

2017

King Edward VI School

Sixth Form



**[SUMMER TASKS 2017]**

Preparatory tasks to help you settle in

Welcome to King Edward VI Sixth Form,

Joining Sixth Form and starting A-levels is a terrific experience and one of the highpoints of most people's time at school. Sixth Form should be challenging, thought-provoking and academically rewarding. It should also be great fun and leave you with an array of happy memories and enduring friendships.

Moving into Sixth Form from Year 11 can be a little bit of a shock to the system. The work is more demanding and will require you to grapple with big ideas, undertake research and further reading, as well as to develop your communication skills. For many students 'study periods' will be a new experience which allow time for independent learning and the completion of preparatory work.

To help you bridge the gap between Year 11 and Year 12, we have collated a set of preparatory tasks and activities. For each subject that you intend to study we ask you to complete the task, and bring it with you to your first lesson of the subject in September. Each task asks you to research and explore something, and to complete some work which will challenge your existing skills. You may find these activities difficult - they are meant to be, so please give them your best attempt. The preparatory work will help you make a cracking start to Sixth Form, as well as providing teachers with information to help understand your level of knowledge, skill and ability.

I hope you enjoy the summer and that you receive the excellent grades you deserve.

I look forward to welcoming you in September,

Stuart Small

## Art, Textiles and Photography

Please attend exhibitions, either in your local area, or wider afield, and write up your experiences. You should take photos and collect imagery/postcards, etc., to use in your write up.

## Biology

Water is a molecule which is essential to life on Earth. Its properties are unusual, and it is these properties which allow it to fulfil many roles in biological systems and processes. An understanding of these properties and their significance in Biology will form an essential part of your course.

For this task you will need to find out about:

- 1) The structure and bonding within, and between, water molecules
- 2) The following five properties of water, and their biological significance
  - specific heat capacity
  - ability to act as a solvent
  - cohesion and adhesion
  - latent heat of vaporisation
  - density (at different temperatures).

Where appropriate, you should include diagrams to help support your answers. This task should not cover more than two sides of A4.

## Business Studies

## See Appendix 1

In September we will begin with an induction project in which we research entrepreneurs. You will complete this work independently, and produce a report which will give your teachers an idea of your ability and prior knowledge. Before then we would like you to complete a few tasks in order to develop basic knowledge. We appreciate that some students will join us without having studied GCSE Business. If this is you, then we would like you to follow tasks from section A. Students who have studied Business should complete section B. Please also complete the tasks in Appendix 1.

If you have any problems or further questions about the subject please email the Subject Leader Miss Hemmings [he@king-ed.suffolk.sch.uk](mailto:he@king-ed.suffolk.sch.uk).

## Section A

- Learn the key terms attached in Appendix 1
- Read the BBC Business news every week
- Familiarise yourself with tutor2u.com
- Read a broadsheet once a week, e.g. The Times/Telegraph newspaper
- Write 1 side of A4 reporting on a business news story that you have followed over the summer, drawing on 10 key words from the list below – DO NOT just copy a story, it has to be from your point of view, demonstrating a judgement of the outcome.

## Section B

- Make sure you have remember the key terms below
- Read the BBC Business news every week
- Familiarise yourself with tutor2u.com
- Read a broadsheet once a week, e.g. The Times/Telegraph newspaper
- Write 1 side of A4 reporting on a business news story that you have followed over the summer, drawing on 10 key words from list below – DO NOT just copy a story it has to be from your point of view, demonstrating a judgement of the outcome.

## Chemistry

You should do some research and produce a timeline to show how the accepted model of the atom has changed over time. You should include detail about the following people:

- Dalton
- J J Thompson
- Rutherford
- Bohr
- Geiger and Marsden
- Moseley
- The ancient Greeks

You will be able to find more detail on the work of some of these people than others. As with all research tasks, you should ensure that what you produce is your own work and that you understand what you have written.

## Classical Civilisation

Some suggestions to whet your appetite over the summer:

- If you are lucky enough to find yourself on holiday anywhere on the shores of the Mediterranean Sea, the chances are that the Greeks or Romans will have been there before you. Visit a local museum or archaeological site, and spend some time exploring anything which relates to the classical world
- Go to the British Museum in London, or the Fitzwilliam Museum in Cambridge, and do the same
- Go to the theatre and watch a live performance of a play. (What emotions do you feel? What, if any, are the advantages of seeing it live rather than watching it on a screen on your own?)
- Visit any Roman site in Britain
- Volunteer to do some archaeology
- Watch any of the following films:
  1. Walt Disney's *Hercules* (The plot is rather misleading, but there is a lot in it that is highly relevant to Class. Civ., and it is great entertainment)
  2. *Oh Brother, Where art thou?* (Homer's *Odyssey* reset in 1930s Mississippi)
  3. Disney's *The Lion King* (a reworking of Shakespeare's *Hamlet*)
  4. Kurosawa's *Ran* (*King Lear* set in Samurai Japan)
  5. *My Fair Lady* (A great musical reworking of the *Pygmalion* myth)
- Explore YouTube and watch any snippets about Greek Tragedy which come from the National Theatre in London
- Light reading might include any of the *Falco* books by Lindsey Davis (detective fiction. set in Imperial Rome); *Troy, Ithaca or Dido* by Adèle Geras (easy to read but accurate - adaptations of the epics of Homer and Virgil); any of Conn Iggulden's *Emperor* novels (history and adventure retelling the life of Julius Caesar, best to start at the beginning, but if you like the style you'll soon want to read all five); *Pompeii* by Robert Harris (a brilliant thriller by a master of suspense, and my personal favourite of all these).

Then write (500 to 750 words) about your experience of one or more of the above, and what it has taught you about the classical world.

Prepare a short presentation to give to the class in September.

Enjoy the long summer break ahead of you and make the most of it.

If you have any questions please contact me at [DH@king-ed.suffolk.sch.uk](mailto:DH@king-ed.suffolk.sch.uk).

David Hopkins

SAPERE AVDE!

DARE TO BE WISE!

## Computing

Your task is to investigate one area of cutting edge computer science and to display your ideas using a website.

This will require you to learn HTML - the language that holds the internet together. HTML (Hypertext Mark-up Language) is a text based language read by web browsers which can be produced using programs as simple as Note Pad.

The website should include:

- the subject matter of the site is to be 'Cutting Edge Computing'. It should identify how the concept you chose has developed, what it is, and how it might impact our lives. It could be any of the following:
  - Artificial Intelligence
  - Quantum Computing
  - DNA Computing
- more than three pages (i.e. a home page with links to and from the others)
- a link to an external document

The web pages are intended to be an introduction or teaser to the subject you have chosen. One of the pages will include a link to an external document that will hold the detail of your investigation. The document should be in your own words (do not 'copy and paste'), covering:

- o what the concept is
- o how the concept has developed
- o how it could impact on our lives.

Do not use more than 1000 words.

The website should use CSS (Cascading Style Sheets) to format the fonts and styles, either internal or external - the choice is yours. It should be submitted as a series of HTML files within a folder holding any images that are used and the document with the detail of your research.

## Dance

Please purchase and read Chapter 1 from '20<sup>th</sup> Century Dance in Britain' and write key notes on the reading.

Create a timeline of key dates, and the following choreographers (information available on Rambert's website): Glen Tetley; Robert North; Christopher Bruce; Richard Alston

Research the following choreographers: Jerome Robbins; Agnes de Milles; Jack Cole; Gene Kelly; Bob Fosse.

Please include the following:

- The training the choreographer received

- A description of the choreographic style
- Watch a YouTube clip for each choreographer (either of a work they have choreographed or of an interview with the choreographer) and mind-map your findings

Please contact Mrs Frost if you have any questions (fz@king-ed.suffolk.sch.uk).

## Drama

1. *Read one of the following plays.*

- Accidental Death of an Anarchist by Dario Fo
- The Seagull by Chekhov
- Lysistrata by Aristophanes
- The Trial by Steven Berkoff

Write a synopsis of the play act by act. Give details about the plot, characters and themes. Write in as much detail as possible, analysing the style and context.

2. *Watch 'The Overcoat' by Gecko Theatre*

<http://geckotheatre.com/past-shows/#the-overcoat>

Write a review of the play outlining your initial impressions and how you feel the company used theatrical skills to communicate the ideas.

## Economics

### *Macro*

Read a news article from <http://www.bbc.co.uk/news/business/economy>

Select one issue that you have followed. The issue might be rising commodity prices, falling growth, trade deficit or falling employment, but it can be about anything relevant to current economic problems.

Hand-write no more than two sides of A4, analysing the issue. You will need to look at the underlying causes and the effects of the issue. DO NOT just copy a story, it has to be from your point of view. Use economic terminology and, if unsure of what something means, look it up; <http://www.economist.com/economics-a-to-z> is a good place to start.

Make sure that your work is proof-read, spell-checked and edited if necessary.

### *Micro*

Please complete the tasks in Appendix 7.

In Economics you will study a wide range of topics, from scarcity of resources, to government interventions and market forces. You will be required to do a lot of reading around the subject. So

get a head start, especially if you have not studied Economics at GCSE. Here are some topics we suggest you read:

- What is the economic problem?
- Monopoly power
- Demand curves
- Price elasticity of demand
- Price elasticity of supply
- Economies and diseconomies of scale
- Inflation
- Fiscal policy
- Monetary & interest rate policy
- Supply-side policies

Resources to help you:

- Any GCSE text book
- Tutor2u
- Tutorhub.com
- Bank of England website
- Financial Times
- The Economist

If you have any problems or further questions about the subject please email the Subject Leader Miss Hemmings [he@king-ed.suffolk.sch.uk](mailto:he@king-ed.suffolk.sch.uk).

## **English Language See Appendix 2**

Why have you decided to become a linguist? Why have you decided to study English language?

1. Read Chapter 1 of *Just a Phrase I'm Going Through: My Life in Language* by David Crystal. In this chapter he explains what 'Being a Linguist' means. Discuss this chapter both in terms of content and linguistic style.
2. During or after reading, produce a spider diagram to show what 'Being a Linguist' means to you. You may relate to any of the points made by David Crystal and you will also have your own ideas too.

Being a Linguist

3. Read and critique the two examples of other students' writing. Use these as style models and a springboard for planning and structuring your own writing.
4. Plan and write your own first chapter of your language biography explaining why you decided to become a linguist (why you have chosen to study English Language). You should aim to write between 1 and 2 sides of A4. Your purposes are to inform and entertain your audience. This piece of writing will be built on in your induction task when you join the Sixth Form in September.



## English Literature See Appendix 3

### Film Studies

1. Watch the short film 'The Fly' (2014) directed by Jack Doolan (6 minutes).

<https://vimeo.com/139863591>

SYNOPSIS: A getaway driver waiting outside a bank robbery has three nerve-shredding minutes to get through before his crew returns. All he has to do is focus...

