

Sixth Form Preparation Work



Lower Sixth Preparation Work

Dear Student/Parent,

I hope that your GCSE examinations have gone well and that you are starting to enjoy a well-deserved summer holiday! Whilst September may seem a long way off it is important that you are fully prepared for your Sixth Form studies in order that you can start as you mean to go on and achieve of your best during the year.

In order to start in the best manner possible you will find contained in this booklet preparation material which must be undertaken before starting the Sixth Form in September. The reading and other source materials will enable you to commence your studies with background knowledge to allow you to take a full part in lessons. It's essential that this work is done in timely fashion to ensure you set off on your Sixth Form career with the best approach! You should only undertake the work for those subjects you have opted for in the Lower Sixth! Should you change your mind in the light of GCSE results you will need to discuss this with Mr Anderson and I and then, if a change is possible, you will need to undertake the preparation material for that subject contained in this booklet.

Whilst preparation work is important it is also essential that you ensure you rest and relax over the summer to ready yourself for the challenges of the Sixth Form – it's not easy, but it's extremely rewarding - and I look forward to welcoming you into the Sixth Form at WGS in September.

Yours sincerely,

Toby Hughes, Deputy Head

Art and Design

We re-tweet art news stories at @WGSArt - follow us. Some excellent shorts on exhibitions and artists:

- www.youtube.com/user/nationalgalleryuk
- www.youtube.com/user/tate

Biology

The following are useful sites for the Lower Sixth topic on evolution. They will provide some interesting background to this topic. Read and enjoy!

- humanorigins.si.edu/research (Smithsonian National museum)
- www.newscientist.com/topic/human-evolution
- www.nature.com/scitable/knowledge/library/overview-of-homini-evolution-89010983

The book 'The Incredible Unlikelihood Of Being: Evolution and the Making of Us' by Dr Alice Roberts will also be useful.

Business Studies

Please read through the following weblinks and presentations:

[Generating Business Ideas for a Startup](#)

[Enterprise Skills](#)

[Franchising by Startups](#)

[Business Planning for a New Business](#)

[Innovation & Invention for New Businesses](#)

[Objectives of New Businesses](#)

[Adding Value & the Transformation Process](#)

[Basics of Profit](#)

[Cash Flow Forecasting for a Startup](#)

[Cost Basics](#)

Chemistry

These are general articles on topical issues in Chemistry at the moment.

An article highlighting the effects of global warming on the Earth:

environment.nationalgeographic.com/environment/global-warming/gw-effects/

An interesting read into how scientists are checking potential greenhouse gas and radioactive emissions from the hydraulic fracturing of shale:

www.rsc.org/eic/2016/05/exploring-uk-fracking-emissions-concerns

An article about how different separation techniques in chromatography are used in the real world:

www.rsc.org/eic/2016/05/chromatography-separation-scaling-peak

General A level chemistry guide – this could be useful to get key words etc:

www.chemguide.co.uk/index.html#top

Plus Chemistry Challenge document: wgs.org.uk/wp-content/uploads/2015/01/Chemistry-Quiz-Everything-You-Need-To-Know-1.pdf

Classical Civilisation

Module: Odyssey

Read Homer's Epic Poem, The Odyssey (it will be necessary to collect a copy of this from the department). Here are a couple of links to online copies:

www.poetryintranslation.com/PITBR/Greek/Odyssey1.htm

www.perseus.tufts.edu/hopper/text?doc=Perseus%3atext%3a1999.01.0136

Research Greek Myths:

- The wedding of Peleus and Thetis
- The judgement of Paris
- The Trojan War
- Achilles
- Agamemnon
- Menelaus
- Helen
- Paris
- Oral Poetry
- Greece in the Dark Age
- You may also wish to read The Iliad, but this is optional.

Module: Athenian Democracy OR Greek Architecture and Sculpture

You can choose which of these two modules we study! The nature of Athenian Democracy will be to research and discover how democracy came into being and how it was implemented in Athenian society. To prepare for this can you find definitions for the following terms:

- Monarchy
- Oligarchy
- Tyranny
- Anarchy
- Stasis
- Timocracy
- Thalassocracy

Try reading any comedy by Aristophanes. Lots available on line or ebooks for free – be warned, they are a bit (a lot) rude!

Greek Architecture and Sculpture

This module is a critical study of significant aspects of the development of Greek public buildings in the sixth, fifth and fourth centuries BC, and the development of free-standing and architectural sculpture in the same period.

