Year 13 Christmas Revision Guide 2021

Revision Booklet

Year 13 2021

The secret to getting ahead is getting started.

	HOLY TRINITY COLLEGE ***Promoting: "Inspiration, Innovation, Excellence".***	

INTRODUCTION

Dear Year 13

In order to succeed at AS Level you need to read the revision list for each subject, check you have all the notes and materials necessary to revise this topic and then allocate time in your week to cover the topic. How you arrange your days/time is up to you.

Your teachers are more than willing to help and support you. Remember to ask for help if you do not understand something.

Before your exams there is plenty of time for you to create an overall summary on how you plan to tackle your revision. This should consist of both a short and long-term plan.

Short-term Plan: This will be drawn up each week and will be detailed and specific. It will include all of the times that you are not available for study, homework time and study times. Such a plan can be made very easily by making a grid with the days along the top and times down the side.

Long-term Plan: This will be a more general plan, accounting for topics and booklets that need to be revised in each subject between now and the final exam. This type of plan can be created by making a grid with weeks across the top and subjects down the side.

A good plan for revision should have the following 5 features:

1. *Description of each task* - List of each topic in each subject
2. *Allocation of priorities* - Decide what needs the most time
3. *Estimation of time needed* - Work out how much time you have
4. *Setting up a timetable* - Match the topics to the times
5. *Monitoring of progress* - Tick off the work after you do it

A PRAYER BEFORE EXAMS

Loving Father,

Source of all wisdom,

Help me to use my time and my intelligence wisely as I prepare for my exams.

Help me to dispose myself to listen to Your Holy Spirit,

So that You, as my Loving Father,

May place me in a state of prayer

And lead me to understand that the supreme wisdom is knowing I am Your child.

Help me to remain serene so that my work may truly reflect this profound truth.

Mary, Mother of my spiritual life,

Guide me in the ways of your Son,

So that my work may help to transform this world for His glory.

Amen

TOP TIPS ON EXAM STRATEGY

Success in exams involves two ingredients - having a thorough knowledge of the subject matter AND making the most of your knowledge in the exam through effective answering technique.

Two students with identical knowledge and attainment levels can sit the same exam and their final grades can differ by as much as 25%. The difference is down to having an effective strategy and exam technique.

Here are four golden rules to apply to all your AS papers:

1. Allow time to read the paper carefully

The importance of reading the paper carefully and choosing your questions wisely cannot be emphasised enough at this stage. The natural inclination is always to start writing immediately and launch into a favoured topic/question. Resist the urge. Take your time. Be smart and size-up the paper before answering.

2. Stick to your game plan

An overall strategy should have emerged from your revision and exam preparation in each subject. This covers the areas you will tackle, the topics you will avoid if they appear on the paper, the sequence in which you will tackle the various sections, the style of answering you will employ in each subject, the amount of time you will allocate to answering each section. In some cases, this plan will work like a dream but there will always be surprises to deal with in some papers. Don't get flustered. Stick to your game plan, trust your judgement, and move on.