2. Write a detailed textual analysis of the short film, exploring how its dramatic qualities are constructed. The following sub-headings will guide you, but feel free to discuss any additional features:

- Locations
- Camera techniques and their effects
- Editing techniques and their effects
- Use of sound (including silence)
- Creation of humour
- Pace
- Character representation
- Narrative structure
- Audience appeal

3. Come up with an idea for a similar sequence, in which a character in a confined space becomes increasingly frustrated by a persistent noise. Write three sentences to summarise your idea.

If you have any further questions please contact Ms Norton-Berry ([NB@king-ed.suffolk.sch.uk](mailto:NB@king-ed.suffolk.sch.uk)).

### French

Spend at least 10 minutes a day doing one of the following. Mix and match; don't just do the same activity every day. Keep a log of everything you do each day and any new information or vocabulary you pick up. Bring this log to your first lesson in September.

1. Familiarise yourself with French history, the French political system, and the core French principles of *Liberté, Égalité, Fraternité*. Look on Wikipedia as a starting point and change the language to French.
2. Pick a Francophone country and find out as much as you can about the history, the music, and the culture.
3. Pick a French-speaking author. Find out everything you can about them, and try reading some of their work (even if it's in translation at first).
4. Brush up on all aspects of grammar using [www.languagegym.com](http://www.languagegym.com) or [www.languagesonline.org.uk](http://www.languagesonline.org.uk)
5. Read a news article on [www.20minutes.fr](http://www.20minutes.fr).
6. Watch French news on [www.france24.fr](http://www.france24.fr) or [www.tf1.fr](http://www.tf1.fr).
7. Watch a French film (you will be studying *La Haine*, but also try *Amélie*, *Les Intouchables* or *La Famille Bélier*).
8. Listen to French radio or podcasts - try [www.lemouv.fr](http://www.lemouv.fr).
9. Subscribe to a podcast such as Coffee Break French (Intermediate).

If you have any further questions, speak to Mr Ghali ([GH@king-ed.suffolk.sch.uk](mailto:GH@king-ed.suffolk.sch.uk)) or Mr d'Almeida ([AL@king-ed.suffolk.sch.uk](mailto:AL@king-ed.suffolk.sch.uk)).

## German

Spend at least 10 minutes a day doing one of the following. Mix and match; don't just do the same activity every day. Keep a log of everything you do each day and any new information or vocabulary you pick up. Bring this log to your first lesson in September.

1. Familiarise yourself with German history, the German political system and an aspect of German culture that interests you. Look on Wikipedia as a starting point and change the language to German
2. Pick a German-speaking country and find out as much as you can about the history, the music, the sport and the culture
3. Pick a German-speaking author. Find out everything you can about them, and try reading some of their work (even if it's in translation at first)
4. Brush up on all aspects of grammar using [www.languagesonline.org.uk](http://www.languagesonline.org.uk)
5. Subscribe to the YouTube channel Learn German with Herr Antrim (<https://www.youtube.com/user/MrLAntrim>)
6. Read a news article on [www.20minuten.ch](http://www.20minuten.ch)
7. Watch German news on [www.tageschau.de](http://www.tageschau.de) or [www.deutschewelle.de](http://www.deutschewelle.de)
8. Watch a German film (you will be studying *Goodbye, Lenin!*, but also try *Das Leben der Anderen*, *Lola rennt*, *Der Untergang* or *Die Fetten Jahren sind vorbei*)
9. Listen to German radio or podcasts. Try [www.einslive.de](http://www.einslive.de) or [www.wdr.de](http://www.wdr.de)
10. Subscribe to a podcast such as Coffee Break German (Intermediate).

If you have any further questions, speak to Mrs Pickering ([pg@king-ed.suffolk.sch.uk](mailto:pg@king-ed.suffolk.sch.uk)) or Ms Rush ([rh@king-ed.suffolk.sch.uk](mailto:rh@king-ed.suffolk.sch.uk)).

## Geography

1. Write an essay detailing an exploration of your favourite place.

*'Place' is one of the most important terms used by geographers, allowing an exploration of the people, processes and connections that make a particular space meaningful.*

*Everyone's favourite place is different and unique. It could be somewhere everyday - such as a local space, a football stadium or a museum, or somewhere extraordinary - such as a holiday destination, a place that holds a special memory, or a place that you have read about or seen in a film. It could be found anywhere - local, national or international.*

*In an exploration of their favourite place, you should consider how it is shaped by local, national and global processes, and what these geographical processes, both physical and human, are. You should also consider the people and connections that make the place meaningful; and the social, cultural, political and environmental geography of the place.*

## Government and Politics

Please familiarise yourselves with British politics and the political system. Doing any of the things listed below will help you to acquire a base knowledge.

Television Programmes:

- Question Time
- Daily Politics
- Sunday Politics
- Mock the Week
- Have I got New for you?
- News programmes
- Any documentaries that link to issues in the news
- Anything relating to American politics.

Reading:

- Daily newspapers – popular and broadsheet
- Articles linking to current political issues

Research:

- Research British political parties on the internet
- Find out about the British Constitution

## History

Over the summer we'd like you to read one of the following books, and write a short-ish (750-1000 words) summary and review. You might comment on the writing style, the light the book throws on the people and events covered, and how it changes your understanding of the period in question.

Early Modern:

Wolf Hall - Hilary Mantel

Tudor England - John Guy

The Tudors - A very short introduction - John Guy

Reformation: Europe's House Divided - Dairmaid MacCulloch

Modern:

Child 44 - Tom Rob Smith

The People's Tragedy - Orlando Figes

Stasiland - Stories from behind the Berlin Wall - Anna Funder

The Cold War: A very short introduction - Robert J MacMahon

**Maths**      **See Appendix 4**

**Music**      **See Appendix 6**

### **Performing:**

Be prepared to **perform a short piece** on your chosen instrument (with or without an accompaniment). You will also be asked to give a short demonstration – covering such things as tuning/intonation, range, specific techniques, your practice regime etc.

### **Music Language**

Brush-up your music theory, so to start you on the way please **complete the attached theory exercises**. During the course you will be taught to read and write staff notation, including rhythmic notation in compound time and key signatures up to 5 sharps and flats.

An Associated Board Theory Book would also be a good place to start – ask the Music Department if you need any practice materials. At the start of term, we will be assessing the level of musical support you will need in preparing you for the composition and appraising aspects of the course.

If you have not got grade 5 theory, we will be strongly recommending that you attend lunchtime theory club, with a view to you taking the exam later in the year.

### **Listening Diary**

Listen to Classic FM or Radio 3 and keep a **listening diary** for a few days during the summer holidays – and be prepared to talk about it. It would also be beneficial if you could also focus on some Instrumental and Vocal Music: 1600 – 1900. We suggest selecting one Baroque, Classical and Romantic piece to listen to. Look for the relationship between words and music, the use of musical elements, and instrumental techniques.

Focusing on the following musical elements will help you: Melody/word setting, Tonality, Structure, Resources/Timbre, Harmony, Texture, Rhythm/metre, Instrumental techniques.

We will be studying Baroque and Classical pieces during the first half term back.

### **Musical pen portrait**

On no more than one side of A4, please write about your musical life so far – please include instrumental teachers, grades passed, ensembles attended, and anything else you think we need to know about your musical life.

Please feel free to contact Mr Hird for any clarification of the above. We look forward to working with you in September.

### **Music Technology**

You will need to use the internet to help you research and prepare for this task. Your response may be presented in any form you wish (e.g. essay, PowerPoint presentation).

- a) Microphones have been used since the late 1800s to record sound. Describe and explain what a microphone does.

Answer the following questions in your response:

- How does a microphone capture sound?
- How does a microphone process sound?
- What sort of signal does a microphone send to a mixing desk or audio interface?
- What different types of microphone are there? (refer to at least **two**)
- What are these different types of microphone for?
- What is a polar pick up pattern?

b) How are different microphones used in the recording process?

For the second part of your response, give details on the following:

- How to record an upright piano
- How to record an acoustic guitar
- How to record a trumpet

Referring specifically to the following:

- type of microphone
- distance from the instrument
- polar pick up pattern of the microphone

This task should take approximately three hours in total to complete.

## **Physics See Appendix 6**

Rearranging equations

## **Philosophy and Ethics**

### Philosophy

Dawkins, Richard; The God Delusion

Wilson, Andrew; If God, Then What?

McGrath, Alister; The Dawkins Delusion

a) Do you agree with the challenges that Richard Dawkins gives of religion? Explain what you think is strong about his arguments and where he fails to be convincing, before coming to an overall conclusion about the success of his criticisms.

b) Use the arguments from Andrew Wilson to help provide counter arguments to Dawkins

c) What does Alister McGrath contribute to this discussion in his book 'The Dawkins Delusion'?

### Ethics:

- a) Give a summary of what Situation Ethics is, which was started by Joseph Fletcher.
- b) Research the arguments for and against euthanasia in this country. Write a page explaining both sides of the argument, before coming to an overall conclusion about which side you think is the stronger and the reasons why.
- c) Write a paragraph applying the theory of situation ethics to the issue of euthanasia and explain whether you agree or disagree with euthanasia.

### **Physical Education**

Outline a personal training programme designed for you and your chosen sport. Consider factors such as; methods of training, principles of training, exercise intensities, periodization. (max 1000 words).

### **Psychology**

- The Psychology Book by Nigel Benson
- 40 Studies that Changed Psychology by Roger R. Hock
- The Lucifer Effect by Philip Zimbardo

Pick an article or a classic study from one of the above books - describe and evaluate the issue/study, using psychological terminology. Max 500 words.

### **Sociology**

- A 1960s Childhood: From Thunderbirds to Beatlemania by Paul Feeney
- Chavs: The Demonization of the Working Class by Owen Jones
- Everyday Sexism by Laura Bates

Write a 500 word review of one of the books from a sociological perspective.

NB: You do not have to buy these books, most are available as Kindle books or in local libraries. These books are for part of a summer task and not required as core textbooks.

### **Spanish**

1. Speaking presentation based on a famous Spanish person. You will need to research this person and give a 2 minute presentation, in Spanish.
2. Research 25 facts that you find interesting about Spain, in Spanish.
3. Find the [muchomasquecine.com](http://muchomasquecine.com) website and make notes in English

### Wider Reading

If you are keen to read a book in Spanish, you can access a short stories parallel text book published by Penguin, there are copies in the Learning Centre.

Make yourself aware of the wide range of material on the internet in Spanish. A good starting place is [www.google.es](http://www.google.es).

Note down any interesting websites that might help you with specific topic areas.