Get onto Google and try searching for:

- the fifth century temples and Propylaea of the Athenian Acropolis
- the Temples of Hera and Zeus, and the Philippeion at Olympia
- the Tholos at Epidauros
- the temples at Bassae and Paestum

and maybe:

- the New York kouros; Berlin kore, Anavyssos kouros, Peplos kore, Kritios Boy, Tyrannicides, Charioteer from
- Delphi, Zeus / Poseidon from Artemision, Riace Warriors, Myron's Diskobolos, Polykleitos' Doryphoros,
- Paionios' Nike at Olympia, Kephisodotos' Eirene and Ploutos, Praxiteles' Hermes and Dionysos, Apollo
- Sauroktonos and Knidian Aphrodite, Marathon Boy, and Lysippos' Apoxyomenos

Just for fun:

www.youtube.com/watch?v=C6sRammQ9fY

Design Technology

Please read the pdf which can be downloaded from the following link - This will form the basis of a Product Investigation Task. <http://www.jamesdysonfoundation.co.uk/resources/engineering-box-teachers-pack/>

Economics

Please read through the following weblinks and presentations:

[What is Economics?](#)

[Scarcity and Choices](#)

[Positive and Normative Statements](#)

[Private Goods](#)

[Public Bads](#)

[Public Goods](#)

[Factors of Production](#)

[Production Possibility Frontier](#)

[Opportunity Cost](#)

[Economic Systems](#)

English Language

The History of the English Language: vimeo.com/18044093

A fascinating film from 1943 exploring the multicultural roots of the language we speak today.

www.bristol.ac.uk/arts/exercises/grammar/grammar_tutorial/

You will need a good working knowledge of how grammar works in English, so aim to complete a range of these exercises to test yourself.

Texting by David Crystal: www.davidcrystal.com/?fileid=-4116

A PDF extract from one of the legendary David Crystal's books on English. This analyses and explores the idea of texting, messaging and abbreviation in society.

English Literature

Video SparkNotes: Orwell's 1984 Summary: <https://www.youtube.com/watch?v=h9JIKngJnCU>

A not too intellectual introduction to the text. Useful to get your head round the text's broad ideas.

Gradesaver - <http://www.gradesaver.com/1984> After watching the above video, read the summary and research around this study guide site: it's pretty good

If you can watch a film version of the text, that would be good: the 1984 version (!) with John Hurt is excellent, as is the 1956 version with Edmond O'Brien. The last one is a looser version of the text, but was made right at the time, effectively, that Orwell wrote it, ie at the time of totalitarianism in Russia and the legacy of Hitler's fascism fresh in people's minds, whilst London was still rubble and war torn in many parts, and there was much austerity.

Read a couple of summaries of The Handmaid's Tale from either:

Shmoop - <http://www.shmoop.com/handmaids-tale/literary-devices.html> (American, a bit jokey and informal, but some sharp points) or:

Cliffs Notes - <https://www.cliffsnotes.com/literature/h/the-handmaids-tale/critical-essays/literary-analysis-of-the-handmaids-tale> (Safe, reliable, not bad), or:

Sparknotes - <http://www.sparknotes.com/lit/handmaid/> (like Cliffs Notes, safe, reliable and sensible)

Gradesaver - <http://www.gradesaver.com/the-handmaids-tale> (academically, the best of the lot)

French

Use the links below to have an understanding of francophone culture both in France and across the world. Print out one article from each printed source and provide a summary in English (100 words max) noting 10 words of vocabulary - French to English. For the radio and TV sources, you must provide a summary in French of 100 words max. Hand in to SFB/CMU as appropriate.

Le Monde - articles relating to immigration, social and political issues - click on specific tabs for articles:

www.lemonde.fr/societe/

BBC World News - articles relating to francophone African topical issues: <http://www.bbc.com/afrique>

France 24 for TV news clips - use tabs to hone in on other francophone countries, culture or specific topics: www.france24.com/fr/

Regional French news for Brittany: www.ouest-france.fr/

Geography

<http://learn.arcgis.com/en/projects/get-started-with-arcgis-online/>

Follow the link above and work through the online lessons. This will give you the vital tools to start using this software in your studies. Arcgis is intended to be your 'Go to GIS tool' to access a huge range of data sets, maps etc. It will also be an integral part of your Independent Investigation.

German

Use the links below to refresh your German knowledge over the summer. Regular work of a small duration will pay dividends. Keep a record of what you've done and make a list of at least 10 new words you come across in each section.

