WEL COME TO CGA!

INFORMATION BOOKLET AND
COURSE PREPARATION GUIDE

GET AHEAD OF THE GAME

SUBJECT SPECIFIC INFORMATION SO YOU CAN HIT THE GROUND RUNNING

CONTENTS

APPLIED SCIENCE - BTEC

Please use the subject preparation guides for Biology, Chemistry & Physics

BIOLOGY

Prepare for Year 12 by:

Task 1: Find a biology-based story that has appeared, either in the mainstream news or a science journal within the last 12 months. Research the science behind the story and be prepared to discuss what you have found upon your return in September.

Task 2: Revise the following GCSE topics: cell structure, cell division, enzymes, classification and evolution.

Additional Resources:

Visit: The Society of Biology: **www.societyofbiology.org**

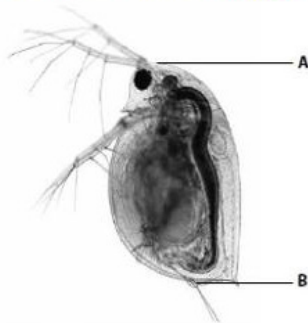**Read:** The selfish gene *by Richard Dawkins*, Eureka! & other stories *by Adrian Berry.*

Listen: Radio 4 podcast 'The Infinite Monkey Cage' *with Brian Cox and Robin Ince.*

Find: Any science/biology journals you can access, for example 'Biological science review' or 'New Scientist'.

Summer holiday task:

Task 1

10. A student investigated the effect of temperature on the heart rate of *Daphnia*.

Magnification ×60

(a) Use the lines A to B to calculate the actual length of this *Daphnia*. (2)

Answer ....

(b) The student used five *Daphnia* in the investigation.
The *Daphnia's* heartbeats were counted over a 20-second period.
A stopwatch was used and a pencil mark made on a piece of paper while observing the *Daphnia* through a low powered microscope.
The number of heartbeats was counted three times for each *Daphnia*.
This was repeated at five different temperatures using the same *Daphnia* each time.
This was then repeated using the four other *Daphnia*.
The results obtained are shown in the table below.

| Daphnia | Heart rate / beats in 20 seconds | | | | | | | | | | | | | | |
	5°C			10°C			15°C			20°C			25°C		
1	20	18	19	30	26	29	36	35	36	42	45	44	53	47	53
2	22	23	19	36	32	29	36	39	34	42	46	42	50	51	63
3	16	18	20	26	30	27	35	33	36	39	41	40	58	52	50
4	19	22	21	30	32	35	38	36	37	45	46	42	62	62	58
5	20	25	21	35	32	34	36	39	38	44	48	42	52	55	59

(ii) The mean heart rate at 5 °C is 20.2 beats in 20 seconds. Calculate how many times faster the mean heart rate is at 25 °C than at 5°C. (2)

(2)

Answer ....

Task 2

Discuss the importance of nitrogen-containing substances in biological systems.

Refer to all of the ideas below:

- nucleic acids
- DNA replication
- ATP
- ribosomes
- cell division
- transport across membranes
- immune response
- digestion and absorption
- haemoglobin
- genes and chromosomes
- protein synthesis
- mutation
- investigating diversity
- photosynthesis
- respiration
- nitrogen cycle
- nervous coordination
- muscles
- control of blood glucose (and peptide/protein hormones)
- inheritance
- alteration of DNA sequences
- regulation of transcription and translation

BUSINESS STUDIES

Prepare for Year 12 by:

The task is designed to help you develop some of the skills you will need to study Business. Specifically, the ability to take notes effectively, research information from a variety of sources, and identify and summarise key points. The aim is also to give you a background in some of the key areas that underpin teaching of Business and the likely tasks that you are going to be asked to complete whilst studying it. This work should be completed as a detailed set of notes. It should be explained in your own words - not cut and pasted from the Internet.

You are expected to research your business and then write that up in your own words. You should list all the sources e.g. the websites you have used to get this information. This needs to be a detailed piece of work.

Task 1: Carry out an investigation into two contrasting types of business organisation from different sectors (you could choose one in the private sector and one in the public sector or voluntary sector). You should consider stakeholder influence in the two organisations, and your report should focus on:

- Business activity: local, national & global
- Business sector
- Business purpose
- Ownership of the business
- Key stakeholders of the business

Task 2: You work as a junior journalist for the local newspaper, which is planning to run a feature article on local businesses. Produce an article on two local, contrasting businesses, covering:

- Purpose
- Ownership organisational structure

Task 3: Explain the range of market research methods used by one of your selected business. Your word document must include the following:

1. Select one business
2. Explain what is market research and the purpose of conducting market research
3. Explain the range of market research methods used by the selected business
   - You should aim to cover the full range of methods used by the business but at the very least this must include at least two primary and two secondary methods of research.
   - Throughout your explanation you should provide examples of how the research is used.
4. Explain the difference between quantitative and qualitative data, give examples in relation to your business.
5. Explain the internal and external resources available to the selected business; give examples in relation to your business.

CHEMISTRY

Prepare for Year 12 by:

Task 1: Find a chemistry-based story that has appeared, either in the mainstream news or a science journal within the last 12 months. Research the science behind the story and be prepared to discuss what you have found upon your return in September.

Task 2: Revise the following GCSE topics: mole calculations, relative formula masses, calculating empirical formulae, percentage yield calculation, balancing equations and writing formulae.

Additional Resources:

Visit: The Royal Society of Chemistry: **www.rsc.org**

Read: A Short History of Nearly Everything *by Bill Bryson.*

Sign up: Make sure you sign up to Chemnet (free): **http://my.rsc.org/chemnet**

Find: Any science/biology journals you can access, for example 'Nature' or 'New Scientist'.

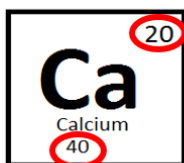## Summer holiday task:

Subatomic particles:

TASK 1:

- Complete the table

Particle	Mass	Charge	Where in the atom is it found?
Electron			
Proton			
Neutron			

TASK 2:

- What do the highlighted numbers tell you about an atom?

Ca
Calcium
20
40

Isotopes:

Isotopes are elements of an atom which have the same number of protons and electrons but a different number of neutrons. This leads to the mass number of the atom changing.