**Appendices**Appendix 1 Business Studies

<b>Term</b>	<b>Definition</b>
ACAS	Advisory, Conciliation & Arbitration Service – an organisation which helps to settle disputes between workers and employers
Asset	Something valuable that the business owns e.g. a building
Balance Sheet	A statement showing all the assets and liabilities of a business at a given point in time.
Batch production	Production where one type of product is made and then production is switched to a different product
Break-even	The point at which total revenue is equal to total costs
Capacity	The highest level of production with the business' existing resources
Capital	Money invested into the business at start-up or in order to grow
Cash flow	The flow of money going into and out of a business over a period of time. This is NOT profit but records when money is paid in or out of the firm
Competition pricing	Prices similar to competitors products
Conglomerate	Merger or takeover of another business which is involved in a totally different business activity
Contribution	The difference between selling price and variable cost of one unit/ product
Co-operative	Independent producers work together and trade as though they are one large organisation
Creditors	People or organisations that are owed money e.g. bank/ suppliers
Current assets	Items which are owned by the business which tend to change value on a daily basis e.g. stock
Debenture	Long term fixed interest loan
Debtors	People or organisations that owe money to the business e.g. customers
Deficit	The amount of cash which a business is short of when expenditure is greater than income
Dividend	A part of the company's profit that is paid to shareholders
Economies of Scale	A result of a business growing, when the average cost of production is reduced
Exports	Goods and services which are sold from a country
Fixed assets	Items which can be used more than once and which tend not to change their value over time e.g. machinery
Fixed cost	A cost that does not change with the level of output



Franchise	A marketing arrangement which allows another business to use the brand image of an existing business
Gross Profit	Sales revenue minus the cost of sales
Hierarchy	The ranking of people in an organisation from higher levels to lower
Imports	Goods and services which a country buys from other countries
Income	Money received into the business from sales or money earned by an employee
Income tax	Tax paid to the government from earnings paid by the employee/ worker
Inflation	The rise in prices of an average "basket of goods" in the economy
Infrastructure	Basic services needed by a business to operate effectively e.g. roads, power
Insolvency	When a limited liability company's liabilities are greater than their assets i.e. it owes more than it owns
Interdependence	When one stage relies on another e.g. primary, secondary and tertiary sectors
Interest	An amount of money which has to be paid on borrowed money
Inward investment	When foreign businesses set up factories and offices in the UK
Just-in-time	Stocks of materials and components are not stored but used immediately they arrive at the factory
Lean production	A production system which helps ensure that waste is kept to a minimum
Liability	Debts owed by the business to others e.g. bank loan
Limited Liability	The owner of a business does not risk losing their personal possessions in order to pay off the debts of the business
Liquidity	The ability of a business to pay off its debts at short notice
Merger	Two or more firms that join together to make one larger firm
Merit goods	Goods that benefit individuals as well as society e.g. hospitals
Mixed economy	An economic system where there is both a private and a public sector
Monopoly	When a business controls more than 25% of the market share
Niche market	A small market for a specialised product
Oligopoly	A market dominated by a few firms
Opportunity cost	The cost of the next best alternative decision
Private Limited Company	A business owned by shareholders traded privately and has ltd. In its company name
Private sector	Businesses that are owned by individuals, not the government, and usually aim to make a profit
Profit	The difference between total revenue and total costs in a business
Profit Margin	The difference between the selling price and the cost, expressed as a percentage

Public Limited Company	A business owned by shareholders traded on the stock exchange publicly. It has plc in its company name
Public sector	Organisations that are owned and controlled by the government and aim to provide a service
Redundancy	When a job ceases to exist and the person is not needed in the business any more
Retained Profit	Profit which is kept back by the business to reinvest in future projects
Return on investment	The amount that a person or business receives for providing finance to a business
Revenue	Money coming into the business from sales
Satisficing	A business makes enough profit to meet the needs of its stakeholders, and not make as much profit as possible.
Shareholder	An investor who owns a share in an incorporated business
Subordinate	Workers that a manager is responsible for
Tariffs	Taxes placed on imports
Taxation (tax)	Money paid to the government from individual's earnings or a business' profit
Tertiary sector	The sector that provides services for consumers and businesses e.g. banking/retail
Trade Union	An organisation that represents the interests of workers
Turnover	Money from sales of products or services
Unlimited liability	Owners of the business are fully responsible to pay all the debts of the business
Variable costs	Costs that rise as the business increases the amount it produces e.g. raw materials

## Appendix 2 English Language

### **Why was six scared of seven?**

You do not have to read anything but it may harm your knowledge if you do not mention, when questioned, something you later rely on in conversation, anything you do read may be given in evidence to those who wish to challenge your views.

Have you read and accepted the terms and conditions?

Why don't you *sit* down, hand me that *gun* and I'll buy you a *gin*? Most of you will be puzzled by the italics. Well, probably all of you. Why are they there? What purpose do they serve? Each three letter word can be derived from the word 'linguist' and each word means something different. My point being, that a 'linguist' is a complicated concept to understand and often means something different depending on who you are.

Now, are you sitting comfortably? Then we shall begin. Once upon a time, in a not too far away land, there was a girl and everyone she met asked the same questions.

“Sorry, how do you pronounce your name? Kazia? Karshar Casia?” (And after countless attempts...)

“Phonetically it's 'Ka-sh-a'.”

“That's a lovely name, where does it come from?”

“Thank you, and it's a Polish name... Think of it as Kesha but with an 'a' or 'Asha' with a 'K'.”

Invariably, the conversation develops into one where people seize the name and juggle it in a pantomime act, searching for clever words and references to other things; for example, I have acquired a nickname of 'Kash' which, for some reason, the majority of people find it necessary to construct a joke relating to money ('cash') and without fail, explode with laughter. Yet this is not a mockery in the slightest, the laughter suggests satisfaction. Forming what seems a clever comparison between the meaning of words suggests people pride themselves in this ability – the ability to tease the power of English Language. There are so many names with so many meanings and so many references you can make... It intrigues me and is definitely the starting point of how I acquired my 'linguist' badge.

To describe language as a pint of beer would be a mahoosive understatement. In fact, it's nothing more than criminal that should have you chained to a metal post and bound with ropes and – well, maybe that's a little too far (unless you're tied up with *Fifty Shades of Grey*). Language, is like *Sex On A Beach*. By that, I mean the cocktail. A drink which is full of this and that... Some would ask for rum mixed with exotic fruits, others a whiskey with honey and spices. And, if your name happens to be James you may prefer yours shaken, not stirred. Language is so diverse, its capabilities are endless and once you are inspired by its power, your appreciation expands; you can do anything you want with words – a perfect challenge for a linguist. Your cocktail may consist of rum, gin, brandy and porter (if you happen to fancy some 'Hangman's Blood') with each ingredient representing something different – a noun or a verb perhaps - *you* choose its elements and then capture each flavour that explodes marvellously on your tongue, the feeling - sensational, delicious... the thrill of language. Your language.

You've probably guessed that the study of linguistics provides a fascination for me, and rightly so. Do you ever wonder, notice even, how our language changes depending on who we speak to?

If you guffawed, 'OMG! You're a linguist? Haha, LOL!' Quite frankly, I'd consider you as an embarrassment to my own intelligence and then congratulate myself for restraining to throw a dictionary at your head. Using such abbreviations within my immediate vicinity, a.k.a. my acute hearing range (which, just to warn you, is as powerful as that of a vampire) then it is likely I will unfriend you at once. After addressing your suspicion with “yes I am a linguist” I would feel every ounce of anger

overflowing in my body; a river that threatens to burst its banks as you reply with 'K'. Oh dear. That is a big no-no. How exactly am I supposed to reply to that? With 'L M N O P'?

But 'LOL' is by far the worse. If you feel the urge to express that you're in 'Lots Of Love' with me, I can assure you I think it would be pretty obvious without your spoken declaration. Of course, if your abbreviation meant 'Lots Of Love' you'd probably get laughed at. Caus m8, that's old school. If however, you meant it as 'Laughing Out Loud' I would be tempted to snatch the nearest chair, ready to throw it in your direction before managing to stop myself and, instead, resort to gnawing at one of its legs, taking the appearance of a savage animal. I suggest you run. Clearly, if you were laughing out loud you wouldn't have the time to say that blunt throwaway three lettered word, anyway. Despite the fact slang language – often known as 'text' talk – is highly irritating, as a linguist it's still wonderfully interesting to explore.

Most of us, however, are brought up around 'proper' English. Now, unless throughout your childhood you were locked up in a cupboard under the stairs, you will no doubt have heard this conversation.

“Miss, miss! I have a question!”

“Yes, what is it?”

“Why was six scared of seven?”

“I don't know Tommy. Why was six scared of seven?”

“Because seven, eight nine!”

Grammatically it is wrong though. Cleverly wrong. When I first heard this play on words I was amazed. The homophone of 'ate' and 'eight' is what makes the joke so spectacular and, still to this day, the concept is inspiring. Also, have you ever thought why, if a teacher is married, we don't chant “Mrs” when asking a question, but “Miss” instead? Yes, it's subtle, but being a linguistgeek I find the thought entertaining.

You may have heard some of my trills (yes, tweets) about **▣Punctuation matters▣** – it certainly does to a linguist. Take this advert: 'For sale - an antique desk suitable for lady with thick legs and large drawers.' Or: '3-year-old teacher needed for pre-school. Experience preferred.' What will they look for in this interview? Some child dressed in a suit and tie who has learnt, just about, to say their name? Punctuation is inextricably linked with language and if used incorrectly can be misleading; although one must admit, highly amusing too.

So, Language is everywhere: it is the body of life. Often, when you're watching one of those entertainment shows, language is used for suspense. After the nervous wannabe popstar manages to silence everyone with their booming voice, you wait. “I didn't like it” announces one of the judges, their expression unreadable, sending a Mexican wave of gasps around the auditorium. More silence – the kind that sends an unnerving chill through your body. You recognise the four words have negative associations. Then – in the best X Factor style – when every viewer has turned a dangerous shade of purple (from holding their breath in anticipation)... “I absolutely loved it!” PHEW. Your acquaintance of language is clear: you know these four words are complimentary and, releasing your curled fingers from the sofa, begin to relax. Language, in any form, is captivating.

Indeed, language has the power to affect our emotions, our perceptions and our judgements; it is an addiction that you can't run away from because it shapes our lives in many ways, it's just those of us who decide to become a linguist, are the ones who will challenge, explore and indeed, maximise its potential.

So why did you lie to me? You didn't read the terms and conditions because you didn't ask for them. Would you have continued reading if instead 'CONFIDENTIAL - PRIVATE' was displayed? Probably. Why?

Curiosity, most likely. But the truth is, they are just words.

