission; major political disputes (e.g. Manchuria, Abyssinia)
    - Reasons for the League's failure to preserve peace
- What were the origins and aims of the United Nations?
    - The role of US President Roosevelt
    - The San Francisco Conference and the Charter

- Similarities and differences between the United Nations and the League of Nations

ii) International Option: International Relations, 1871 – 1945

International relations, 1871 – 1918

- Why, and with what results, was there a growth in imperial expansion during the last quarter of the nineteenth century?
  - Reasons for imperial expansion in the late nineteenth century
  - The 'scramble' for Africa; Treaty of Berlin (1885)
  - Disputes over the Chinese Empire; wars in South Africa

- How and why did the USA emerge as a world power?
  - Economic growth and the need for trade
  - The Spanish-American War (1898), the Panama Canal and the development of an 'American Empire'
  - Reasons for and implications of the USA's entry into World War I

- How and why did Japan emerge as a world power?
  - Rapid modernisation and military development
  - Wars with China (1894–95) and Russia (1905); treaty with Britain (1902)
  - Japan's strong position in 1918

- Why, and with what results, did a system of rigid alliances develop between European nations?
  - The aims and objectives of each of the European powers

- The development of the Triple Alliance and the Triple Entente

- Implications of the alliances for international peace and stab

International Relations, 1919 – 1933

- Why did the peace settlements of 1919–1920 fail to secure lasting peace?

  - Terms and implications of the various treaties

  - Disenchantment of France, Italy, Bolshevik Russia and the defeated powers; implications of the USA's failure to ratify the settlement

  - Problems in 'successor states' created by the post-war settlements

- What attempts were made to improve international relations between 1919 and 1933 and how successful were they?

  - Disturbed relations (1919–23) in the aftermath of peace settlements

  - Improvement in international relations: Washington Conferences (1921–22); Genoa Conference (1922); Dawes Plan (1924); Locarno Treaties (1925); Kellogg-Briand Pact (1928); Young Plan (1929); World Disarmament Conference (1932–33)

  - The impact of world economic problems after 1929

- How did relations between the USSR, Britain, France and Germany develop between 1919 and 1933?

  - France's attempts to deal with the problem of Germany from 1919 to 1933

- The USSR's realisation of the need for peaceful co-existence and co-operation with the capitalist world
- Relations between the USSR and Britain, France and Germany

- What were the main aims and implications of US foreign policy, 1919–1933?

- Reasons for and the impact of the USA's return to isolationism

- Importance of overseas trade, investment and war debt to foreign policy

- The impact of US foreign policy on the world economic crisis after 1929

International Relations, 1933 – 1939

- What were the aims and implications of Mussolini's foreign policy?

- Desire to make Italy great and feared – Corfu Incident and Fiume

- Diplomacy from 1923 to 1934

- Aggression after 1934: Abyssinia; Spanish Civil War; Rome–Berlin Axis; Albania; Pact of Steel

- Why did civil war break out in Spain in 1936?

- Reasons for King Alfonso XIII's abdication in 1931

- Problems facing the new republic

- Reasons for and implications of Franco's victory

- What were the aims and implications of Hitler's foreign policy?

  - Hitler's general aims – destroying Versailles Treaty, building up army, recovering lost territory, bringing all German-speaking people into the Reich Successes, 1933–38; appeasement

  - Czechoslovakia and Poland, 1938–39

- Why did war break out in 1939?

  - Long-term issues such as dissatisfaction with the Treaty of Versailles and the failure of collective security

  - Historical debate regarding Hitler's intentions

  - Appeasement and the role of the USSR

iii) The Holocaust

- The background of European and German anti-Semitism and racist theories

- Nazi anti-Semitism and persecution of the Jews, 1933–41

- The impact of war on Nazi policy towards the Jews

- Ghettoisation and Jewish responses to the Holocaust

- The development of Nazi extermination policies towards Jews and other minorities

- Contemporary reactions to the Holocaust Candidates should explore the following issues through the interpretations and approaches of different historians:

- How far was the Holocaust a consequence of racist ideas which existed before the Nazis?