TASK 3:

- Why do isotopes of the same element still have the same chemical properties?

Relative atomic mass (RAM):

The relative atomic mass of an element shows its mass compared with the mass of atoms of carbon.

To work out the relative atomic mass of any substance we use the following equation:

$$RAM = \frac{(\% \text{ of isotope 1} \times \text{mass of isotope 1}) + (\% \text{ of isotope 2} \times \text{mass of isotope 2})...}{100}$$

TASK 1:

- Name the isotopes with the following numbers of protons and neutrons in their nuclei e.g. 2 protons and 2 neutrons gives the answer helium -4.

   A. 1 proton and 2 neutrons
   B. 5 protons and 6 neutrons
   C. 15 protons and 16 neutrons
   D. 18 protons and 22 neutrons
   E. 27 protons and 33 neutrons
   F. 35 protons and 44 neutrons
   G. 38 protons and 52 neutrons
   H. 55 protons and 82 neutrons
   I. 90 protons and 142 neutrons
   J. 95 protons and 146 neutrons

TASK 2:

- Complete the table to show the numbers of protons and neutron in each isotope:

Isotope	Nº Protons	Nº Neutrons
Carbon - 12		
Carbon -13		
Technetium - 99		
Iodine - 131		
Polonium - 210		
Uranium - 233	92	
Rutherfordium -260		

CHEMISTRY

Summer holiday task:

TASK 1:

- Complete the following:
  - Magnesium has the following natural isotopes. ^{24}Mg 78.6%, ^{25}Mg 10.1% and ^{26}Mg 11.3%. Calculate the relative atomic mass of magnesium.

- Complete the table to find the values that are '?':

Element	Atomic mass	Isotope 1	Isotope 2	Isotope 3	Isotope 4
Bromine	?	^{79}Br 50.5%	^{81}Br 49.5%	n/a	n/a
Cerium	140.2	^{136}Ce 0.2%	^{138}Ce 0.2%	^{140}Ce 88.5%	$^{?}Ce$ 11.1%

Ions:

Atoms that have lost or gained electrons to gain a full outer shell.

TASK 2:

- Write half equations to show how each of the ions turn into ions.

Ionic Bonding:

An ionic compound is made when a metal atom transfers it's electron/s to a non-metal. This makes a positive metal ion and a negative non-metal ion. An ionic compound consists of positive metal ions and negative non-metal ions coming together. In any ionic compound, the total number of positive charges and negative charges must equal.

TASK 1:

- Write the formula for each of the ionic compounds that are formed when each of the ions in the table react with each other:

Ion	Li$^+$	Na$^+$	K$^+$	Mg^{2+}	Ca^{2+}	Ba^{2+}
F$^-$						
Cl$^-$						
Br$^-$						
O^{2-}						
S^{2-}						

TASK 2:

- Use the molecular ions in table below to write the name and formula of the compounds made when each of these were to react with sodium, with calcium and with aluminium.

Negative molecular ions	
hydroxide	OH$^-$
nitrate	NO$_3^-$
sulfate	SO$_4^{2-}$
carbonate	CO$_3^{2-}$

TASK 3:

- Complete the following:
  - Draw the dot cross diagram for aluminium oxide and write it's formula
  - The phosphate ion has the formula PO$_4^{3-}$, write the formulas for the compounds it would produce with lithium, calcium, aluminium and the ammonium ion (NH$_4^+$).
  - Why do ionic compounds have high melting and boiling points?
  - Why do they conduct electricity when they are dissolved in water or molten but not when they are a solid?
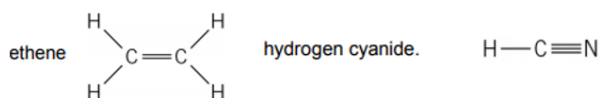
Covalent compounds:

A covalent bond is formed between non-metal atoms, which combine together by sharing electrons. One shared pair of electrons is a single covalent bond. Two shared pairs are a double bond etc...

TASK 1:

- Draw dot cross diagrams for the following elements and compounds – draw the displayed formula and give the molecular formula too:
  - Fluorine
  - Hydrogen chloride
  - Nitrogen
  - Water
  - Methane (made of carbon and hydrogen atoms)
  - Phosphine (made from phosphorous and hydrogen atoms)
  - Hydrogen sulphide

TASK 2:

- Using the displayed formula, daw the dot-cross diagrams:

TASK 3:

- Complete the following:
  - Silane is a gas that has molecules resembling those of methane (CH$_4$) but with the carbon atoms replaced by silicon atoms. Draw a dot and cross diagram of silane.
  - Draw a dot-cross diagram for trichloromethane, CHCl$_3$.

TASK 4:

- Draw dot-cross diagrams for the following:
  - C$_2$H$_6$ ethane
  - C$_2$H$_2$ ethyne

TASk 5:

Explain how covalent bonds are different to ionic bonds.

Moles

When we are given the mass and formula for a substance we can use the following equation to work out moles:

$$\text{Moles (mol)} = \text{Mass (g)} / \text{Molar or atomic mass (g/mol)}$$

When we are given the concentration and volume of a solution we can use the following equation to work out moles:

$$\text{Moles (mol)} = \text{concentration (mol/dm}^3\text{)/volume (dm}^3\text{)}$$

We can work out the moles of a gas using the molar gas volume. This tells us the volume per mole of gas molecules at a stated temperature and pressure. At room temperature and pressure the molar gas volume is 24 dm^3 or 24 000 cm^3.

$$\text{Moles (mol)} = \text{volume (dm}^3\text{)} / 24 \text{ dm}^3$$

TASK 1:

- Calculate the number of moles of each of the following substances. Give your answers to 3 sig figs.
  - 90.0 g of H$_2$O
  - 20.0 g of C$_4$H$_{10}$
  - 685 g of NH$_3$
  - 102 tons of O$_2$
  - 2.00 kg of Al$_2$O$_3$

- Calculate the mass of each of the following substances. Give your answers to 3 sig figs.
  - 4.00 moles of N$_2$
  - 0.100 moles of HNO$_3$
  - 0.0200 moles of K$_2$O
  - d) 2.50 moles of PH$_3$
  - e) 0.400 moles of C$_2$H$_5$OH
  - f) 10.0 moles of Ca(OH)$_2$

- Calculate the RFM of:
  - 0.0200 moles of a compound is found to have a mass of 1.64 g. Find the formula mass of the compound. Give your answers to 3 sig figs.