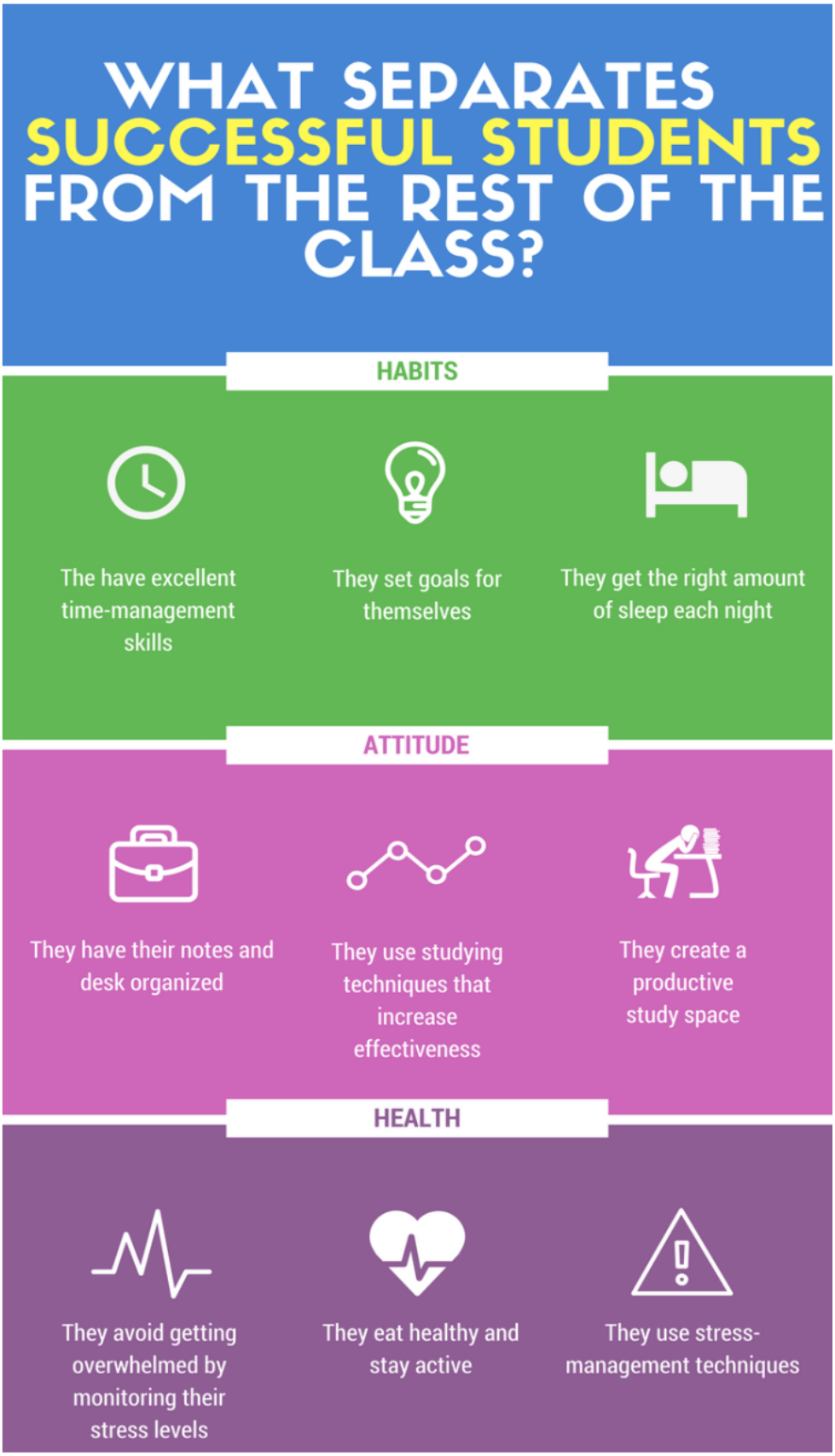
3. Sweep up any mistakes

In the pressure of the exam hall, it is easy to make elementary errors. These will sometimes have the potential to lose you a lot of valuable marks. Misreading the instruction on a question can render an entire answer invalid. You might have known the correct answer, but you didn't put it down. A simple miscalculation can lose you valuable time as you try to figure out the balancing item. Be disciplined with your time. Always leave a few minutes at the end to tidy-up errors. Simply changing a definition / formula / calculation at this stage could be the difference between a good and an average grade.

4. Attempt all questions

It is amazing how many exam scripts are handed up unfinished. Every year, capable students who just didn't get time to finish the paper lose easy marks. Don't fall into this trap. Work on the basis that you will get an answer written for the required number of questions. Remember that it is much easier to get the first 20% of the marks for any question than the final 5%. You can always polish an answer further but, if there is no attempt made at part of a question, the examiner can't give you any marks. BUT if the instructions on the front of the paper tell you to answer a certain number of questions – stick to this - don't answer too many!

STEPS TO SUCCESS



BIOLOGY

CCEA GCE AS1 Biology

December Revision

1.1.1. Demonstrate knowledge and understanding of the importance of water as a solvent.

1.1.2 Outline the role of inorganic ions – potassium, calcium, magnesium, iron, hydrogencarbonate, nitrate and phosphate to include their role:

• As components of biologically important compounds (calcium pectate, chlorophyll, haemoglobin, ATP, nucleic acids, phospholipids); and

• In osmotic and buffering systems.