Why I decided to become a linguist

English! It's a funny language isn't it? One of my favourite quotes is "English is a funny language; that explains why we park our car on the driveway and drive our car on the parkway". The other really interesting point of that quote is the American terms used in it. `Parkway` is a virtually alien word East of New York. That's what I love about English. Millions of users, well three hundred and seventy five million to be exact use it every day and we all add our own little flavour. How dull it would be if we didn't. A pessimistic view of English would be to say, it's a bundle of words put together to make the dialect we engage with each other. So why do I think being a linguist is so much more interesting than that?

"Thomas" That was my first word. You may ask why? Is my brother called Thomas? Was my best friend Thomas? Or was Thomas the Tank Engine my favourite Television show? If you thought the latter, you'd be correct. Yes it was a tiny; teeny bit more complex first word than Daddy or Mummy. Maybe it was a sign of things to come, I think not!

Other linguistic childhood memories include the first time I used posh joined-up writing and then showing it to every teacher in the school. Don't you find it funny that the word joined-up, is joined together with a hyphen? What fantastic irony. I'm getting sidetracked.

Enough of the memories, why have I decided to become a linguist? The main reason is that I want to learn how to write in a professional and formal manner, while still keeping audiences and readers awake! I thought this after reading a cricket article in a tabloid which shall be kept anonymous. Let's just say it didn't have the `sophistication` of The Guardian's report. I'll leave the writer nameless, but he was the Chief Correspondent of cricket for the unnamed paper.

The day's cricket has finished in The West Indies versus England Third test in Barbados. The article has a terrible headline and it gets worse. Two spelling mistakes followed, `Baeted` when it was meant to be `batted` and `Unpire`. The latter mistake, I wasn't sure if it was a type error or he actually thought umpire was spelt like that. I was disgusted already. I nearly took out the shotgun when he started the next three sentences and the second paragraph with `and then` to carry on the sentence. A complete wrong choice of adjective at the finish was the final nail in the coffin to a truly terrible piece. The report would make David Crystal shout in anger until the heavens heard his point.

The power of English is another reason why becoming a linguist was a choice I didn't take long thinking about. It's amazing how some writers can almost hypnotise you into their novel that it is virtually the only matter you can think of in the World. I would absolutely love to be able to do that myself, but maybe it isn't something you can be taught. Maybe, like David Crystal, you're born with it and it's your job to realise and fulfil that potential. English plays a monumental part of my everyday life and it would be ridiculous to not study about something which unlike others subjects, I will use all the time as I go through life.

It's followed me from nought to sixteen and from that time I've had no choice but to keep with it. Linguistics' hasn't finished with me yet and it will be a subject I am wholeheartedly looking forward to delve into more. Bring it on!

## Chapter 1

# Being a linguist

How, indeed? How did I get to be a linguist, a linguistics person, a linguist, a language geek? How does anybody? And what does 'being a linguist' mean, anyway? There's a problem here. The biographical bit will have to wait a chapter. Bear with me, while I go on about my subject for a bit.

It's not as if it's the most obvious label for a way of earning a living, after all. Indeed, it's a succulent irony that the very name of the profession which has come to be "known as 'the science of language' is itself ambiguous.

'What do you do?'

'I'm a linguist.'

'Ah. And how many languages do you speak?'

'Do you mean really fluently?'

'Of course.'

'Just one.'

'But you said you were a linguist!'

So I am, I am, but not in that sense. I would love to be fluent in many languages. As it happens, I can 'get by' in a number, but there's a world of difference between 'getting by' and 'being fluent'. Ordering a gin and tonic, or asking the way, is one thing. Carrying on a proper conversation about the local political scene is very much another. It's the vocabulary that's the killer. Getting a grasp of the basic grammar of a language, and learning to pronounce the sounds accurately, need not take too long. But vocabulary is the Everest of language. Memorizing the tens of thousands of words you need in order to hold your own in long conversations on variegated topics takes time, lots of it, and - unless you happen to have been brought up bilingual - a level of motivation and opportunity which is usually missing in Britain for all but a very lucky or very gifted few. How the multi-tongued record-holders of the past managed it is beyond me. Take the great Harold Williams, who died in 1928. He was a journalist — the foreign editor of *The Times* — said to have spoken fifty-eight languages fluently. He was apparently able to talk to all the delegates attending the League of Nations in their own language. Nobody else came anywhere near him. Fifty-eight languages! I wonder he ever managed to do anything else.

Being a linguist, in my sense of the word, evidently doesn't mean that you've managed to learn lots of foreign languages. But it does mean that you're interested time, lots of it, and - unless you happen to have been brought up bilingual - a level of motivation and opportunity which is usually missing in Britain for all but a very lucky or very gifted few. How the multi-tongued record-holders of the past managed it is beyond me. Take the great Harold Williams, who died in 1928. He was a journalist — the foreign editor of *The Times* — said to have spoken fifty-eight languages fluently. He was apparently able to talk to all the delegates attending the League of Nations in their own language. Nobody else came anywhere near him. Fifty-eight languages! I wonder he ever managed to do anything else.

Being a linguist, in my sense of the word, evidently doesn't mean that you've managed to learn lots of foreign languages. But it does mean that you're interested in them. All 6,000 or so of them. All languages that have ever been or ever could be. No, 'interested' is too mild. When you dip your toe into linguistics, you end up being enthralled, captivated, obsessed by languages. Because they are all around you (increasingly so, in an escalating multicultural world), their sounds, words, and sentences keep thrusting themselves on to your attention. You are surrounded by an ever-playing

linguistic orchestra. You cannot avoid listening, analysing, reflecting, comparing, contrasting, making notes. You delight in the diversity of the very sound of language. The pleasure must compare with that of a botanist in a garden full of the brightest flowers. Or of a bibliophile surrounded by antiquarian bookshops in a heaven like Hay-on-Wye. Except that you don't have to travel so far to enjoy the diversity of language. You just have to walk down the street, or go into a shop. You don't even have to leave home. On television every day there are more accents and dialects than Horatio would ever have dreamed of in his philosophy, and they are all calling out, 'I am interesting. Study me.'

And so you do. If you're a linguist. That's what linguists, in my sense, do. They revel in the variety of local accents and dialects. They are fascinated by the phenomenon of daily language change. They bathe happily in a warm sea of foreign tongues, and the more esoteric the better. They explore the upper orifices of the body to work out their phonetic capabilities. They marvel, along with everyone else, at the self-assuredness of the language-learning child, then try to understand how on earth such ability emerges so quickly, and what has gone wrong when it doesn't. They puzzle over how language must be represented in the brain. They try to work out what all languages have in common, to capture the essential identity within the very notion of 'language'. They speculate about the linguistic past, along with historians and archaeologists, and ruminate - especially after a glass or two - over how languages must have originated. After a third glass, they can develop opinions about what might be going on in the way non-human animals communicate, or even extra-terrestrials. They do not lack experience in such matters. Linguists were brought in to advise on the alien speech-forms in Star Wars. And arising out of Star Trek, there is a grammar and dictionary of Klingon.

There are certain quotations which all linguists use to show that they are literate human beings - most of them from Lewis Carroll. An instance comes to mind now; In *Through the Looking Glass* (Chapter 6), Alice meets one of the most hard-boiled linguists ever, who points out that there are 364 days of the year when people might get un-birthday presents.

'Certainly,' said Alice.

'And only one for birthday presents you know. There's glory for you!'

'I don't know what you mean by "glory",' Alice said.

Humpty Dumpty smiled contemptuously. 'Of course you don't - till I tell you. It means "there's a nice knock-down argument for you!"'

'But "glory" doesn't mean "a nice knock-down argument",' Alice objected.

'When I use a word,' Humpty Dumpty said, in rather a scornful tone, 'it means just what I choose it to mean - neither more nor less.'

The question is,' said Alice, 'whether you can make a word mean so many different things.'

'The question is,' said Humpty Dumpty, 'which is to be master - that's all.'

Master of Words. It sounds like a degree. And Humpty certainly claims to have his MW As he goes on to say:

They've a temper, some of them - particularly verbs: they're the proudest - adjectives you can do anything with, but not verbs - however, I can manage the whole lot of them!

Managing the whole lot of them. That's linguistics for you. And of course, not forgetting to tell the rest of the world what you discover when you become a word-manager. Because the things you find out are not just fascinating. They are also immensely useful to others.

But more of that later. What became plain to me, very early on in my close encounter with linguistics, is that being a wordmaster alters your behaviour, in the way you deal with words, sounds, and languages. To begin with, you discover you're not scared of them. And you find yourself going out of your way to try things out — enquiring about the time, when you don't really want to know, just to see if your pronunciation is intelligible, or if a sentence construction works. It's an indescribable thrill when you try out something in a new language for the first time, with foreigners who don't know you from Adam (or Eve), and realize that your freshly cooked mix of novel sounds does actually work as a tool of communication! There's also a different kind of thrill, when your interest takes you over and you end up the focus of attention. I went to a phonetics talk once, in which the speaker was discussing whether or not it's possible to make a sound by trilling the epiglottis (that's the flap which covers the windpipe when you're swallowing). Reflecting on the point, I tried it out repeatedly on a London underground station platform. I stopped when it dawned on me that everybody was avoiding eye contact, and nobody was standing near me anymore.

You also find yourself asking people questions about the way they use language - such as what their name means, or why their house is so called, or where their accent comes from. You don't plan it. The questions just sort of pop out. A woman telephoned me once about a new deal for car insurance, and asked to speak to my wife, who wasn't in. I took the message, and asked who it was from. She said her name was Aniela such- and-such. It came across as 'ann — ye — la'. 'You'll have to spell that,' I said, which she readily did. I'd never heard the name before. I know I should have just said thank you, and put the phone down. But linguists aren't made that way. 'That's an interesting name,' I remarked, adding — in case she thought it was a new kind of come-on — 'I study names.' Twenty minutes later, we ended the conversation, the car still uninsured, but both of us more knowledgeable.

Why twenty minutes? Five minutes to establish that she didn't know what Aniela meant, though she thought it was from her grandmother's side of the family, and she came from Poland, and she hoped one day to visit there, and so on and so on. Another five thumbing through various books on the origin of first names, with her holding on, until, yes, there it is, eventually finding it in Patrick Hanks and Flavia Hodges' excellent Dictionary of First Names. Of Polish origin, indeed — the Polish form of Angela, 'occasionally used in the English-speaking world'. I felt honoured: I had now met one of the occasions. But Aniela wanted to know more. What did *Angela* mean? Did it have anything to do with angels? That one I knew. *Angel* goes back to Greek *angelos*, which meant a messenger, I told her. She was delighted. She'd been a messenger in her first job, you see, and she thought this was highly significant. Then she wanted to know what her best friend's name meant, and her boss had an interesting name too ... As I say, twenty minutes before she remembered there were other things in life than etymology, and that she'd better get on with them. She went back to insurance sales. I went back to — well, etymology, as it happens.