DRAMA & THEATRE STUDIES

Prepare for Year 12 by:

Task 1:

Research into two of the following theatre companies/practitioners:

Artaud

Berkoff

Splendid

Boal

Punch Drunk

Frantic Assembly.

Task 2:

Produce a handout for each of your chosen companies or practitioners summarising your findings on their ethos, style, method and performance content. Ensure you write your findings in your own words.

ECONOMICS

Prepare for Year 12 by:

Task 1: Read an article on one of the following:

- New economic data
- Employment
- Stock market
- Commodities
- National debt
- Business sectors
- Retirement
- Inflation
- Bankruptcies
- Currencies
- News about specific companies
- Bonds
- Consumer spending
- Financial crimes
- Taxes
- Banking
- Startups
- New products or technology
- Real estate
- Cost of Higher Education
- Global economics
- The Federal Reserve
- Poverty
- Government budgets
- Economic theory/history

Write two paragraphs. The first will be a summary of the article. The second will be your own analysis of the information within the article, including how it impacts you, what it tells you about larger trends, predictions, and what you found most interesting.

Below your two paragraphs you must find the definitions for two words from the article that you are not familiar with. If you are familiar with literally every word of the article, then choose the two words that you think are the least well-understood by most people.

Task 2: Visit the Bank of England Museum (free) to find out about how our economy works and the power of money. *Bank of England, Threadneedle Street, London EC2R 8AH. Open Monday to Friday 10.00am - 5.00pm (last entry 4.45pm).*

Task 3: Find out more about careers available in economics and business by watching interviews with successful professionals and entrepreneurs on icloud.com: http//icloud.com/watch-career-videos/bysubject/?ref=ecv

Task 4: Download the Guardian app (free) or read the latest article on business and the UK on the Guardian website: http://www.theguardian.com/uk/business

Task 5: Visit your local library or charity shop to see what economics and business books are available. Ones to look out for include: Freakonomics and Superfreakonomics, The Black Swan, Globalisation and its Discontents, Why Markets Fail.

ECONOMICS

Summer holiday tasks:

Your mission, which you have no choice to accept ….

For your project, you are required to write a report regarding the impact of Brexit on the UK economy.

You will need to complete the following tasks:

Introduction (Knowledge)

1.   You are required to explain the difference between micro and macro economics
2.   You are required to explain what the basic economic problem is
3.   What is Brexit?

Research and analysis

1.   Analyse the statistics in each of the attached areas
a.   Growth (Growth rates, size of economy, growth per head, prediction, economist forecast)
b.   Inflation and interest rates (CPI, input prices, shop prices, central bank, mortgage cost)
c.   Labour market (numbers in work, proportions out of work, pay, productivity)

2.   Write a summary of 3 points from each data set.
·   https://ig.ft.com/sites/numbers/economies/uk (The UK economy at a glance) Financial times

Application and Evaluation

1.   Read the articles and write a summary which answers the following questions: (2000 words)
       Evaluate the impact of Brexit on the following Sectors:
a)   Aviation (AirBus)   (https://www.bbc.co.uk/news/uk-wales-44567870)
b)   Manufacturing   (https://www.forbes.com/sites/timworstall/2017/06/05/brexit-effects-uk-manufacturing-
       output-and- exports-up-as-pound-falls/#48a021e30abc)
c)   Farming (https://www.bbc.co.uk/news/business-41570648)

2.
a)   Impact on cost
b)   Impact on recruitment
c)   Impact trade

3.   Summarise the report in 4 slides one for each area with no more than 6 points for each slide (be ready to
       present.
       Conclude: Give your opinion on whether you think Brexit is good or bad for the economy.

ENGLISH LITERATURE

Prepare for Year 12 by:

We expect all our Year 12 students to have read some of the texts on the list below and be ready to make an oral presentation on one of the texts. If you are unable to do this, then A Level English Literature is not for you.

Those with an asterisks (*) are of particular importance and may be studied or referenced during the course of study.

General reading list:

Carver, Raymond: Will You Please Be Quiet, Please?

Bronte, Charlotte: Jane Eyre

***Bronte, Emily: Wuthering Heights**

Chopin, Kate: The Awakening

McCabe, Patrick: The Butcher Boy

Pierce, DBC: Vernon God Little

***Salinger, J.D.:** The Catcher in the Rye

Acheme, Chinua: Things Fall Apart

Conrad, Joseph: Heart of Darkness

Adiche, Chimamanda: Half of a Yellow Sun; Americaanah

Dickens, Charles: David Copperfield; Great Expectations

Adams, Douglas: The Hitch-hiker's Guide to the Galaxy

Allende, Isabel: The House of Spirits

Eliot, George: The Mill on the Floss

Amis, Kingsley: Lucky Jim

Angelou, Maya: I Know Why The Caged Bird Sings

***Atwood, Margaret:** The Handmaid's Tale

Faulks, Sebastian: Birdsong

Austen, Jane: Pride and Prejudice

Forster, E.M.: Passage to India; Room with a View

Ballard, J.G.: Empire of the Sun

Banks, Iain: The Wasp Factory

Fowles, John: The French Lieutenant's Woman

Gaskell, Elizabeth: Wives and Daughters, Cranford

Bernieres, Louis de: Captain Correlli's Madolin, Birds Without Wings

Golding, William: Lord of the Flies, Spire

Gordimer, Nadine: Burger's Daughter, July's People

Hardy, Thomas: Tess of the D'Urbervilles

Ishiguro, Kazuo: The Remains of the Day

Lee, Harper: To Kill a Mockingbird

McEwan, Ian: Atonement

Boyd, William: Brazaville Beach

***Hardy, Thomas: Tess of the D'Urbervilles**

Du Maurier, Daphne: Rebecca

Swift, Graham: Waterland

Kesey, Kay: One Flew Over the Cuckoo's Nest

Roy, Arundhati: The God of Small Things

Stockett, Kathryn: The Help

***Walker, Alice: The Colour Purple**

***Winterson, Jeanette: Oranges are Not the Only Fruit**

***Yates, Richard: Revolutionary Road**

Plath, Sylvia: The Bell Jar

Summer holiday task:

Task 1: Present on one of the books recommended in the above reading list.