1.1.3 Demonstrate knowledge and understanding of the occurrence, structure and function of carbohydrates:

• Monosaccharides (α- and β-glucose, fructose, $C_6H_{12}O_6$);

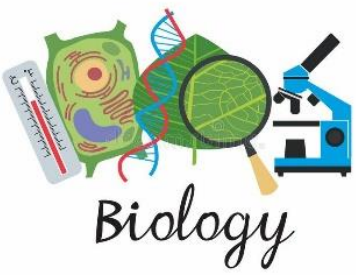
• Condensation reactions in the synthesis and hydrolysis reactions in the breakdown of disaccharides and polysaccharides;

• The glycosidic bond;

• Maltose and sucrose as disaccharides;

• Cellulose – a structural polymer of β-glucose;

• Starch and glycogen as storage polymers of α-glucose; and



• Pentoses as components of nucleic acids (ribose and deoxyribose) and ATP (ribose).

1.1.4 Demonstrate knowledge and understanding of the occurrence, structure and function of lipids:

• Lipids as fats and oils;

• Triglycerides as condensation products of glycerol and fatty acids and the release of these on hydrolysis;

• saturated and unsaturated fatty acids; and

• the structure and properties of phospholipids as components of membranes.

1.1.5 demonstrate knowledge and understanding of the occurrence, structure and function of proteins:

• the general structure of an amino acid molecule

• proteins as condensation products of amino acids and the release of these on hydrolysis;

• primary structure: the amino acid sequence of a polypeptide involving peptide bonds;

• secondary structure: α-helix and β-pleated sheet involving H-bonds;

• tertiary structure: the folding of a polypeptide involving H-, ionic and disulfide bonds and hydrophobic interaction;

• quaternary structure: more than one polypeptide making up a protein;

• overall shape in relation to function in fibrous (collagen) and globular (enzyme) proteins;

• conjugated proteins (glycoprotein and haemoglobin) containing prosthetic groups; and

• prions as a disease-causing protein, due to changes in secondary structure giving a form rich in β-sheets:

− infection can occur through eating prion-rich food; and

− prion diseases are neurodegenerative disorders such as scrapie, Bovine Spongiform Encephalopathy (BSE) in animals and Creutzfeldt–Jakob Disease

(CJD) in humans.

1.1.6 demonstrate knowledge and understanding of the occurrence, structure and function of nucleic acids:

• nucleic acids as condensation products of nucleotides and the release of these on hydrolysis;

• nucleotides as condensation products of a pentose sugar, a nitrogenous base and inorganic phosphate;

• helical structure of DNA in terms of two antiparallel chains with specific base pairings; and

• comparison of DNA and RNA.

1.1.7 demonstrate knowledge and understanding of the replication of DNA:

• replication as a semi-conservative process involving opening the helix (by DNA helicase) followed by the synthesis of complementary nucleic acid chains alongside each of the existing chains to form two identical helices;

• the role of DNA polymerase; and

• the Meselson–Stahl experiment.

1.2.1 demonstrate knowledge and understanding of the structure of enzymes as globular proteins, including:

• the concept of the active site;

• specificity; and

• the role of cofactors and coenzymes.

1.2.2 demonstrate knowledge and understanding of the relationship between enzyme structure and function, including:

• catalysts that lower the activation energy through the formation of enzyme–substrate complexes;

• the lock and key hypothesis and induced-fit hypothesis;

• the effect of temperature, pH, substrate and enzyme concentrations on activity; and

• enzyme inhibitors (competitive and non-competitive).

1.2.3 demonstrate knowledge and understanding of the importance of enzymes as biomarkers of disease, including:

• that some enzymes are only present or active during disease processes (for example white blood cells can release elastase during respiratory infections, hydrolysing the structural protein elastin within the lung leading to reduced lung function); and

• that detecting the presence of these enzymes in clinical samples such as blood, urine and sputum can be used for diagnosis or monitoring of disease.

1.2.4 demonstrate knowledge and understanding of applying inhibitors as therapeutic drugs, including the activity of enzymes that contribute to disease

processes, which can be targeted with active site-directed inhibitors.