- The Intentionalist approach and the role of Hitler: was the Holocaust planned in advance by Hitler?

- The Functionalist/Structuralist approach; how far did the nature of the Nazi state and the impact of war determine how the Holocaust developed?

- Synthesis interpretations which aim to reconcile the Intentionalist and Functionalist viewpoints:

- Perpetrators: who carried out the Holocaust, and why? Was murderous behaviour the exception or were many involved? Why did non-Germans participate in the killings?

- Victims: How far did Jews resist the Holocaust, and how can resistance be defined? Did men and women experience the Holocaust in different ways? Should definitions of the Holocaust include victims other than Jews?

- Bystanders: How did the USA and Britain respond to the Holocaust at the time?

Information Technology (Course Description)

In Grade 11 and Grade 12, Geography at Meridian International School follows the Cambridge International AS and A Level Information Technology.

In a world where information technology (IT) is constantly changing, individuals increasingly need technological and information literacy skills that include the ability to gather, process and manipulate data.

The impact of IT on society is enormous and as the percentage of businesses and households connected to communication networks such as the internet grows, so does the need for individuals who understand these new technologies.

This syllabus encourages learners to become effective and discerning users of IT. It helps them to develop a broad range of IT skills, knowledge and understanding. Learners study the structure and use of IT systems within a wide range of organisations, including the use of a variety of computer networks. As a result, learners gain an understanding of IT system life cycles, and how these affect the workplace. They also learn about the wider impact of IT on society in general. At A Level, learners also study simple programming for the web relevant to their own use of IT.

Key Concepts

The key concepts on which this syllabus is built are set out below. These key concepts can help teachers think about how to approach each syllabus topic in order to encourage learners to make links between topics and develop a deep overall understanding of the subject. The teaching support package gives teachers guidance on integrating the key concepts into their teaching. See page 10 for more information on our teacher support.

As a teacher, you will refer to these concepts again and again to help unify the subject and make sense of it. If mastered, learners can use the concepts to solve problems or to understand unfamiliar subject-related
material.

- Impact of Information Technology

Information Technology (IT) is the application of technology to process information.

The impact of IT on all aspects of everyday life is immense. The enormity of the impact can be seen in industry and commerce, transport, leisure, medicine and the

home. The impact on the work force is a very important factor to consider and communications using new technologies have made the World seem smaller.

- Hardware and software

Many hardware components and software applications are used in IT systems. It is important to understand how these work, and how they interact with each other and within our environment.

- Network

Computer systems can be connected together to form networks allowing them to share resources.

- The internet

The internet is a global communications network that allows computers worldwide to connect and share information in many different forms. Examples include email, web pages, and audio and video files. The impact of the internet on our lives is profound. While it provides huge benefits to society, security of data is an issue, both in the work place and for personal data.

- System life cycle

Information systems are developed within a planned continuous cycle that covers the initial development of the system through to its scheduled updating or redevelopment. Each phase of development is organised into separate stages.

- New technologies

As the information industry changes so rapidly, it is important to keep track of new and emerging technologies and consider how they might affect everyday life.

Information Technology (Course Objectives)

i) Data, Information, Knowledge and Processing

- Data, information and knowledge
- Sources of data
- Quality of information
- Coding, encoding and encrypting data
- Checking accuracy of data

ii) Hardware and Software

- Hardware
- System, application and user interface software
- Utility software
- Custom written software and off-the-shelf software
- Complier and interpreter

iii) Monitoring and Control

iv) E-safety and Health and Safety

v) The Digital Divide

vi) Using Networks

- Network types
- Video and web conferencing

vii) Expert Systems and Other Types of Processing

viii) Spreadsheets

- Create a spreadsheet
- Graphs and charts
- Modelling
- Simulations

xi) Database and File Concepts

- Create a database
- Normalisation to third normal form (3NF)
- Data dictionary
- Query selection
- File and data management