ENGLISH LITERATURE

Summer holiday task:

Task 2: Romeo & Juliet Extract:
In this extract, which is taken from Act 1, Romeo sees and speaks to Juliet for the first time.

Analyse how aspects of love are presented in the passage below. In your response please consider:
How the author's methods shape meaning; context; any similarities to texts you have previously read/studied (e.g. theme of love at first sight/imagery etc.)

Please spend at least one hour reading, analysing and making notes before you answer the question above.

Act 1, Scene 5: Lines 43-119
ROMEO
O, she doth teach the torches to burn bright!
It seems she hangs upon the cheek of night
Like a rich jewel in an Ethiop's ear;
Beauty too rich for use, for earth too dear!
So shows a snowy dove trooping with crows,
As yonder lady o'er her fellows shows.
The measure done, I'll watch her place of stand,
And, touching hers, make blessed my rude hand.
Did my heart love till now? forswear it, sight!
For I ne'er saw true beauty till this night.

TYBALT
This, by his voice, should be a Montague.
Fetch me my rapier, boy. What dares the slave
Come hither, cover'd with an antic face,
To fleer and scorn at our solemnity?
Now, by the stock and honour of my kin,
To strike him dead, I hold it not a sin.

CAPULET
Why, how now, kinsman! wherefore storm you so?

TYBALT
Uncle, this is a Montague, our foe,
A villain that is hither come in spite,
To scorn at our solemnity this night.

CAPULET
Young Romeo is it?

TYBALT
'Tis he, that villain Romeo.

CAPULET
Content thee, gentle coz, let him alone;
He bears him like a portly gentleman;
And, to say truth, Verona brags of him
To be a virtuous and well-govern'd youth:
I would not for the wealth of all the town
Here in my house do him disparagement:
Therefore be patient, take no note of him:
It is my will, the which if thou respect,
Show a fair presence and put off these frowns,
And ill-beseeming semblance for a feast.

TYBALT
It fits, when such a villain is a guest:
I'll not endure him.

CAPULET
He shall be endured:
What, goodman boy! I say, he shall: go to;
Am I the master here, or you? go to.
You'll not endure him! God shall mend my soul!
You'll make a mutiny among my guests!
You will set cock-a-hoop! you'll be the man!

TYBALT
Why, uncle, 'tis a shame.

CAPULET
Go to, go to;
You are a saucy boy: is't so, indeed?
This trick may chance to scathe you, I know what:
You must contrary me! marry, 'tis time.
Well said, my hearts! You are a princox; go:
Be quiet, or--More light, more light! For shame!
I'll make you quiet. What, cheerly, my hearts!

TYBALT
Patience perforce with wilful choler meeting
Makes my flesh tremble in their different greeting.
I will withdraw: but this intrusion shall
Now seeming sweet convert to bitter gall.

Exit

ROMEO
[To JULIET]
If I profane with my unworthiest hand
This holy shrine, the gentle fine is this:
My lips, two blushing pilgrims, ready stand
To smooth that rough touch with a tender

kiss.

JULIET
Good pilgrim, you do wrong your hand too much,
Which mannerly devotion shows in this;
For saints have hands that pilgrims' hands do

touch,
And palm to palm is holy palmers' kiss.

ROMEO
Have not saints lips, and holy palmers too?

JULIET
Ay, pilgrim, lips that they must use in prayer.

ROMEO
O, then, dear saint, let lips do what hands do;
They pray, grant thou, lest faith turn to
despair.

JULIET
Saints do not move, though grant for prayers' sake.

ROMEO
Then move not, while my prayer's effect I take.

[He kisses her]
Thus from my lips, by yours, my sin is
purged.

JULIET
Then have my lips the sin that they have took.

ROMEO
Sin from thy lips? O trespass sweetly urged!
Give me my sin again.

JULIET
You kiss by the book.

Nurse
Madam, your mother craves a word with you.

ROMEO
What is her mother?

Nurse
Marry, bachelor,
Her mother is the lady of the house,
And a good lady, and a wise and virtuous
I nursed her daughter, that you talk'd withal;
I tell you, he that can lay hold of her
Shall have the chinks.

ROMEO
Is she a Capulet?
O dear account! my life is my foe's debt.

BENVOLIO
Away, begone; the sport is at the best.

ROMEO
Ay, so I fear; the more is my unrest.

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FINANCIAL STUDIES

Prepare for Year 12 by:

The task is designed to help you develop some of the skills you will need to study Financial Studies. The aim is also to give you a background in some of the key areas that underpin teaching of financial studies and the likely tasks that you are going to be asked to complete whilst studying it.

This work should be completed as a detailed set of notes. It should be explained in your own words - not cut and pasted from the Internet.

You are expected to research and then answer the following questions regarding the banking industry.

Task 1: Investigate a Challenger Bank.

1.   What is a Challenger Bank?
2.   Why are they seen as being needed in the banking sector?
3.   Why would consumers switch to a challenger bank?
4.   What benefits do these banks offer compared to traditional competition?

The Challenger Bank: http://www.bbc.co.uk/news/business-25744739

Task 2: The Competition and Markets Authority
https://www.gov.uk/government/news/new-competition-authority-comes-into-existence

1.   What are the CMA's five goals?
2.   What is the overall purpose of the CMA?

Task 3: Snapchat: from Picaboo to $24 billion

In 2011 Evan Spiegel made a presentation to his university class about an app idea called Picaboo. He demonstrated photos taken, being sent by phone and then disappearing. His classmates weren't impressed. Convinced he was onto something, Spiegel kept working on the idea with two friends. A couple of months later a renamed Snapchat got a low-key launch. Student take-up in California enabled the new business to raise $13.5 million in venture capital in early 2013. Such was Snapchat's growth that by late 2013 Facebook offered to buy the business for $3 billion. Spiegel turned this down.

In 2016 Snapchat overtook Twitter to become one of the biggest social media outlets in the world with 150 million daily users. In March 2017 the company was floated on the New York stock exchange. Spiegel's own stake in the company became worth $4 billion out of a total of $24 billion.