1.2.5 demonstrate knowledge and understanding of applying immobilised enzymes in biotechnology:

• methods of immobilisation (physically or chemically securing enzymes on or inside insoluble support materials such as fibres, gels or plastic beads);

• immobilisation as a technique that enables cost-effective enzyme applications (though with reduced activity because some active sites are inaccessible) with benefits including:

− increased enzyme stability;

− facilitation of continuous flow processes; and

− enzyme-free products; and

• diagnostic reagent strips using enzymes or inhibitors as biosensors (for example glucose monitoring strips or pregnancy tests).

1.3.1 demonstrate knowledge and understanding of the structure of bacteriophages (phages) and the human immunodeficiency virus (HIV) to include:

• phages containing DNA bounded by a protein coat; and

• HIV containing RNA bounded by a protein coat and a lipid bilayer containing glycoprotein and, as a retrovirus, containing reverse transcriptase whereby RNA is used to synthesise viral DNA.

1.3.2 demonstrate knowledge and understanding that viruses replicate in host cells (thereby destroying them), including:

• that phages invade bacteria, where they replicate, destroying the bacterial cells and

• that HIV invades a type of lymphocyte (helper T-cell) thereby weakening the immune system.

1.4.1 demonstrate knowledge and understanding of the ultrastructure of eukaryotic and prokaryotic cells:

• prokaryotic cells (for example, bacteria) as those without nuclei, mitochondria or endoplasmic reticulum and possessing naked, circular DNA,

small ribosomes, possibly plasmids, and a cell wall; and

• eukaryotic cells as those with a membrane-bound nucleus, chromosomes (helical DNA with a histone protein coat), mitochondria, endoplasmic reticulum, ribosomes, Golgi apparatus, vesicles, lysosomes and microtubules

1.4.2 demonstrate knowledge and understanding of the structure and function of membranes, including:

• membrane structure (fluid mosaic model): phospholipid bilayer, intrinsic and extrinsic protein, carbohydrate glycocalyx, glycoproteins and glycolipids, cholesterol (in animal cells); and

• functions of membrane components:

− proteins or glycoproteins as carriers;

− hydrophilic channels;

− enzymes;

− receptors;

− antigens;

− recognition features; and

− cholesterol in membrane stability.

1.4.3 demonstrate knowledge and understanding of the structure and function of eukaryotic cell components:

• membranes (fluid mosaic model) as structures surrounding cells and contributing to their internal structures to include their role defining the boundaries of organelles within the cytoplasm;

• mitochondria (envelope, cristae and matrix);

• chloroplasts (envelope, lamellae, thylakoids, grana, stroma, lipid droplets and starch grains);

• rough endoplasmic reticulum (a membrane system with attached ribosomes);

• ribosomes as sites of protein synthesis;

• smooth endoplasmic reticulum;

• Golgi apparatus;

• lysosomes;

• microtubules (centrioles and cell spindle) as components of the cytoskeleton enabling movement of structures within the cell;

• plasmodesmata as plant cell to cell junctions; and

• nuclear components:

− chromosomes (DNA and histones as constituents)

− nucleolus (the location of the DNA that codes for ribosomal RNA);

− the nuclear envelope as a perforated double membrane; and

− the outer membrane of the envelope is encrusted with ribosomes and is the site of origin of rough endoplasmic reticulum (RER).

1.4.4 demonstrate knowledge and understanding of the different types of eukaryotic cell structure:

• plant cells as protoplasts bordered by an extracellular cellulose cell wall and possessing chloroplasts and a large permanent vacuole bounded by a tonoplast membrane;

• neighbouring cell walls adhered by a middle lamella (a sticky material composed of calcium pectate);

• fungal cells as protoplasm (often multinucleate) bounded by an extracellular wall of chitin; and

• animal cells as lacking chloroplasts and a cell wall and possessing centrioles.

1.4.5 demonstrate knowledge and understanding of using microscopy to examine cell structure, including:

• light microscope;

• electron microscope (transmission electron microscope (TEM) or scanning electron microscope (SEM), as appropriate); and

• the difference between magnification and resolution.