xii) Sound and Video Editing

xiii) Emerging Technologies

xiv) Role and Impact of IT in Society

- E-business
- Social networking
- Video conferencing and teleworking
- Technology in society
- Technology enhanced learning

xv) Networks

- Network components
- Network security
- Satellite Communication Systems

xvi) Project Management

- Stages in project management
- Types of project management
- Project management software
- Critical path analysis
- Gnatt charts
- Disaster recover management
- Prototyping
- CAD/CAM

xvii) System life cycle

- Analysis
- Design
- Development and testing
- Implementation
- Documentation
- Evaluation and maintenance

xviii) Graphics creation

- Vector images

- Bitmap images

xix) Animation

xx) Mail merge

xxi) Programming from the Web

Business Studies (Course Description)

In Grade 11 and Grade 12, Geography at Meridian International School follows the Cambridge International AS and A Level Business Studies.

The study of Cambridge International AS and A Level Business allows learners to take the first step towards a career in private or public organisations or progress with confidence to a degree in business and management related subjects.

Learners will develop:

• the capacity to analyse characteristics and activities of business organisations and how they respond to the changing demands of their environments

• an understanding of how effective managers and leaders develop successful organisations in terms of customer focus and the products/services they offer

• the opportunity to reflect on how successful business organisations engage in financial and accounting practices to maximize value for stakeholders value

• development of knowledge that relates to strategic planning and decision-making to ensure business survival, change, and sustainable success

• a solid foundation for further study

Key concepts

The key concepts on which this syllabus is built are set out below. These key concepts can help teachers think about how to approach each syllabus topic in order to encourage learners to make links between topics and develop a deep overall understanding of the subject. The teaching support package gives teachers guidance on integrating the key concepts into their teaching.

As a teacher, you will refer again and again to these concepts, which can serve as guiding principles when considering both familiar and unfamiliar business issues and contexts.

• Change is the only constant. Exciting new enterprises are often created in response to economic, cultural or technological changes. Existing businesses must adapt to change if they are to survive and grow.

• Management is relevant to every person in a business. Good leadership, strong motivation in workers, effective systems and clear communication are hallmarks of successful businesses.

• Customer focus means a business will design and produce goods and services that people want to buy. Customers provide the revenue which sustains a business. Successful businesses really understand their customers and strive to provide products that their customers love.

• Innovation enables a business to re-invent itself and stay ahead of the competition. The business world is dynamic and companies must seek to innovate through product development, more efficient processes and finding better ways 'to do business'.

• Creating value is the core reason why any organisation exists. Effective organisations aim to maximise stakeholder value. For most businesses this will be about maximising shareholder value, but social enterprises will also have other, non-financial, aims. Stakeholders also need to measure the value that is created.

• Strategy is about knowing where you are, where you want to get to and how you are going to get there. Managers need to think about, decide on and put into action major long term plans – such as buying another business, entering a new market or developing a new technology

Business Studies (Course Objectives)

The syllabus aims to enable candidates to:

• understand and appreciate the nature and scope of business, and the role of business in society, internationally and within each candidate's own country

• develop critical understanding of organisations, the markets they serve and the process of adding value

• evaluate business behaviour from the perspective of a range of stakeholders including owner/ shareholder, manager, employee, customer, supplier, lender and government

• develop an awareness of the political, economic, social, technological, legal, environmental and ethical issues associated with business activity

• develop quantitative, problem-solving, decision-making and communication skills.

i) Business and its Environment

- Enterprise
- Business structure
- Size of business
- Business objectives
- Stakeholders in a business
- Business structure
- Size of business
- External influences on business activity

ii) People in Organisation

- Management and leadership
- Motivation

- Human resource management
- Human resource management
- Organisational structure
- Business communication

iii) Marketing

- What is marketing?
- Market research
- The marketing mix
- Marketing planning
- Globalisation and international marketing

iv) Operations and Project Management

- The nature of operations
- Operations planning
- Inventory management
- Operations planning
- Capacity utilization
- Lean production and quality management
- Project management

v) Finance and Accounting

- The need for business finance
- Sources of finance
- Accounting fundamentals

- Forecasting cash flows and managing working capital
- Costs
- Budgets
- Contents of published accounts
- Analysis of published accounts
- Investment appraisal

vi) Strategic Management

- What is strategic management?
- Strategic analysis
- Strategic choice
- Strategic implementation

Modern Language (Course Description)

In Grade 11 and Grade 12, Geography at Meridian International School follows the Cambridge International AS and A Level Modern Languages.