1.   Explain two roles of financial markets fulfilled within the Snapchat story.
2.   A key role of financial markets is to provide an easy way for people to save their surplus income. Assess why saving is important to the health of an economy.
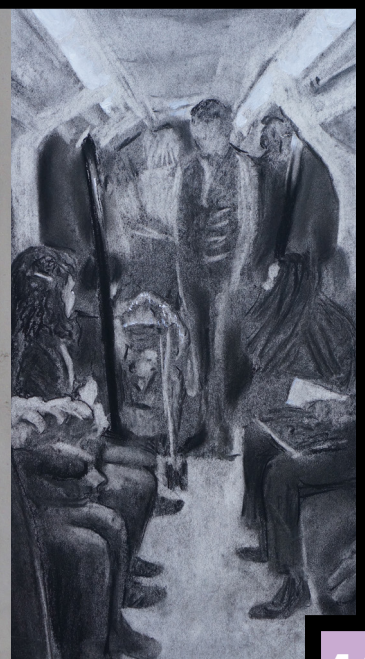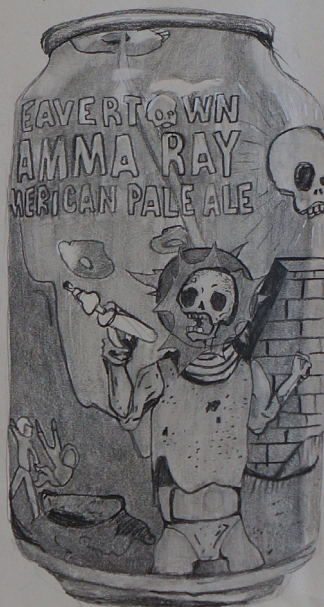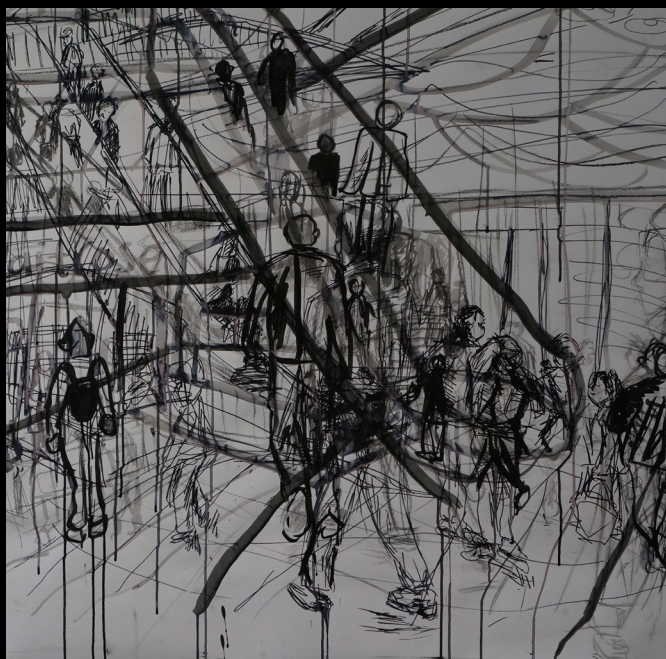
FINE ART

Prepare for Year 12 by:

Task 1: Visit a wide range of galleries. You will need to see some permanent collections such as those at the National Gallery, Tate Modern, National Portrait Gallery or Victoria & Albert Museum. Compliment these visits with local contemporary exhibitions which you can research online or in the free publication 'Time Out'. Within easy reach of Hackney are Whitechapel Gallery, Flowers East, A-side B-side Gallery, 17 Gallery and many more. Many these galleries can be accessed online with virtual tours of permanent collections and current exhibitions.

Choose three to five artworks which are from different artists and different galleries, find at least one artwork that links to the theme of 'Journeys'. Make a high quality copy of either the whole, or a relevant cropped section, of the different artworks. Collect resources such as leaflets and postcards, photograph objects and artworks if you have permission and make detailed notes about the artworks or exhibition themes. Be prepared to talk to the class in September about the work you have seen.

Task 2: Record a single journey or various journeys using a range of techniques and a range of mediums. For example you could document a journey through quick sketches or sustained drawings, photographs or through notes, through mark-making to record sound, or any other experimental media which you would like to use. See the drawing exercises from Glasgow School of Art to inspire your experimentation: http://www.gsa.ac.uk/media/968944/experimental-drawing-exercises.pdf

Task 3: Research the artist Ed Ruscha and look at his work titled 'Every Building on the Sunset Strip' (1966). Make detailed notes about how his work links to our first theme of 'Journeys'. Take a walk around your neighbourhood. Make a line drawing of a row of houses or shops that you pass regularly to make your own version of 'Every Building'. You can stick pieces of paper together to make a long drawing. Add as much detail as you can.

FRENCH

Prepare for Year 12 by:

Read:

- L'étranger by Albert Camus
- La délicatesse by David Foenkinos
- Guy de Mauppasant (horror stories)
- Any books by: Victor Hugo, Alexandre Dumas, Stendhal

Go online:

- **www.kerboodle.com** (goes with textbooks)
- **www.languagesonline.org.uk** (gap fillers, reading comprehension)
- **www.memrise.com** (vocab revision)
- **www.quizlet.com** (vocab revision)
- **www.lemonde.fr** and **www.liberation.fr** (French newspapers)
- **www.france24.com** (24 news channel in French)
- **www.languagesresources.co.uk** (good worksheets, reading activities)

Watch:

- Les quatre cents coups 1959
- La Haine 1995
- Amélie 2001
- Hors de prix 2006
- Samba 2014

Summer holiday tasks:

Task 1: Watch The Visitor, Thomas McCarthy, 2007 https://www.youtube.com/watch?v=0NFyjhDSrmM

Task 2: Watch It's a Free World, Ken Loach

These two films link to the topic of diverse society.

GEOGRAPHY
Prepare for Year 12 by:

Watch:
- The Impossible (2012) - about the Indian Ocean Tsunami
- Brick Lane (2007) - about migration in London
- Any documentary with David Attenborough - make sure you are up to date with Planet Earth! Catch up on BBC iPlayer
- The news on a regular basis
- Fashion's Dirty Secret - Stacey Dooley
- Climate Change - The Facts by David Attenborough

Visit:
- Dalston Mural
- Hackney Museum
- Natural History Museum
- Southend-on-sea

Read:

FICTION

Half of a Yellow Sun Chimamanda Ngozi Adichie

Kite Runner, Hosseini, K.