Listen regularly to the news in German using the following website. The news in German – spoken very slowly: <http://www.dw.com/de/21062016-langsam-gesprochene-nachrichten/a-19344842>

Read some interesting articles about German food and drink: <https://www.alumniportal-deutschland.org/deutschland/essen-trinken/>

Learn a little more about the federal states in Germany and how German is organised: <http://www.lernspass-fuer-kinder.de/themen-uebersicht/bundeslaender/>

Learn German with someone else – this is a great website for independent learning, for the sheer love of speaking and learning German. Set up a free account and off you go! Los geht's !

[Deutsch für dich](http://www.goethe.de) - Goethe institute

Read a beautifully illustrated children's ebook: <http://www.childrensbooksforever.com/childrenpages/German1.html>

If you have an iPad download the following Apps- Newshound (from linguascope) and Fluent U. We would also like you to borrow a German film from the school library – or watch one on Netflix/ Amazon film and write a brief resume of it, so that we can discuss them during the first lesson back.

Government and Politics

Please read material on the following websites in preparation for discussions in class:

www.tutor2u.net/politics/presentations/introduction-to-as-politics/default.html

www.parliament.uk/

www.whatispolitics.co.uk/

www.huffingtonpost.co.uk/

www.private-eye.co.uk/

History

English History: wgs.org.uk/wp-content/uploads/2015/01/English-History.pdf

Russian history 1917-1930

www.bbc.co.uk/programmes/p02h7dlv

www.documentarytube.com/videos/the-russian-revolution

alphahistory.com/russianrevolution/russian-revolution-topics/

spartacus-educational.com/Russian-Revolution.htm

twitter.com/revoltingrussia?ref_src=twsrc%5Etfw

ICT

Please watch the BBC Click! programme on iPlayer regarding new technologies and developments in ICT and Computing and keep up with developments through this programme throughout the summer.

www.bbc.co.uk/programmes/b006m9r

Mathematics

You are asked to review some key topics from GCSE. Below, you will find some typical questions and a link to a website which may help if you have forgotten how to do them. Other websites are available, and you could also use MyMaths if you have and remember an ID.

1) Write down each of these in fraction form:

- a) 5^{-3} b) 6^{-1} c) w^{-2} d) t^{-3} e) $4p^{-4}$ f) $\frac{1}{4}m^{-1}$

2) Change each fraction into index form:

- a) $\frac{7}{x^3}$ b) $\frac{3}{5q^2}$

3) Evaluate the following without a calculator:

- a) 5^0 b) 3^{-2} c) $27^{\frac{1}{3}}$ d) $9^{-\frac{1}{2}}$ e) $8^{\frac{2}{3}}$

4) Simplify each of the following surds into the form $a\sqrt{b}$:

- a) $\sqrt{18}$ b) $\sqrt{24}$ c) $\sqrt{12}$ d) $\sqrt{50}$

5) Simplify the following:

- a) $\left(\frac{\sqrt{3}}{2}\right)^2$ b) $\left(\frac{\sqrt{8}}{2}\right)^2$ c) $2\sqrt{45} \times 3\sqrt{3}$

Quadratic Expressions <http://www.mathcentre.ac.uk/resources/workbooks/mathcentre/web-factorisingquadratics.pdf>

Expanding Brackets

6) Multiply out and simplify the following:

- a) $(5m - 2)(2m + 3)$ b) $(4k - 7)(2k - 1)$ c) $(x + 4)^2$
d) $(t - 5)^2$ e) $(y - 5)(y + 5)$

Factorising Quadratic Expressions

7) Factorise the following:

- a) $x^2 + 5x + 6$ b) $a^2 + 8a + 12$ c) $t^2 - 18t + 32$
d) $w^2 - 4w - 12$ e) $x^2 - x - 90$ f) $2x^2 + 5x + 2$
g) $3x^2 + 7x + 2$ h) $2x^2 + 3x - 9$ i) $3t^2 - 10t - 25$

Difference of two squares

8) Factorise the following:

- a) $x^2 - 9$ b) $49 - y^2$ c) $9u^2 - 1$

Solving Quadratic Equations

9) Rearrange the following quadratic equations into the standard format and solve them by factorising:

a) $x^2 - x = 42$

b) $8x(x + 1) = 30$

c) $(x + 1)(x - 2) = 40$

Using the Formula: <http://www.bbc.co.uk/education/guides/z3f8jxs/revision/3>

10) Solve the following equations using the quadratic formula. Give your answers to 2 decimal places.