It's often like that. Conversations tend to grow unchecked, when the topic turns to language. I think it's because everyone has an interest in it. Everyone has a name, an accent, a favourite word, a pet linguistic hate. Everyone has a linguistic history, and thus a story to tell. When it comes to language, everyone's equal. Everyone's an expert. And, to be sure, everyone is, having spent much of the first five years of life learning how to talk, and (for those lucky enough to get to school) much of the next five learning how to read. You don't have to have special qualifications or go in for special training in order to sound off about your language or to play a word-game show, like those where you have to fill the blank in a sentence. You don't even have to phone a friend. You just have to use your own linguistic intuition. You want to hate a word? Invent a new one? Fill a blank? Just do it. Go on. 'Spick and '?' 'They were green with '?



You already know the answers (if you speak English). The associations are there, deep within your brain. You just need to bring them to the surface, and (if you happen to be on TV at the time) without panicking.

Most people enjoy my interest, when they're on the receiving end of language questions. And I enjoy theirs. A few tell me to mind my own business (which of course, if I take the observation literally, is what I am doing anyway). But most end up asking questions in return, and are pleased to learn that there are books or websites which can answer many of them. I sometimes think I should be asking for commission for acting as an unofficial publisher's rep. Mind you, conversations can be dangerous things, if you're a linguist. It's a danger which can affect anyone, but linguists are especially prone. Accommodation is lying in wait to get them.

Now, I appreciate that what I've just said looks like one of those weird sentences linguists sometimes dream up to make a linguistic-Point. (I'll be talking about another one later - Chomsky's 'Colourless green ideas sleep furiously'.) But it does make sense. By 'accommodation' I do not mean the place where you live. This is accommodation in the sense of 'adaptation' - a notion that was discovered by sociolinguists, a species of colourful linguist that formerly flourished well only in the shade, but is now regularly encountered in new cultivars in sunnier and more prominent positions. I think it was one of the great linguistic discoveries of the twentieth century.

Sociolinguists study what happens to language when it is put to use in society. And one of the things they noticed was that when people talk to each other, something happens to the language they use. Imagine: I meet you, and we start talking. If we hit it off, and we start to enjoy one another's company, then one of the ways in which we unconsciously display this rapport is that our accents start to move towards each other. I begin to sound a bit like you, and you a bit like me. We 'accommodate' to each other. (If we don't hit it off, of course, then the opposite applies. I try to make myself sound as different from you as I can, and you from me).

It's not just accents. We start to share words, too, maybe bits of grammar. We even start looking a little like each other, adopting the same sort of facial expression or body posture. But accent is always the most noticeable thing, because it's there in everything we say. Everybody accommodates, to some extent, even if they don't realize they're doing it. It must be part of our evolutionary make-up, a way of showing a group who belongs to it. Some people, though — perhaps those with a good ear for accents, perhaps those with a specially sensitive personality — do it more noticeably than others. That's when it can get dangerous, and linguists are at risk more than most.

Linguists are professional accommodators, phonetic chameleons. My wife tells me that she can always tell who I'm talking to at the other end of the phone — or, at least, which part of the world they're from — by the accent I slip into. I accommodate within a few seconds, and (unless I remember to stop myself) totally. I have long learned to lie with the consequences. That is not a typo. I mean 'lie', not 'live'. I remember meeting a Scot at an arts conference a few years ago. He had a strong Glasgow accent. We were both involved in community arts centres, and in the meeting we both seemed to be in agreement about what needed to be done, if such centres were to survive in a world where successive British governments were rating the arts as a funding priority several levels below what was being allocated for waste disposal. We start to talk. Within seconds, I can sense my vowels turning into Billy Connolly. And I know it's only a matter of time until he asks the jugular question. Sure enough, he begins to stare at me:

'Are you from Glasgow?'

I now face a dilemma. Either I lie and say 'yes', in which case he asks 'Which part?' and I have to say 'I don't know', because I don't know Glasgow well — and then he hits me. Or I say 'no', in which case he asks 'What are you taking the piss out of my accent for, then?' — and then he hits me. Actually, I've been lucky, and never been hit. But I often get some funny looks. I did once try to

explain the concept of accommodation to a taxi-driver in Sheffield who insisted that I was from Leeds, because he was from there and he 'recognized the accent' — but it took so long and he got so interested that he missed the turning and I missed the train. So I now just say something vague, like 'Oh it's a great place, Edinburgh / Manchester / Birmingham / Melbourne...' and hope that this is enough to prompt a conversation about something else, such as the traffic problems.

At other times, you find yourself becoming a catalyst for all kinds of strange linguistic behaviour. You find yourself playing with the words of a language, to see what kind of effects you can create. Some people are amused by the word-play. Others cannot bear its awfulness. But most end up intrigued, and find themselves joining in. For everybody, deep down, is interested in what makes languages tick, and what happens when people tock. 'Catalyst' reminds me of one such occasion which was so punful that it ended up as the opening example in my book *Language Play*. I didn't start it, mind. It wasn't me, Miss. But there we were, Hilary and I, and Kim and Wendy from across the road. They'd not long moved into the house, and their cat, Crumble, and ours, Splash (both now, sadly, ex-cats, RIP), had been seen approaching each other warily outside the house. One of the group (it doesn't matter who, but it wasn't me) described the event as a 'catfrontation'. The level of groan suggested that this was an excellent pun. Too good to be left to die in peace. It was time to stir the pot, to see what came out. 'Near catastrophe, if you ask me,' I said. More groans. And then the gold-dust. Within a minute, there was a 'catalogue' of disasters, I was accused (correctly) of being a 'catalyst', Splash was diagnosed with 'catarrh', remarks were made about 'catechisms', and so it went on, until everyone ran out of 'cat-' words. Later, Ed McLachlan added 'catatonic' when he did a brilliant cartoon for the book to illustrate the occasion. Some people with their heads screwed on write books based on this kind of word-play. Ever seen Peter Gammond and Peter Clayton's *101 Things? A 'thing' in this context is a created being that looks a bit like an animated potato. 'Things ain't what they used to be' is illustrated on one page, and you see two of these manikins, elderly and with sticks, having trouble getting around. 'These things are sent to try us' is shown on another, and you see an ugly-looker in the dock, commenting on the arrival of two bewigged beings into the court. There are ninety-nine more like that.*

Linguistics, indeed, is what linguists do. But linguists can be as different from each other in their interests and personalities as the proverbial chalk is from cheese. So the subject needs a more judicious definition. 'The study of languages'? That's where it starts. But it doesn't stop there. Before too long we need to drop the -s. For the study of languages leads, inevitably, to the study of language. Language. Roll it round the tongue, and meditate on its meaning. A phenomenon, a behaviour, an ability, a faculty, a social fact. Something (no, 'thing' is wrong) which takes you above and beyond individual languages. Or maybe it should be below and within. It is such an abstract notion that writers try to pin it down with metaphors. And the metaphors are endless. My wife, Hilary, and I collected dozens when compiling *Words on Words*, a book of language quotations. Language has been called an instrument, a tool, an art, a symphony, a game, a city, a social force, a force for humanization. Roland Barthes called it a skin. Anthony Burgess 'a mouthful of air'.

For Ralph Waldo Emerson it was both 'fossil poetry' and the 'archives of history'. For Max Muller 'the autobiography of the human mind'. For Martin Heidegger, it was 'the house of being'.

The simplest definition of linguistics that I know is to say that it is 'the science of language'. It sounds dull, put like that, a long way from games and symphonies. But it is dull-sounding only to those who have not experienced the thrill of scientific enquiry — the drama of not knowing. Ignorance is a tension that has to be resolved. If you are scientific in temperament, it isn't a rational matter. You just have to know, to find out. Or, at least, you have to push knowledge to its limits, to find out what is findoutable. And that means being disciplined and thorough and systematic and humble and objective and experimental and all the other things that make a good scientist. It is a frame of mind which manifests itself in the smallest enterprises. Science is not just for the million-dollar projects. It

colours every enquiry, no matter how tiny. And every enquiry requires the same devotional energy, the same readiness to expend time.

### LINGUIST AS DETECTIVE

I was planning the section on personal names for *The Cambridge Encyclopedia of the English Language*, and needed some interesting names. I skimmed through a history book to see what I could find. 'Franklin D. Roosevelt', there was one. The 'D.' stood, for 'Delano'. Unusual. 'Harry S. Truman', there was another. And the 'S.' stood for \_\_\_? The book didn't say. Careless editor, I muttered. I found another reference book. 'S.' again. And after three or four more books, still just 'S.' My linguistic nose started to twitch. Something Was Up. They couldn't all be careless.

The 'S.' saga began. It was time to look for primary sources. Somebody's biography, perhaps? A few clicks of a mouse now, and the question is answered; but in 1992 it meant a trek to the local library and a trawl through a catalogue. Yes, there were several biographies of Harry S. Truman. Now it was reading time.

Nothing in the first book, nor in the second. Then, in Margaret Truman's biography, of her father bingo. I discovered that the 'S.' stood for - well, everything and nothing. She explained how Truman's grandfathers were called Solomon Young and Shippe Truman, commenting: 'Dad owed the middle initial in his name to both grandparents. To placate their touchy elders, his parents added an S, but studiously refrained from deciding whether it stood for Solomon or Shippe.'

In my book the report of this saga takes up just fifteen lines of a sidebar - a mere fifty words. Was it worth the effort? In all, it took about two full days of searching and reading. But I am as pleased with that result as with any lengthy article that might have taken a couple of days to write, for it has altered my understanding of language, in a small way. If you had asked me before, 'Must an initial in a person's name always stand for a name, and only one name?' I would have said 'Of course', as you would have. But not now. It proved to be an interesting exception. People are always doing unexpected things with language. It's just a question of their being master, that's all.

If you're a professional linguist, you're always on the lookout for unexpected developments, and you have to be prepared to spend time following up leads. Sometimes the leads don't take you anywhere. The 'S.' hunt might have been an awful waste of time, ending up with 'Simon' or 'Stanley' or some other unsurprising appellation. I know dead ends very well. I have a drawerful of them, chronicles of wasted time, which have never appeared in any of my books. But I don't throw them away. Never throw anything away. Today's dead end can be tomorrow's fresh pointer.

I love the sciences, and I love the arts too. It is the best of lives when you can deal in both, and linguistics lets you do just that. I can find myself working in the morning on a topic to do, say, with the anatomy and physiology of the vocal cords, and in the afternoon exploring the stylistic impact of an interesting word order in James Joyce. That's what makes linguistics really interesting for me, the way it cuts across the conventional boundaries. There are so many parallels between the sciences and the arts. Being a scientist is a way of looking at the world, just as being an artist is. Artists have often made use of scientific ways of thinking, in their creating process. And one of the most interesting developments in the twentieth century was the growing awareness that so many scientific discoveries come from the use of insights which are strikingly artistic in character. Peter Medawar even went so far as to call his famous book on the philosophy of science *The Art of the Soluble*. Certainly, being a linguist has brought me into contact with worlds I never dreamed I would enter when I started my degree course in English — acoustics, anatomy, medicine, education, psychology, sociology, anthropology, geography, mathematics, computer science, IT. All part of the professional world that linguists inhabit, as they explore the nature of language.