1.5.1 demonstrate knowledge and understanding of the mechanisms by which substances move across membranes:

• diffusion;

• osmosis to include understanding of the terms:

− solute potential (ψs), pressure potential (ψp) and water potential (ψcell);

− lysis and crenation in animal cells; and

− turgor, incipient plasmolysis and plasmolysis in plant cells;

• facilitated diffusion involving the use of proteins in the membrane as channels or carriers;

• active transport involving membrane carriers and energy expenditure;

• endocytosis (phagocytosis, pinocytosis); and

• exocytosis.

1.5.2 account for membrane permeability in terms of:

• movement of fat-soluble substances (and water as it is sufficiently small) through the phospholipid bilayer;

• movement of water-soluble substances through hydrophilic protein channels; and

• the role of membrane carriers.

1.5.3 calculate the water potential of a cell as the algebraic sum of the solute and pressure potentials of a cell.

HOLY TRINITY COLLEGE

Promoting: "Inspiration, Innovation, Excellence".

ENGLISH LITERATURE

Revision List Year 13 English Literature

Mrs Skelton's

Topic: A Doll's House

1. Plot of A Doll's House

2. Contextual information- Life of Ibsen/ society at the time/ expectations of women's behaviour/ impact of his work

3. Significant themes A Doll's House – gender and power (including expectations); money; appearances and reality; living vs surviving; secrets; morality; marriage; family; inheritance (in terms of health, personality, morality and money)…

4. Female characters: Nora Helmer, Mrs Linde, Anne Marie

5. Male characters: Torvald Helmer, Nils Krogstad, Dr Rank

6. Key terminology for drama

7. Scribe/ well-made play/ melodrama

8. Learn quotations/names/comments from reviews/articles supplied. (For commenting on other interpretations)

9. Key lines of dialogue or stage direction (closed text exam!)

Mrs Toal's

Topic: Unseen Dystopia

1. Features of dystopian literature.

2. Timeline of the key dystopian texts.

3. Minimalist language, first- person narration and alternating tenses.

4. Eco-dystopia and nature vs technology.

5. Origins of environmental literature, The Environmental Movement, destruction and longing.

6. Political Dystopia- ideology, physical force, regulation and propaganda.

7. Surveillance and Distrust- The Cold War, reflections on human nature, broken societies, isolation and state surveillance.

8. Fear and Violence- the Gothic, the uncanny, the issue of violence, fear of the unknown and fear of the state.

9. Representation of Violence

10.Characterisation- protagonists, victims and antagonists.

11.Postmodernism- Marxism and ecocriticism.

You must know other dystopia texts and be able to relate these to the unseen passage. Use the Companion guide to Dystopian Fiction to help with examples.

HEALTH & SOCIAL CARE

Mrs Mulllan & Mrs Haughey

For Unit 1 in HSC, the exam will be based on section A of their book / notes –

Human Growth & Development through the Life Stages.

Teachers will detail learning in class to students.

HOLY TRINITY COLLEGE

Promoting: "Inspiration, Innovation, Excellence".

HISTORY

Year 13 Revision List – History

The constitution - strengths and weaknesses

The Weimar Republic 1919-29

Threats from the Left and Right

Reasons for economic instability

Strengths and weaknesses of the economy

The development of the Nazi Party – Munich/ Bamburg. Strasser/ Goebbels

NAZI Electoral breakthroughs

Impact of the 1929 Wall Street Crash

The collapse of Muller Government – Actions of politicians in aiding Hitler into power

The creation of a NAZI dictatorship 1933/Aug 1934

The Legal Revolution v the Second Revolution

MATHEMATICS

AS Pure Maths Revision List

Surds and Indices

- Identify Rational and Irrational Numbers
- Simplify Surds and expressions involving surds
- Manipulate Surds; Add, Subtract and Multiply
- Rationalise the denominator
- Understand and use index notation and apply the laws of indices

Quadratic Functions: Equations and Inequalities

- Solve quadratic equations by Factorising, Completing the Square, using the Quadratic Formula, The Discriminant
- Solve 3 simultaneous linear equations including forming
- Solve simultaneous equations involving powers
- Solve linear and quadratic simultaneous equations
- Solve quadratic inequalities
- Solve simultaneous inequalities

Polynomials

- Manipulate Algebraic expressions: add, subtract and multiply polynomials
- Divide polynomial expressions using long division