Cambridge International AS and A Levels in languages other than English are accepted by universities and employers as proof of linguistic ability and understanding. Successful language students gain lifelong skills, including:

• the ability to communicate confidently and clearly in the target language

• a sound understanding of the nature of language and language study, and of the skills and abilities required for further study, work and leisure

• insight into the culture and contemporary society of countries where the language is spoken

• better integration into communities where the language is spoken

• positive attitudes towards language learning, towards the speakers of other languages, and towards other cultures and societies

• skills which can be used in other areas of learning, such as analysis and memory skills.

Modern Language (Course Objectives)

- Human relationships
- Family
- Generation gap
- Young people
- Patterns of daily life
- Urban and rural life
- The media
- Food and drink
- Law and order
- Philosophy and belief
- Health and fitness
- Work and leisure
- Equality of opportunity
- Employment and unemployment
- Sport
- Free time activities
- Travel and tourism
- Education
- Cultural life/heritage
- War and peace
- Social and economic development
- Scientific and medical advances
- Technological innovation
- Environment

- Conservation
- Pollution
- Contemporary aspects of the country or countries where the language is spoken

Physical Education (Course Description)

A high-quality physical education curriculum inspires all pupils to succeed and excel in competitive sport and other physically-demanding activities. It should provide opportunities for pupils to become physically confident in a way which supports their health and fitness. Opportunities to compete in sport and other activities build character and help to embed values such as fairness and respect.

During Grade 9, pupils will be encouraged to: develop competence to excel in a broad range of physical activities; are physically active for sustained periods of time; engage in competitive sports and activities; and to lead healthy, active lives.

Physical Education (Course Objectives)

Pupils should tackle complex and demanding physical activities. They should get involved in a range of activities that develops personal fitness and promotes an active, healthy lifestyle.

Pupils should be taught to:

- Use and develop a variety of tactics and strategies to overcome opponents in team and individual games [for example, badminton, basketball, cricket, football, hockey, netball, rounders, rugby and tennis]

- Develop their technique and improve their performance in other competitive sports, [for example, athletics and gymnastics], or other physical activities [for example, dance]

- Take part in further outdoor and adventurous activities in a range of environments which present intellectual and physical challenges and which encourage pupils to work in a team, building on trust and developing skills to solve problems, either individually or as a group

- Evaluate their performances compared to previous ones and demonstrate improvement across a range of physical activities to achieve their personal best

- Continue to take part regularly in competitive sports and activities outside school through community links or sports clubs.

Economics (Course Description)

In Grade 11 and Grade 12, Geography at Meridian International School follows the Cambridge International AS and A Level Economics.

The study of Cambridge International AS and A Level Economics allows learners to explore concepts and theories which can be applied to the way that modern economies work. Cambridge learners develop the ability to explain, evaluate and analyse economic issues and arguments. They gain lifelong skills and a solid foundation for further study.

Key concepts

The key concepts which run through the study of economics are set out below. These key concepts can help teachers think about how to approach their teaching in order to encourage learners to make links between topics and develop a deep overall understanding of the subject. The teaching support package gives teachers guidance on integrating the key concepts into their teaching.

As a teacher, you will refer again and again to these concepts, which can serve as tools when considering both familiar and unfamiliar issues and contexts in economics.

• Scarcity and choice The fundamental problem in economics is that resources are scarce and wants are unlimited, so there is always a choice required between competing uses for the resources.