Language. The very word is like a bell ... I put it on a mental pedestal and view it from different angles, to try to grasp its totality. All I see is a multiplicity of angles, models, options, possibilities . . . stories. I see it interacting with lives, and with my own life, in a profusion of ways, some predictable, some unnervingly unpredictable. I can feel how central it is to everything people do. 'House of being' is exactly right. But it is mind-numbingly difficult to hold on to this vision, or to communicate it to others in such a way that all its facets are visible. It is at once stable and changing, unified and diverse, personal and social. Once I was asked to give a lecture on linguistics to a group of Fine Arts students at Reading University. It was part of a series where specialists on different subjects would lecture, and afterwards the students would draw or paint what they heard. I have a print of one of the offerings (see plate 2.3). It is a large square of blues and yellows, divided up into sixty-four smaller squares, eight by eight, like a chessboard. When I first saw it, I thought, yes, my point about language having a regular structure has got across. But then I looked more carefully, and began to feel dizzy. The picture seemed to be full of geometrical symmetries, but when I tried to plot them, they faded into randomness. A diagonal series of distinctive squares fails to meet in the middle. Cubes approach each other and intersect, some shaped like an L, some like an X, some like no imaginable letter shape. Double perspectives are everywhere. Look at the picture in one way and you see steps; look at it another way and you see boxes. The picture has no obvious orientation: any side can be the top. Different observers see different things in it, and in showing it to others anyone can make you see what they want you to see. Look at that pattern. A camel, perhaps, or a weasel? Or like a whale. Very like a whale. I had talked a lot about variations and changes and exceptions and deviations and idiosyncrasies in my lecture. The students had caught the key point perfectly. The tension between regularity and irregularity, between convention and deviation. That is what exists at the heart of language.

The story of language, like the story of Dylan Thomas's childhood, has no beginning and no end. A television series was made once called *The Story of English*. But there is no 'story' of English, or of any language. Rather, there are many stories, many perspectives, many points of view. And it is the same with language as a whole. No 'introduction' to linguistics says all there is to say about language, or says it in the way in which it might best be said. Individual linguists can only report their own perspectives, and they are all different. Each one has a personal tale to tell. This is mine.

Appendix 3 English LiteratureUnseen Love Poems

Read and annotate each poem in detail. Make close reference to the writer's methods.

Consider:

- Language
- Structure
- Key messages and ideas
- Literary techniques and devices
- Social/historical context.

You should conduct brief research around each poem

Appendix of poems1. Early seventeenth centuryDeath and Love: Ben Jonson

Though I am young, and cannot tell  
 Either what Death or Love is well,  
 Yet I have heard they both bear darts,  
 And both do aim at human hearts.  
 And then again, I have been told  
 Love wounds with heat, as Death with cold;  
 So that I fear they do but bring  
 Extremes to touch, and mean one thing.

As in a ruin we it call  
 One thing to be blown up, or fall;  
 Or to our end like way may have  
 By a flash of lightning, or a wave;  
 So Love's inflamèd shaft or brand  
 May kill as soon as Death's cold hand;  
 Except Love's fires the virtue have  
 To fright the frost out of the grave.

2. RestorationSong: Aphra Behn

LOVE in fantastic triumph sate  
 Whilst bleeding hearts around him flow'd,  
 For whom fresh pains he did create  
 And strange tyrannic power he show'd:  
 From thy bright eyes he took his fires,  
 Which round about in sport he hurl'd;  
 But 'twas from mine he took desires  
 Enough t' undo the amorous world.

From me he took his sighs and tears,  
 From thee his pride and cruelty; 10  
 From me his languishments and fears,  
 And every killing dart from thee.  
 Thus thou and I the god have arm'd  
 And set him up a deity;  
 But my poor heart alone is harm'd, 15  
 Whilst thine the victor is, and free!

### 3. The Romantics

#### To....: Percy Bysshe Shelley

One word is too often profaned  
 For me to profane it,  
 One feeling too falsely disdained  
 For thee to disdain it;  
 One hope is too like despair  
 For prudence to smother,  
 And pity from thee more dear  
 Than that from another.

I can give not what men call love,  
 But wilt thou accept not  
 The worship the heart lifts above  
 And the Heavens reject not,—  
 The desire of the moth for the star,  
 Of the night for the morrow,  
 The devotion to something afar  
 From the sphere of our sorrow?

### 4. The Victorians

#### To Marquerite: Matthew Arnold

Yes! in the sea of life enisled,  
 With echoing straits between us thrown,  
 Dotting the shoreless watery wild,  
 We mortal millions live *alone*.  
 The islands feel the encircling flow,  
 And then their endless bounds they know.

But when the moon their hollows lights,  
 And they are swept by balms of spring,  
 And in their glens, on starry nights,  
 The nightingales divinely sing;  
 And lovely notes, from shore to shore,  
 Across the sounds and channels pour—

Oh! then a longing like despair  
 Is to their farthest caverns sent;  
 For surely once, they feel, we were  
 Parts of a single continent!  
 Now round us spreads the watery plain—

Oh might our marges meet again!

Who order'd, that their longing's fire  
Should be, as soon as kindled, cool'd?  
Who renders vain their deep desire?—  
A God, a God their severance ruled!  
And bade betwixt their shores to be  
The unplumb'd, salt, estranging sea.

5. Early twentieth century

The Going: Thomas Hardy

Why did you give no hint that night  
That quickly after the morrow's dawn,  
And calmly, as if indifferent quite,  
You would close your term here, up and be gone  
Where I could not follow  
With wing of swallow  
To gain one glimpse of you ever anon!

Never to bid good-bye  
Or lip me the softest call,  
Or utter a wish for a word, while I  
Saw morning harden upon the wall,  
Unmoved, unknowing  
That your great going  
Had place that moment, and altered all.

Why do you make me leave the house  
And think for a breath it is you I see  
At the end of the alley of bending boughs  
Where so often at dusk you used to be;  
Till in darkening dankness  
The yawning blankness  
Of the perspective sickens me!

You were she who abode  
By those red-veined rocks far West,  
You were the swan-necked one who rode  
Along the beetling Beeny Crest,  
And, reining nigh me,  
Would muse and eye me,  
While Life unrolled us its very best.

Why, then, latterly did we not speak,  
Did we not think of those days long dead,  
And ere your vanishing strive to seek  
That time's renewal? We might have said,  
"In this bright spring weather  
We'll visit together  
Those places that once we visited."

Well, well! All's past amend,

Unchangeable. It must go.  
I seem but a dead man held on end  
To sink down soon. . . . O you could not know  
That such swift fleeing  
No soul foreseeing—  
Not even I—would undo me so!

6. Post Second World War

The Love Poem: Carol Ann Duffy

Till love exhausts itself, longs  
for the sleep of words -  
my mistress' eyes -  
to lie on a white sheet, at rest  
in the language -  
let me count the ways -  
or shrink to a phrase like an epitaph -  
come live  
with me -  
or fall from its own high cloud as syllables  
in a pool of verse -  
one hour with thee.  
Till love gives in and speaks  
in the whisper of art -  
dear heart,  
how like you this? -  
love's lips pursed to quotation marks  
kissing a line -  
look in thy heart  
and write -  
love's light fading, darkening,  
black as ink on a page -  
there is a garden  
in her face.  
Till love is all in the mind -  
O my America!  
my new-found land -  
or all in the pen  
in the writer's hand -  
behold, thou art fair -  
not there, except in a poem,  
known by heart like a prayer,  
both near and far,  
near and far -  
the desire of the moth  
for the star.



Appendix 4 Maths**Transition exercises**

You may not use a calculator for any question except for Q15.

Unless a question is trivial (i.e. it can be done in your head) clear working must be shown.

**1. Collecting like terms:**

Simplify the following expressions

a)  $x^3 + 2x^2 - 5x + 7x^2 + 3x - 4$       b)  $3x^2 + 6xy - 12x - 2xy + 6y^2 + 8y$

**2. Indices**

Evaluate (i.e. work out)

a)  $2^{-3}$       b)  $25^{\frac{1}{2}}$       c)  $\left(\frac{1}{3}\right)^{-2}$       d)  $49^{\frac{3}{2}}$

**3. Fractions**

Work out

a)  $\frac{3}{4} + \frac{1}{3}$       b)  $5\frac{1}{3} - 3\frac{1}{2}$       c)  $2\frac{2}{3} \times \frac{1}{4}$       d)  $5\frac{1}{3} \div 2\frac{1}{4}$

**4. Laws of Indices**

Simplify the following expressions

a)  $\frac{2^5 \times 2^9}{(2^3)^5}$       b)  $4x^3 \times 2x^5$       c)  $(3a)^3$       g)  $(-2p^2q^3)^4$       h)  $\frac{2x^2y^3z \times 6x^4yz^3}{(9xy^4z^2)^2}$

**5. Changing the subject of a formula**

Make the variable shown in brackets the subject

a)  $v = u + at$       ( $a$ )      b)  $s = \frac{1}{2}(u + v)t$       ( $v$ )      c)  $A = 2\pi r^2 + 2\pi rh$       ( $h$ )

**6. Expanding brackets**

Multiply out and simplify

a)  $6(2x + 3)$       b)  $2xy^2(3x - 5y)$       c)  $5y(4 - 3x) - 2x(3 - 2y)$

d)  $(x+7)(x-7)$       e)  $(2x+y)(2-3y)$

**7. Factorising expressions**

Factorise fully

a)  $7x+21$       b)  $3ab-12b$       c)  $7x^2y+21x^3y^2$       d)  $30xy+6x^2-15x$

**8. Algebraic fractions**

Simplify these fractions as far as possible

a)  $\frac{8x+6}{2x-4}$       b)  $\frac{3x^2+6x}{2x+4}$

Express as a single fraction

c)  $3 + \frac{2}{x}$       d)  $\frac{1}{x+1} + \frac{3}{x-3}$

**9. Factorising quadratic expressions**

Factorise

a)  $x^2+9x+20$       b)  $x^2-12x+35$       c)  $y^2-2y-63$       d)  $a^2-6a-16$

e)  $2x^2+3x+1$       f)  $x^2-9$       g)  $9x^2-25y^2$

**10. Solving quadratic equations**

Solve the following equations

a)  $x^2+15x+54=0$       b)  $t^2-3t-40=0$       c)  $7a-6a^2+20=0$       d)  $x+1=\frac{6}{x}$