• Calculate the Remainder Theorem

• Calculate the Factor Theorem

• Sketch polynomial graphs

• Find the equation of a curve given the roots of the polynomial

Co-ordinate Geometry

• Find the gradient of a line between two points

• Recognise a linear equation in various forms

• Find the equation of a straight line

• Identify the gradient and y-intercept from the equation of a straight line

• Find the midpoint and length of a line segment

• Understand and apply the properties of parallel and perpendicular lines

• Apply circle theorems to problems in co-ordinate geometry

• Find the equation of a circle

• Find the number of intersection points of a line and circle and find their co-ordinates

Trigonometry

• Use the sine and cosine rule

• Calculate the area of a triangle

• Understand and apply Trigonometric Identities

• Recognise and sketch Trigonometric graphs

• Solve Trigonometric Equations using CAST diagrams

MUSIC

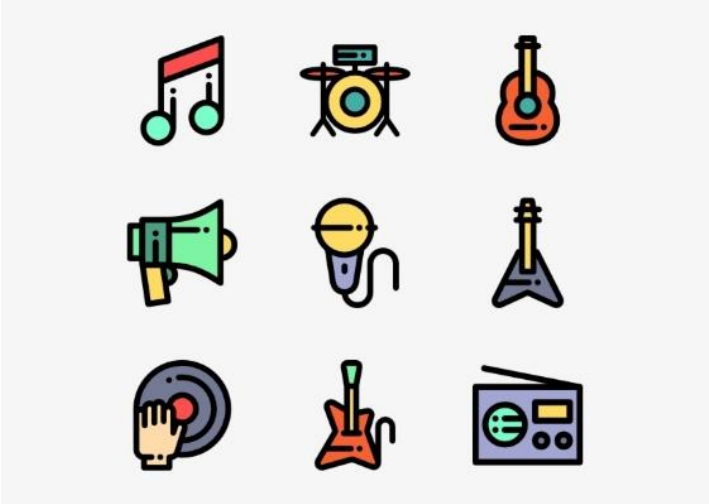
Year 13 Music- Subsidiary Diploma (Single Award) and Diploma (Double Award)

Solo Music Performance Skills - one song to be recorded for diary entry

Developing as a Musical Ensemble - one group song to be recorded

Pop Music in Practice - All assessment objectives to be completed

Studying Music from around the World - Musical Traditions from Ireland, India and Indonesia research (AO1 and 2). Irish Music Project to be completed for 17th December (AO3)



AGRICULTURE

UNIT 1: PROFESSIONAL WORKING RESPONSIBILITIES

Health and safety responsibilities

- Awareness of current health and safety legislation – statutes and regulations and health and safety audits.
- Safe working practices – awareness of key concepts of safe working practices, with reference to health and safety and the environment.
- Health and safety audit

Safe working practices

- The importance of training staff and implementing policies and practices
- Provision of a safe working environment
- Provision of first aid training and equipment
- Using personal protective equipment (PPE)
- Minimising the risk of disease
- Fire safety
- Electrical safety
- Displaying safety information
- Signage
- Reporting of accidents
- The importance in working in ways to reduce risk

Risk assessment

- Using and interpreting risk assessments
- Producing dynamic risk assessments

Purpose of risk assessment

- Uses and implementation of risk assessments
- Scenarios for risk assessment

Managing waste responsibly and safely

- Animal, plant and non-organic waste – definition and sources of organic and inorganic waste in the land-based sectors
- Legal responsibilities for waste management - current waste management legislation and documentation specific to land-based sectors. The waste hierarchy system – prevention, reuse, recycle… The impact of waste disposal on sustainability, climate change and environment. Innovations in waste management.

HOLY TRINITY COLLEGE

Promoting: "Inspiration, Innovation, Excellence".

RELIGION

AS Year 13 Mrs Coleman

Islam

1 Key issues in the study of Islam:
„. The life and work of Muhammad in its historical, religious and social context; his significance for Muslims. (Pre Islamic Arabia)
Contextual material may include reference to a range of religious features such as polytheism, animism and jinns, festivals, sacrifices, Christian, Jewish and Zoroastrian traditions, and the status of Mecca.