Slumdog Millionaire, Swarup, V.

Small Island, Levy, A.

State of Fear, Crichton, M.

A Thousand Splendid Suns, Hosseini, K.

Fast Food Nation: What the All American Meal is Doing to the World, Schlosser, E

Wild Swans, Chiang, J.

America Unchained, Gorman, D.

When a Billion Chinese Jump, Watt, J.

Confessions of an Eco Sinner: Travels to Where My Stuff Comes From, Pearce, F.

When the Rivers Run Dry: What happens When Our Water Runs Out?, Pearce, F.

People Quake: Mass Migration, Ageing nations and the Coming Population Crash, Pearce, F.

NON FICTION

50 Facts That Should Change The World 2.0, Williams, J.

Atlas of the Real World Blood Diamonds: Tracing the Deadly Path of the World's Most Precious Stones, Campbell, G.

Blood River: A Journey to Africa's Broken Heart, Butcher, T.

Coast – The Journey Continues, Sommerville, C.

Dead Aid, Moyo, D.

Flat Earth: the History of an Infamous Idea – Garwood, C.

Ghost Map, Johnson, S.

Long Way Gone: Memoirs of a Boy Soldier, Beah, I.

Plows, Plagues, and Petroleum Ruddiman, W.

The Sceptical Environmentalist, Longman

The World Without Us Weisman, A.

Prisoners of Geography - Tim Marshall

Summer holiday task:

Task 1: Research the following two people who have been instrumental in the study of " place " in geography, Doreen Massey and Yu Fi Tuan. Write up their key ideas about what geographers mean by " Place ."

Task 2: Research a recent Wildfire event and explain the causes of it and the possible reasons why people were vulnerable to the risk.

GOVERNMENT & POLITICS

Prepare for Year 12 by:

Visit:
- The Houses of Parliament
- The Supreme Court (these are free to visit!)

Read:

Books
- Punch and Judy Politics: An Insider's Guide to Prime Minister's Questions
- GAME CHANGER Eight Weeks That Transformed British Politics by Steve Howell
- The End of the Party. The Rise and Fall of New Labour- Andrew Rawnsley
- Ain't I a Woman, Black Women and Feminism- bell hooks
- British Politics: A Very Short Introduction - Tony Wright

Newspapers & Magazines
- The Newstatesman
- The Economist
- The Week
- The Guardian
- The Times
- The Independent
- The New York Times
- Politico

Listen to (podcasts):
- Reasons to be cheerful – Ed Milliband
- Newstatesman Podcast
- Unherd

Watch:
- The news!
- The Thick of It. (On Netflix)
- Brexit: The Uncivil War
- We should all be feminists. TED talk-
- https://www.youtube.com/watch?v=hg3umXU_qWc

Summer holiday tasks:

Task 1: By August 1 at the latest, select one national news story to track. Draft, type and print a brief summary (one to two pages) of the progress of your story through August. Include references to at least two news sources that you consulted. This is due at the beginning of the first class. It will be collected.

Task 2: Follow developments on Brexit as and when they happen. Be prepared to report back on the latest developments. This changes daily!

Task 3: Choose one member of the cabinet or shadow cabinet and create a presentation on them. Include, who are they, what do they stand for (it would be useful to look at their voting record), what area they are an MP for, which government department are they/ would they be responsible for, any notable political achievements.

Task 4: Research, define and understand these key terms ready for the first lesson back - MP, Constituency, House of Commons, House of Lords, Royal Prerogative, Left Wing, Right Wing.

HEALTH & SOCIAL CARE

Prepare for Year 12 by:

Task 1: One of the first units in Year 13 is Unit 3 - Anatomy and Physiology. You will be sitting the exam for this unit in January 2020. In order to get a head start in this unit, please make revision resources (this could be in the form of revision cards or posters for example), on the following Learning Aim A criteria:

A The structure and organisation of the human body

A1 How cells work
- The function and structure of cells, including membrane, nucleus, ribosomes, rough and smooth endoplasmic reticulum, mitochondria, centrioles, lysosomes and Golgi apparatus.

A2 Characteristics of tissues
The function, structure and location of:
- epithelial – simple (cuboidal, columnar, squamous, ciliated), compound (simple, keratinised)
- connective – blood, cartilage, bone, areolar, adipose
- muscle – striated, non-striated, cardiac
- nervous – neurones, neuroglia.

A3 The structure and function of body organs
- Location, structure and function of heart, lungs, brain, stomach, liver, pancreas, duodenum, ileum, colon, kidneys, bladder, ovaries/testes, uterus, skin.

A4 Energy in the body
- Transformation of energy (chemical, heat, sound, electrical, light).
- Energy metabolism – role of energy in the body, anabolism and catabolism (aerobic and anaerobic respiration).
- Basal metabolic rate.

A5 Human genetics
- Principles of Mendelian inheritance.
- Genetic variation, to include: genetic and chromosome disorders, Downs syndrome, phenylketonuria (PKU), sickle cell disease, cystic fibrosis, Huntington's chorea.
- Diagnostic testing for genetic and chromosome disorders, to include amniocentesis and chorionic villus sampling.

You can use your revision guides to aid the creation of these resources. By completing this activity you should be more confident in approaching these topics in lessons in September.

HISTORY

Prepare for Year 12 by:

Read:

- Access to History: The Cold War in Asia 1945-93 by V. Sanders (Course text book)
- The Korean War by M. Hastings
- Vietnam: A History by S. Karnow
- Pol Pot: The History of a Nightmare by P. Short
- The Tudors: A Very Short Introduction by John Guy
- Reformation : Europe's House Divided 1490-1700 by Diarmaid MacCulloch
- Wolf Hall, Hilary Mantel

Go online:

- http://foreignpolicy.com/2012/10/04/the-asian-cold-war/
- https://history.state.gov/milestones/1945-1952/japan-reconstruction
- http://www.history.com/topics/korean-war
- http://www.bbc.co.uk/history/worldwars/coldwar/korea_hickey_01.shtml
- http://www.britishempire.co.uk/maproom/malaya.htm
- http://www.history.com/topics/vietnam-war
- http://www.historylearningsite.co.uk/vietnam-war/the-causes-of-the-vietnam-war/
- http://www.history.com/topics/pol-pot

Summer holiday task:

Using pages 17 - 21 taken from Henry V11 booklet, which have been supplied alongside this Course Preparation Guide, complete the following:

Task 1: Read the article about threats to Henry's VII's rule. Create a table with two sides:

- Evidence Henry's rule was under threat
- Evidence Henry's rule was not under threat

Task 2: Write your own opinion on how great was the threat to Henry's VII's rule?