**11. Solving quadratic equations**

Solve the following equations giving your answer in surd form

a)  $x^2+12x+20=0$       b)  $2t^2-9t+4=0$

**12. Surds**

Write the following in the form  $a\sqrt{b}$

a)  $\sqrt{44}$

b)  $\sqrt{320}$

c)  $\sqrt{75}$

d)  $\sqrt{\frac{27}{16}}$

**13. Surds**

Write each of the following as a single surd in its simplest form

a)  $4\sqrt{7} - 3\sqrt{7} + 6\sqrt{7}$

b)  $4\sqrt{2} - \sqrt{50} + \sqrt{98}$

c)  $\sqrt{3}(7 + 2\sqrt{3})$

d)  $(\sqrt{7} - \sqrt{3})(\sqrt{7} + \sqrt{3})$

**14. Solving Simultaneous equations**

Solve each of the following pairs of simultaneous equations

a) 
$$\begin{aligned} 2x + 3y &= 10 \\ 5x + 2y &= 3 \end{aligned}$$

b) 
$$\begin{aligned} 8x + 4y &= 5 \\ 6x - 8y &= 1 \end{aligned}$$

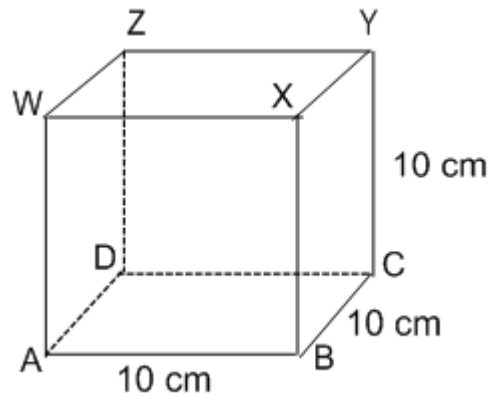
c) 
$$\begin{aligned} y &= x^2 - x - 6 \\ y &= x + 2 \end{aligned}$$

**15. Trigonometry**

a) The figure shows a cube of 10cm Calculate

(i) the length AC

(ii) the angle YAC.



b) In the triangle ABC  $AB = 7\text{cm}$ ,  $AC = 5\text{cm}$  and the angle  $BAC = 35^\circ$ . Calculate the length BC, giving your answer to 1d.p.

**True or False?**

- |    |  |      |       |
|----|--|------|-------|
| 1  | All prime numbers are odd numbers  | True | False |
| 2  | Every positive integer greater than 10 has an even number of factors   | True | False |
| 3  | If $x^2 = x$ , then x must be the number 1   | True | False |
| 4  | If we add a given number to both the numerator and denominator of a fraction, then the new fraction is equivalent to the original fraction | True | False |
| 5  | If both the numerator and denominator of a fraction are squared, then the new fraction is equivalent to the original fraction              | True | False |
| 6  | $a \times (b \times c) = (a \times b) \times c$  | True | False |
| 7  | $a \div (b \div c) = (a \div b) \div c$  | True | False |
| 8  | If a quadrilateral has exactly 2 lines of symmetry, then it must be a rectangle  | True | False |
| 9  | Except for 1, no cube number is also a square number   | True | False |
| 10 | $x^2$ is never equal to $5x + 14$  | True | False |
| 11 | If m and n are positive integers, then $6m + 4n + 13$ is odd   | True | False |
| 12 | A polygon having all its sides equal is a regular polygon  | True | False |
| 13 | If $a^2 = 7^2$ then a must equal 7   | True | False |
| 14 | $\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c}$  | True | False |
| 15 | $\frac{a}{b+c} = \frac{a}{b} + \frac{a}{c}$  | True | False |
| 16 | $a \times (b + c) = ab + ac$   | True | False |
| 17 | $a \times (b \times c) = ab \times ac$   | True | False |
| 18 | $(a + b)^2 = a^2 + b^2$  | True | False |
| 19 | $\sqrt{x+y} = \sqrt{x} + \sqrt{y}$   | True | False |
| 20 | $x^2$ is never less than x   | True | False |

21	$(a + b)(c + d) = ac + bd$	True	False
22	$2^x$ is always positive	True	False
23	A triangle has sides 7 cm, 22 cm and 23 cm; it contains a right angle	True	False
24	There is exactly one point which lies on both of the straight lines $y = \frac{1}{2}x + 5$ and $x - 2y = 3$	True	False
25	If the number $x$ is increased by 8.3% and the result is then decreased by 8.3% then the final answer is $x$	True	False
26	If the product of two numbers is 8 one of the numbers must be 8	True	False
27	If the product of two numbers is 0 one of the numbers must be 0	True	False
28	A pyramid has 5 faces, 8 edges and 5 vertices	True	False
29	The number 133! (the number obtained by working out the product $1 \times 2 \times 3 \times 4 \times 5 \dots \times 132 \times 133$ ) ends in a zero	True	False
30	$(-6)^2 = 36$		

Appendix 5 Physics

Rearrange equations to find the following symbols. You may have to do the calculations on rough paper. Note, some are harder than others – do all that you can. The following website may help:

<http://www.khanacademy.org/math/algebra/solving-linear-equationsand-inequalities/v/rearrange-formulas-to-isolate-specific-variables>

$F_x = F \cos(\theta)$	$F = \frac{F_x}{\cos(\theta)}$	$= \cos^{-1}\left(\frac{F_x}{F}\right)$	
$F_y = F \sin(\theta)$	$F =$	$\theta =$	
$a = \frac{\Delta v}{\Delta t}$	$\Delta v =$	$\Delta t =$	
$v = u + at$	$a =$	$u =$	$t =$
$s = \frac{1}{2}(u + v)t$	$u =$	$v =$	$t =$
$s = ut + \frac{1}{2}at^2$	$u =$	$a =$	

$v^2 = u^2 + 2as$	$u =$	$a =$	$s =$
$F = ma$	$m = \frac{F}{a}$		$a =$

$W = mg$	$m =$	$g = \frac{W}{m}$
$moment = Fx$	$F =$	$x =$
$Torque = Fd$	$F =$	$d =$
$\rho = \frac{m}{V}$	$m =$	$V =$
$\rho = \frac{F}{A}$	$F =$	$A =$
$W = Fx\cos(\theta)$	$F =$	$x =$
$E_k = \frac{1}{2}mv^2$	$m =$	$v =$

$E_p = mgh$	$m =$	$g =$	$h =$
$F = kx$	$k =$	$x =$	
$E = \frac{1}{2}Fx$	$F =$	$x =$	
$E = \frac{1}{2}kx^2$	$k =$	$x = \sqrt{\frac{2E}{k}}$	
$stress = \frac{F}{A}$	$F = A \times stress$	$A =$	
$strain = \frac{x}{L}$	$x =$	$L =$	
$Young\ modulus = \frac{stress}{strain}$	$stress =$	$strain =$	



**Trigonometry**

THE FOLLOWING WEBSITES MAY HELP:

<http://www.khanacademy.org/math/trigonometry/v/basic-trigonometry>

<http://www.khanacademy.org/math/trigonometry/v/basic-trigonometryii>

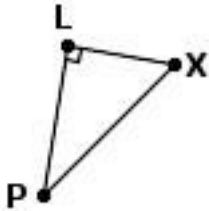
**Using the calculator****Finding one side of the triangle**

$\cos(73^\circ) =$	$\sin(73^\circ) =$	$\tan(73^\circ)$ =	
$\cos(74.5^\circ) =$	$\sin(33^\circ) =$	$\tan(57^\circ)$ =	
$\cos(0^\circ) =$	$\cos(0^\circ) =$	$\tan(90^\circ)$ =	
$\tan^{-1}(0.54) =$	$\cos^{-1}(0.9)$ =	$\sin^{-1}(0.4) =$	

$$\tan^{-1}(0) =$$

$$\sin^{-1}(0.2) =$$

$$\cos^{-1}(0.54) =$$

Find  $x$ 

$$\angle X = 54.25^\circ$$

$$PL = x$$

$$PX = 17.62m$$

Find  $x$ 

$$\angle N = 33.06^\circ$$

$$NY = x$$

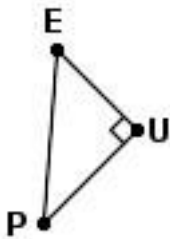
$$YC = 5.4 \text{ mm}$$

Find  $x$ 

$$\angle C = 52.67^\circ$$

$$TY = 5.9 \text{ N}$$

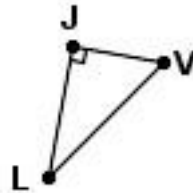
$$CY = x$$

Find  $x$ 

$$\angle E = 49.42^\circ$$

$$PU = 12.25 \text{ km}$$

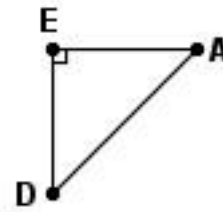
$$PE = x$$

Find  $x$ 

$$\angle V = 55.05^\circ$$

$$VJ = 5.8 \text{ ms}^{-1}$$

$$LJ = x$$

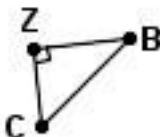
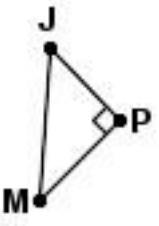
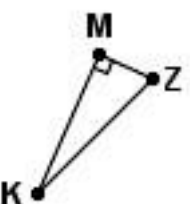
Find  $x$ 

$$\angle A = 44.99^\circ$$

$$AE = 13.5 \text{ N}$$

$$DA = x$$

### Finding an angle

<p>Find <math>\cos(B)</math> and then calculate <math>B</math></p>  <p><math>BZ = 6\text{cm}</math></p> <p><math>CB = 7.68\text{cm}</math></p> <p><math>CZ = 4.8\text{cm}</math></p>	<p>Find <math>\sin(M)</math> and then calculate <math>M</math></p>  <p><math>MP = 10.5\text{km}</math></p> <p><math>MJ = 13.99\text{km}</math></p> <p><math>PJ = 9.25\text{km}</math></p>	<p>Find <math>\tan(Z)</math> and then calculate <math>Z</math></p>  <p><math>KM = 5.7\text{m}</math></p> <p><math>ZM = 2.2\text{m}</math></p> <p><math>KZ = 6.11\text{m}</math></p>
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### Section 2 Research

Observations from Young's Double Slit Experiment and the Photoelectric Effect form the basis of some fundamentally very important concepts in Physics. Research these and write about each one, giving details of relevant experiments, results and conclusions. Why can the photoelectric effect not be explained by using conventional wave theory, and why was it such a ground breaking experiment?