Students should be knowledgeable about political and economic factors, social groupings and changes; literature including poetry.

Understanding and comments on his significance, including the strengths or otherwise of these background factors in an understanding of the status of Muhammad, including his rejection of many of these features.

Year 13 Religion Revision list MMG

(Luke's Gospel)

- The religious and political situation in Palestine at the time of Jesus
- The beliefs and practices of the Pharisees and Sadducees;
- the authorship, date, purposes and characteristics of Luke's Gospel
- the historical accuracy and reliability of Luke's Gospel

HOLY TRINITY COLLEGE

Promoting: "Inspiration, Innovation, Excellence".

SOCIOLOGY

Year 13 Sociology Revision - December Assessment

Unit 1-Couples

The domestic division of Labour

Decision making

Domestic violence

Unit3- Theory and perspectives on the family

Functionalist

Marxist

Feminist

Personal Life

Unit 5-Family Diversity

Divorce

Marriage

Cohabitation

Lone parent families

Civil partnerships

Reconstituted Families

Ethnic differences in family patterns

Extended families

One-person household

HOLY TRINITY COLLEGE

Promoting: "Inspiration, Innovation, Excellence".

PSYCHOLOGY

Psychology AS Christmas Revision List – PAPER 2

Approaches in Psychology

- Origins of Psychology: Wundt, introspection and the emergence of Psychology as a science.
- Learning approaches: i) the behaviourist approach, ii) social learning theory
- The cognitive approach
- The biological approach

Research Methods

- Aims
- Hypotheses
- Sampling
- Pilot studies and the aims of piloting
- Experimental designs
- Questionnaires
- Variables
- Control (i.e. random allocation and counterbalancing, randomisation and standardisation)
- Demand characteristics and investigator effects
- Ethics

Psychopathology

- Definitions of abnormality, including deviation from social norms, failure to function adequately, statistical infrequency and deviation from ideal mental health.
- The behavioural, emotional and cognitive characteristics of phobias, depression and obsessive-compulsive disorder (OCD)

HOLY TRINITY COLLEGE

Promoting: "Inspiration, Innovation, Excellence".

ICT

Year 13 ICT Unit 2 Database Design 2 hour Practical Exam based on a past paper.

Content of the exam will be working with an Access database to carry out the following tasks.

Table Creation – In Design View

Ensuring correct Field Properties, (Data Validation / Look Up Lists (Value List / Table / Field List)

Forming Table Relationships (One to One and One to Many)

Datasheet View (Adding new Records to a table using a Form)

Query Design (Design View & Datasheet View) Carrying out a range of simple and complex queries to the database.

ENGINEERING

Btec Engineering

All Notes and Revision material on Google Classroom

Unit 1 Exam

Topics

- Indices
- Equations of Line
- Simultaneous Equations
- Expanding Brackets
- Quadratic Equations
- Logs
- Surface Area Volume
- Radians, Arcs & Sectors
- Trigonometry
- Cosine Rule
- Sine Rule
- Resolving Forces
- SUVAT – Velocity, Acceleration and Displacement

HOLY TRINITY COLLEGE

Promoting: "Inspiration, Innovation, Excellence".

BUSINESS STUDIES

Yr 13 BS2 Revision List

1. Principles and purposes of marketing:

Anticipating, recognising, stimulating, and satisfying demand

2. Marketing aims and objectives:

- understanding customer wants and needs
- developing new products
- improving profitability
- increasing market share
- diversification
- increased brand awareness and loyalty.

3. Types of market –

- mass and niche market.
- Market segmentation.
- Branding, brand personality, brand image, unique selling point (USP),
- implications of business size for marketing activity, budgetary constraints, availability of specialist staff.

A2 Influences on marketing activity (SWOT & PESTLE ANALYSIS)

1. Internal influences:

- cost of the campaign / availability of finance/ expertise of staff /size and culture of the business.

2. External influences:

- social , technological, economic, environmental , political , legal andethical
  B Using information to develop the rationale for a marketing campaign

B1 Purpose of researching information:

- To identify the needs and wants of customers
- To identify target markets.
- To identify size, structure and trends in the market.
- To identify competition.

Yr 13 BS1 - Coursework Unit 1