• The margin and change Decision-making by individuals, firms and governments is based on choices at the margin; that is, once behaviour has been optimized, any change will be detrimental as long as conditions remain the same.

• Equilibrium and efficiency Prices are set by markets, are always moving in to and out of equilibrium, and can be both efficient and inefficient in different ways and over different time periods.

• Regulation and equity There is a trade-off between, on the one hand, freedom for firms and individuals in unregulated markets and, on the other hand, greater social equality and equity through the government regulation of individuals and markets.

• Progress and development Economics studies how societies can progress in measurable money terms and develop in a wider more normative sense.

Economics (Course Description)

i) Basic Economic Ideas and Resource Allocations

- Scarcity, choice and opportunity cost
- Positive and normative statements
- Factors of production
- Resource allocation in different economic systems and issues of transition
- Production possibility curves
- Money
- Classification of goods and services
- Efficient resource allocation
- Externalities and market failure
- Social costs and benefits; cost-benefit analysis

ii) The Price System and the Micro Economy

- Demand and supply curves
- Price elasticity, income elasticity and cross-elasticities of demand
- Price elasticity of supply
- Interaction of demand and supply
- Market equilibrium and disequilibrium
- Consumer and producer surplus
- Law of diminishing marginal utility
- Indifference curves
- Budget lines

- Types of cost, revenue and profit, short-run and long-run production
- Different market structures
- Growth and survival of firms
- Differing objectives of a firm

iii) Government Microeconomic Intervention

- Maximum and minimum prices
- Taxes (direct and indirect)
- Subsidies
- Transfer payments
- Direct provision of goods and services
- Nationalization and privatization
- Policies to achieve efficient resource allocation and correct market failure
- Equity and policies towards income and wealth redistribution
- Labour market forces and government intervention: – Demand and supply of labour – Wage determination in perfect markets – Wage determination in imperfect markets - Government failure in microeconomic intervention

iv) The Macro Economy

- Aggregate Demand and Aggregate Supply analysis
- Inflation
- Balance of payments
- Exchange rates
- The terms of trade

- Principles of absolute and comparative advantage
- Protectionism
- Economic growth, economic development and sustainability
- National Income statistics
- Classification of countries
- Employment/unemployment
- The circular flow of income
- Money supply (theory)
- Keynesian and Monetarist schools
- The demand for money and interest rate determination
- Policies towards developing economies; policies of trade and aid

v) Government Macro Intervention

- Types of policy: fiscal, monetary and supply side policy
- Policies to correct balance of payments disequilibrium
- Policies to correct inflation and deflation
- Government macro policy aims
- Inter-connectedness of problems
- Effectiveness of policy options to meet all macroeconomic objectives

References

English:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/244215/SECONDARY_national_curriculum_-_English2.pdf

Mathematics:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239058/SECONDARY_national_curriculum_-_Mathematics.pdf

Science:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335174/SECONDARY_national_curriculum_-_Science_220714.pdf

Geography:

http://www.cie.org.uk/programmes-and-qualifications/cambridge-international-as-and-a-level-geography-9696/

Global Perspectives:

http://www.cie.org.uk/programmes-and-qualifications/cambridge-international-as-and-a-level-global-perspectives-and-research-9239/

History:

http://www.cie.org.uk/programmes-and-qualifications/cambridge-international-as-and-a-level-history-9389/

Information Technology:

http://www.cie.org.uk/programmes-and-qualifications/cambridge-international-as-and-a-level-information-technology-9626/

Business Studies:

http://www.cie.org.uk/programmes-and-qualifications/cambridge-international-as-and-a-level-business-9609/

Modern Languages

http://www.cie.org.uk/programmes-and-qualifications/cambridge-international-as-and-a-level-french-9716/

Physical Education

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239086/SECONDARY_national_curriculum_-_Physical_education.pdf

Economics:

http://www.cie.org.uk/programmes-and-qualifications/cambridge-international-as-and-a-level-economics-9708/