a) $2x^2 + x - 8 = 0$

b) $x^2 - x - 10 = 0$

c) $3x^2 = 7 - x$

Simultaneous Equations <http://www.bbc.co.uk/education/guides/zgydq6f/revision>

11) Solve the following simultaneous equations:

a) $5x + 2y = 20$
 $4x + 3y = 23$

b) $5x - 3y = 11$
 $2x + 4y = 20$

c) $3x - 2y = 15$
 $2x - 3y = 5$

Rearranging Formulae [http://www.bbc.co.uk/education/guides/z8xbcdm/revision/4Algebraic fractions:](http://www.bbc.co.uk/education/guides/z8xbcdm/revision/4Algebraic%20fractions)

(and following page)

12) Make x the subject of the formula:

a) $\frac{m + ax}{b} = t$

b) $\frac{g(hx - r)}{p} = y$

c) $q - \frac{u}{x} = 8$

Algebraic fractions <http://www.bbc.co.uk/education/guides/zx3cwmn/revision/1>

13) Simplify the following fractions by factorising:

a) $\frac{6x - 2x^2}{2x}$

b) $\frac{x^2 - 81}{x + 9}$

c) $\frac{x^2 + 2x - 3}{4x - 4}$

If you have time, it would also be helpful to look up:

Straight Line Graphs

https://www.mathsisfun.com/equation_of_line.html

Sine/Cosine Rule

<http://www.bbc.co.uk/education/guides/zq4w7ty/revision/7>

(and the following two pages)

Music

To prepare for Music A-level please watch and listen to the following (many of these are available through YouTube): Watch the film “Amadeus”

Listen to:

- Beethoven Symphony no 6
- Berlioz Symphonie Fantastique
- Stravinsky “Firebird Suite”
- Prokofiev “Romeo and Juliet”
- Mozart Flute concerto
- Elgar cello concerto
- Bach Magnificat
-

Physical Education

Anatomy and Physiology – please read the following:

www.brianmac.co.uk

Select from the left hand menu:

... Article library > training > conditioning - read the article titled ‘How does stretching affect an athlete’s performance

... Article library > training > physiology- read the article titled ‘Get to know your muscle fibres’

..... Article library > training > nutrition - read the article titled ‘Food for thought’

Please use YouTube for the following materials:

- (1) [Olympics 2012 - the importance of Sports Psychology](#)
- (2) [Jose Mourinho - The Special One Documentary](#)

Physics

www.particleadventure.org/standard-model.html

Please look through the following 3 sections:-

What is fundamental?

What is the world made of?

What holds it together?

Psychology

www.psychotron.org.uk is an excellent site and 'Psychology Latest' is downloadable as a free app.

Prospective Psychology students will be immeasurably finer individuals if elements of the following books are read (they do not need to be purchased):

- Oliver Sacks - The man who mistook his wife for a hat
- Bruce Hood - Supersense
- Desmond Morris - The Naked Ape
- Lauren Slater - Opening Skinner's Box

Religious Studies

Click on the 'Ideas' tab to find out about the historical roots and key beliefs of Judaism

[Judaism 101](#)

Get a basic introduction to Ethics and their potential pitfalls.

www.youtube.com/watch?v=Zv9rQ-2YFs0

Put an ethical dilemma into this and work out the best thing to do.

[Making an Ethical Decision](#)

Find out about one of the most significant religious people in Philosophy of Religion

www.youtube.com/watch?v=Mz_iGGGMddw&list=PLMXBOYcuqu_YF6ug3bf1Q9NuUPVwoFhi3

Find out about a significant atheist thinker in Philosophy of Religion

www.youtube.com/watch?v=r3QZ2Ko-FOg

Read some of the articles from here to find out about some key arguments in Philosophy of Religion

www.philosophyofreligion.info/

60 second adventures in thought - A simple summary of large philosophical questions -

www.youtube.com/watch?v=5zVaFjSxAZs

Theatre Studies

Please use the Digital Theatre Plus streaming service, which WGS subscribes to, in order to view at least two plays.

You should go to the digital theatre plus website (www.digitaltheatreplus.com/) then logon using ihmt@wgs-sch.net and the password ityler123 (please do not share login details with others as the account is limited to a maximum of 10 users).

Please watch: The Crucible and As You Like it.

Extension work is watching Into The Woods as well as the interviews with actors, designers and directors associated with these productions.





Wolverhampton Grammar School
Compton Road
Wolverhampton
WV3 9RB
01902 421326

www.wgs.org.uk

🐦 @WGS1512

📘 Wolverhampton Grammar School Official

📺 Wolverhampton Grammar School

👤 Wolverhampton Grammar School (WGS) Old Wulfrunians and Friends