## Appendix 6 music

## King Edward VI School Music Department

## pre-A level Music Theory Worksheets

These worksheets are designed to give us an idea of your current fluency with Music Theory and to give you an idea of the level at which you will work in Music A level. The course is designed to build on the grounding in Music Theory you will have through your instrumental or vocal lessons, and GCSE Music course.

Please have a go at all sections, and, if you get stuck, try researching a solution by asking a teacher, or looking online, perhaps using the keywords: clefs, keys, chords, inversions, modulations, non-harmonic notes.

Good luck!

**SURVIVAL KIT**

Memorise the following key signatures:

C major  
A minor

G major  
E minor

D major  
B minor

A major  
F# minor

E major  
C# minor

F major  
D minor

B $\flat$  major  
G minor

E $\flat$  major  
C minor

A $\flat$  major  
F minor

Make sure you know the technical names for each step of the scale:

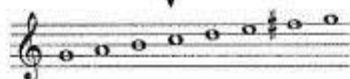
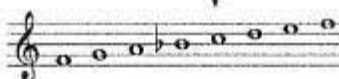
C MAJOR: Tonic I    Supertonic II    Mediant III    Subdominant IV    Dominant V    Submediant VI    Leading note VII    Tonic I

## MODULATION

If music always stayed in the key it started in it would be rather boring to listen to. Most pieces move to a new key at some point even though it will usually work its way back to the original key by the end of the piece. This is called **modulation**. The word **modulation** comes from the Latin verb **to adjust**.

The easiest way to change key is by using a **pivot chord**. A pivot chord is one that is found in both the old key and the new key. The C major tonic chord based on the note C could also be seen as the dominant chord in F major, or the subdominant chord in G major. If you wanted to move to the key of G from C major you could treat the C major chord as the subdominant in the new key. Use this chord to then move to the dominant in the new key (a D major chord). From there you can move easily to the tonic chord of G.

See how the note C relates to the different keys in the scales below.

Tonic in C	Subdominant in G	Dominant in F
↓	↓	↓
		

Study the extract below and see how Bach changes the key from **A major** to **E Major** by using the **dominant chord** in A major (E major) as the **tonic chord** in the new key. By adding in the D sharps which are found in the new key, Bach fixes E major as the new tonic key. Introducing flats or sharps that are found in the new key are a great clue to modulation. Write them down in order to help you work out the new key.



Work out what key this piece modulates to before returning to the original key.

Key: Key: Key: 


## PASSING AND AUXILIARY NOTES

A **passing note** as the name suggests doesn't form a part of a chord it just passes between notes which are found in the harmony chords, linking them together. Passing notes are usually found on the weak beats of the bar and move by step. The passing note always falls between two notes moving in the same direction and can occur in any voice part.

○ = passing note

Bach

An **accented passing note** falls on the strong beat of the bar but **unaccented passing notes** which fall on the weak beat of the bar are more commonly used.

**unaccented  
passing note**

**accented  
passing note**

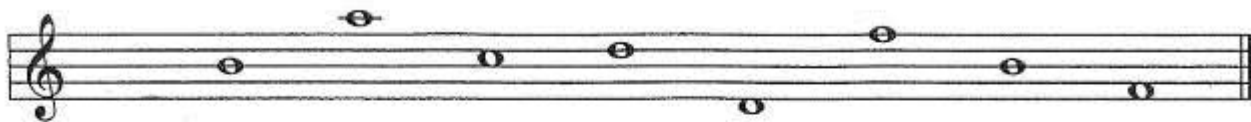
An **auxiliary note** is written between two notes of the same name. An upper auxiliary note moves one step higher than the original note and then returns to it and a lower auxiliary note moves one step lower than the original note and then returns to it. An auxiliary note can either move a tone or a semitone.

**upper  
auxiliary notes**

**lower  
auxiliary notes**

**Find the passing and auxiliary notes in the extract below. Write P for the passing notes and A for the auxiliary notes.**

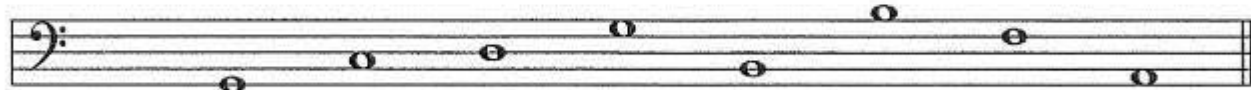
Name the following notes in the treble, bass, alto and tenor clefs:



— — — — — — — — —



— — — — — — — — —



— — — — — — — — —

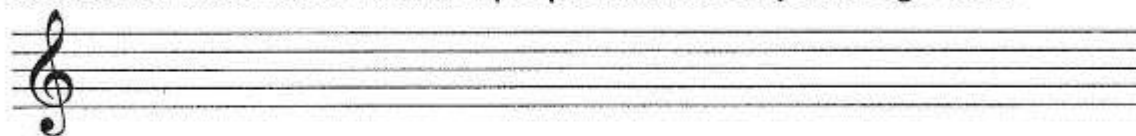


— — — — — — — — —



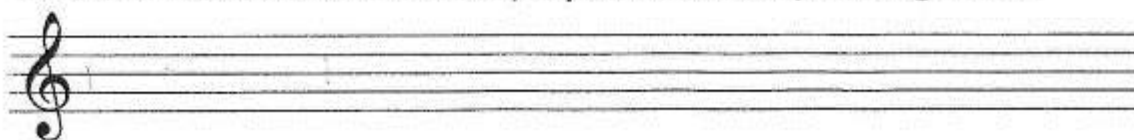
— — — — — — — — —

*Now rewrite these notes in treble clef at pitch. Watch out for the leger lines!*



— — — — — — — — —

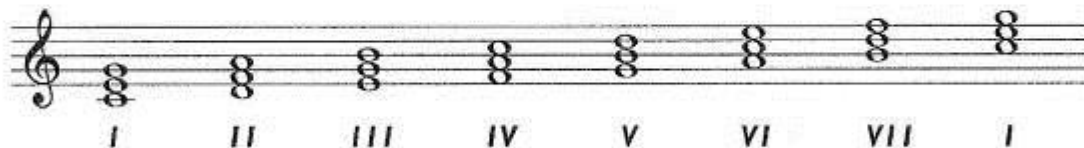
*Now rewrite these notes in treble clef at pitch. Watch out for the leger lines!*



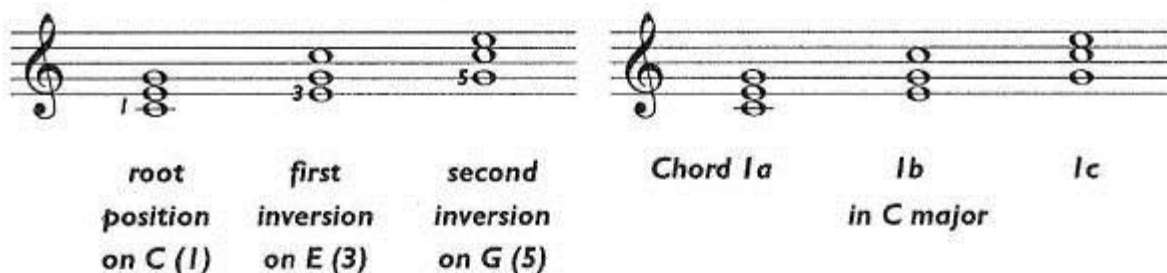


## CHORD INVERSION

A **chord** is a group of three or more notes played together. Three notes played together form what is known as a **triad**. There is a triad for every note in every scale. These triads are made up from the starting note plus the note a third above, plus the note a fifth above the starting note. Below you can see the triads formed in the key of C major.








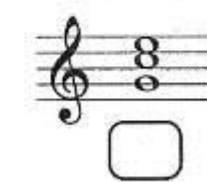


When you play a piece of music the notes of the triad are not always arranged in the same order. This is called **inversion**. If you look at chord **I** in C major there are three main positions for the notes. These three positions are called root position, first inversion and second inversion. If you are using Roman numerals these positions become **a**, **b** and **c**. The important note when working out the inversion is the bottom note as this tells you which inversion the chord is in. Check whether it starts on note 1, 3 or 5 of the chord.



Sometimes when writing a chord in root position the **a** is dropped as everyone knows it is a root position chord. In the chord above it would be equally correct just to write **I** rather than **Ia**.

**Try to work out these chord positions. Write them down in Roman numerals. The first one is done for you. They are all in the key of C major.**

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Appendix 7 EconomicsScarcity and Choice

The central problem in economics is how to best allocate scarce resources to satisfy unlimited wants.

- Scarcity in economics means that there are \_\_\_\_\_

---

- There are unlimited wants because \_\_\_\_\_

---

In economics, 2 types of goods are identified:

- Economic goods are \_\_\_\_\_

---

- Free goods are \_\_\_\_\_

---

Opportunity Cost

- Opportunity cost is the \_\_\_\_\_

---

**Production**

- Production is the process by which \_\_\_\_\_
- 

- Output can be categorized as:

(a) Goods, things that are \_\_\_\_\_

and that can be divided into:

- Consumer durables \_\_\_\_\_

- Consumables \_\_\_\_\_

(b) Services, things that are \_\_\_\_\_

**Learner Activity**

Identify 4 examples of both consumer durables and consumables

Consumer Durable	Consumable


All resources in economics (i.e. the factors of production) represent the inputs firms have to use in the production process. Resources can be put into 4 categories:

- Land \_\_\_\_\_
- 

- Labour \_\_\_\_\_
- 

- Capital \_\_\_\_\_
- 

- Enterprise \_\_\_\_\_
- 

Give examples of each factor of production use to

1. Service a car
2. Sell beer in a pub
3. Promote a music festival

	Land	Labour	Capital	Enterprise
Service a car				
Sell beer				
Promote a music festival				

The maximum output a country can produce therefore depends on:

- The quantity of the factors of production

or

- The quality of the factors of production

**Increasing the Quantity of the Factors of Production**

Identify under each heading, how each factor of production can be increase in quantity.

Land	Labour	Capital	Enterprise

**Increasing the Quality of the Factors of Production**

Identify under each heading, how each factor of production can be increase in quality.

Land	Labour	Capital	Enterprise

**Scarcity and Choice – Glossary**

**Scarcity =** \_\_\_\_\_

\_\_\_\_\_

**Unlimited wants =** \_\_\_\_\_

\_\_\_\_\_

**Economic goods =** \_\_\_\_\_

\_\_\_\_\_

**Free goods =** \_\_\_\_\_

\_\_\_\_\_

**Opportunity cost =** \_\_\_\_\_

\_\_\_\_\_

---

Consumer durable = \_\_\_\_\_

\_\_\_\_\_

Consumable = \_\_\_\_\_

\_\_\_\_\_

Factors of production = \_\_\_\_\_

\_\_\_\_\_