MATHS & FURTHER MATHS

Prepare for Year 12 by:

The transition from GCSE maths to A level maths can be a challenging one. In order to succeed in A level maths,
you will require some of the skills learnt during your GCSE maths course.

To help you prepare, you should revise the following topics:

Laws of indices
Straight line graphs
Equation of a line, (parallel and perpendicular lines)
Equation of a circle
Functions
Iteration
Rates of change
Kinematics graphs
Coordinate geometry: midpoint, gradient and length of a line segment
Algebraic fractions
Manipulating algebraic expressions
Surds
Changing the subject of the formula
Linear equations, inequalities and simultaneous equations
Solving quadratic equations
Completing the square of a quadratic expression
Factorising a quadratic expression
Graphs - sketch and recognise common graphs
Transformation of graphs
Trigonometry
Vectors
Statistics
Probability

If you are not sure of any topic, use a GCSE textbook for reference or look at:

www.kerboodle.com
www.mathswatchvle.com
www.mrbartonmaths.com/alevel.htm
www.waldomaths.com/edexasa2/edexc1.jsp
www.corbettmaths.com
www.mathsgenie.co.uk

MATHS & FURTHER MATHS

Summer holiday task:

Please use Maths Watch or any maths revision websites to improve your understanding of the following GCSE topics in order to ease transition to Mathematics/ Further Mathematics in the Sixth Form.

Statistics
- Histograms
- Averages from tables
- Quartiles (upper, lower, IQR)
- Probability

Number
- Surds – calculating with surds and rationalising denominator
- Laws of indices
- Calculating with fractions

Algebra
- Solving simple equations
- Simultaneous equations
- Factorising quadratics
- Completing the square
- Solving quadratic equations (by factorising and using formula)
- Equation of a straight line/parallel lines/perpendicular lines

Shape
- Trigonometry (in a right angle triangle and a non-right angle triangle)
- Vectors

Please complete the Number and Algebra tasks on page 18 and hand them in September to your Maths teacher

MATHS & FURTHER MATHS

Summer holiday task:

Number & Algebra 1

1. Simplify the following:

a) $243^{\frac{3}{5}}$

b) $\left(6\frac{1}{4}\right)^{\frac{1}{2}}$

c) $\left(15\frac{5}{8}\right)^{\frac{2}{3}}$

2. Factorise the following:

a) $4x^2 - 25$

b) $3x^2 - 6x$

c) $12x^2 - 7x + 1$

Simplify these surds:

a) $\sqrt{147}$

b) $\sqrt{12} + 3\sqrt{75}$

c) $\dfrac{\sqrt{27}}{\sqrt{3}}$

4. Rationalise the denominators:

a) $\dfrac{\sqrt{2}}{3\sqrt{3}}$

b) $\dfrac{2}{\sqrt{5}-1}$

c) $\dfrac{2-\sqrt{3}}{\sqrt{11}-4}$

5. a) Sketch the following graphs on the same axes $\quad y = 2 - 3x$

$\qquad y = x^2 - 2$

b) Solve the equation: $\quad x^2 - 2 = 2 - 3x$

c) * Extension

Use your answers to a) and b) to solve the inequality $\quad x^2 - 2 > 2 - 3x$

2. Without using a calculator and showing all of the working, find a value for the following

a) $4^{\frac{1}{4}} \times 2^3 \times 4^{\frac{3}{4}}$

b) $\dfrac{8^{\frac{1}{2}} \times 2^{\frac{1}{2}}}{16^{\frac{1}{4}}}$

Number & Algebra 2

1. Express the equation $y = x^2 - 6x + 8$

a) i) In completed square form

ii) As a product of linear factors

b) Using your answers to a) sketch the graph clearly labelling the key features

3. Express $\dfrac{4 - \sqrt{2}}{\sqrt{2} - 1}$ in the form $a\sqrt{2} + b$

3. Find the equation of the line that is parallel to $y = \frac{1}{2}x + 3$ and passes through the point (2,-1)

PHILOSOPHY, ETHICS & RELIGION

Prepare for Year 12 by:

Philosophy and Ethics is all about opening your mind and exploring life's key questions, such as whether God exists, what happens to us once we die, what makes a person moral, and whether laws should ever be broken.

Things to watch:

What is Philosophy? Crash course Philosophy - https://www.youtube.com/watch?v=1A_CAkYt3GY

An Introduction to Buddhism: https://www.youtube.com/watch?v=ZTI3P9zx-oY

'The Matrix' - this is great for introducing Plato's World of Forms - the idea that this existence is not really real!

Summer holiday tasks:

To start the journey to become philosophers, we require you to come into the first lesson having completed the following tasks:

Task 1:   Read Sophie's World. Buy it on Amazon for £2.50 or get it from your local library. Write a short review on how it made you feel and whether you enjoyed the book.

Task 2:   Print and complete the Ethics booklet using this link: https://docs.google.com/document/d/1nwq8YHaujPNonBXcQvm-O3lKYBbpL9adGZ4KDN2Nc9E/edit?usp=sharing

PHOTOGRAPHY

Prepare for Year 12 by:

Task 1: Visit the Photography Centre at the Victoria & Albert Museum. Be prepared to spend several hours in the Photography Centre. Look at the objects and the photographs, choose three to five items which are from different times and different photographers or makers. Make notes about the objects / photographs, photograph them if you have permission or make basic sketches and notes. Be prepared to talk to the class in September about what you have found out. Use the exhibition guides and the Internet to find information. (Remember many galleries can be accessed online with virtual tours of permanent collections and current exhibitions.)
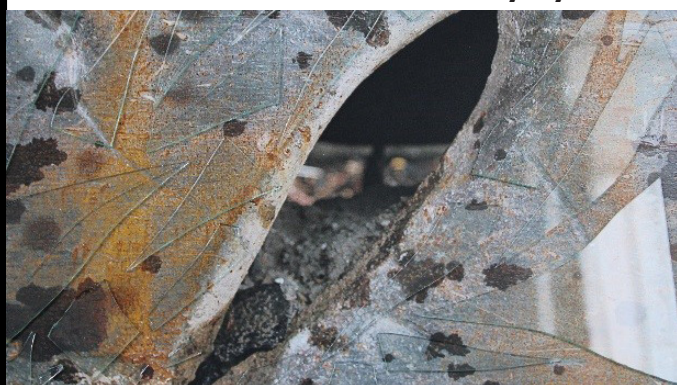
Task 2: Take at least 30 photographs using a digital camera if possible, rather than a phone, of FRIENDSHIP… get these images printed at a copy shop (cheap) or at a photographic shop such as Snappy Snaps – you can print at home if you have the facility. The images only need to be small, but colour is required. Think about what friendship means to you and try to make the images personal. Try to show us images of friendship as seen by you. You may want to choose a sub-theme.

Task 3: Get a copy of the book The Ongoing Moment by Geoff Dyer. Select sections of interest to read. Make a list of the everyday themes which the photographers in the book have used as subject matter.

Task 4: Go to YouTube and watch the three BBC4 episodes of Britain in Focus, A Photographic History by Eamonn Mccabe. Write down any questions you would like answered in September about the programme content

The City by CGA Photography students

PHYSICS

Prepare for Year 12 by:

Task 1: Find a physics-based story that has appeared, either in the mainstream news or a science journal within the last 12 months. Research the science behind the story and be prepared to discuss what you have found upon your return in September.

Task 2: Revise the following GCSE topics: forces and their effects, motion, electrical circuits, wave motion and electromagnetic waves.

Additional Resources:

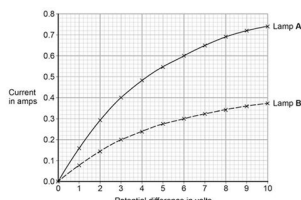**Visit:** The Institute of Physics: **www.iop.org**

Read: The Quantum Universe: Everything that can happen does happen *by Brian Cox and Jeff Forshaw*
Why does $E=mc^2$ *by Brian Cox and Jeff Forshaw*

Listen: Radio 4 podcast 'The Infinite Monkey Cage' *with Brian Cox and Robin Ince.*

Find: Any science/physics journals you can access, for example 'Physics World' or 'New Scientist'.

Summer holiday tasks:

Q1. A student investigated how current varies with potential difference for two different lamps. Her results are shown in the figure below.

(a) Complete the circuit diagram for the circuit that the student could have used to obtain the results shown in the figure above.

(b) Which lamp will be brighter at any potential difference? Explain your answer. Use the figure above to aid your explanation

(c) Lamp **B** has the higher resistance at any potential difference. Explain how the figure above shows this.

(d) Both lamps behave like ohmic conductors through a range of values of potential difference. Use the figure above to determine the range for these lamps. Explain your answer.

2. Write an essay on the difference between irradiation and contamination and how radioactive sources are used in medicine. In your essay, include when alpha, beta and gamma emitters are used and why each might be chosen or rejected. Also include the precautions that radiographers and doctors might take when using radioactive sources. You should discuss half-life and background radiation in your answer. Please reference your work.

PRODUCT DESIGN

Prepare for Year 12 by:

Going to the Design Museum (if you can!) Otherwise, the Design Museum's website has some really interesting pages to explore. Click on the link below and go to 'All Stories' to find out how products such as The Walkman came into existence. https://designmuseum.org/discover-design

Read the course specification from AQA. This will give you an overview of the structure of the course and it also goes into detail about the content you need to learn. https://filestore.aqa.org.uk/resources/design-and-technology/specifications/AQA-7552-SP-2017.PDF

Further Reading:
• Universal Principals of Design- William Lidwell

Practice your 3D Sketching by watching:
• 'product designer maker' channel on YouTube- https://www.youtube.com/watch?v=ZjfqWXuM-Ns
• 'Draw with Donnelly' channel on YouTube- https://www.youtube.com/watch?v=OWjLItY_4Mw

Download Google Sketchup and get good at it! Loads of really useful tutorials and tasks can be found on YouTube. Here is a good example of one: https://www.youtube.com/watch?v=0ay583JF7uk (search Learn Sketchup in 20 minutes).

Summer holiday task:

From the minute you wake up to the minute you go to bed, using your phone, take a series of photos that document your day. The photos should be taken by you from your own point of view e.g finding your glasses after waking up, opening the cupboard to look for breakfast, walking the dog, helping out with chores, reading a book etc.

Look at the photos you have collected. From these perhaps mundane photos, can you think of a problem or potential problem you encountered throughout your day or something that could have been much easier if it wasn't for the products you were using? What about if you were elderly, deaf, blind or had movement issues? What, out of all these tasks could have been difficult for you? What could have been easier?
The purpose of this task is to get you thinking about design and how even the most basic products that you encounter every day have been purposefully designed in a certain way, but not necessarily to make.

PSYCHOLOGY

Prepare for Year 12 by:

**Read and watch as many as you can of the recommended texts/films below.
Visiting some of the places listed below.**

Reading list:
- Christian Jarrett - 30 Second Psychology
- Philip Zimbardo - The Lucifer Effect
- Jon Ronson - The Psychopath Test
- Laren Slater - Opening Skinner's Box
- Paul Britton - The Jigsaw Man
- Richard Wiseman - Quirkology
- Oliver Sacks - The Man Who Mistook His Wife For A Hat
- Matt Ridley - The Red Queen
- Richard Dawkins - The Selfish Gene
- Steven Pinker - How the Mind Works
- Charles Fernyhough - Pieces of Light
- Matteo Farinella - Neurocomic
- Daniel Kahneman - Thinking, Fast and Slow
- John Duncan - How Intelligence Happens
- Tom Butler-Bowden - 50 Psychology Classics
- Alex Boese - Elephants On Acid and Other Bizarre Experiments
- Ben Goldacre - Bad Science

Watch:
- One Flew Over The Cuckoo's Nest (mental illness and treatments)
- Memento (memory and amnesia)
- A Beautiful Mind (schizophrenia)
- Good Will Hunting (attachment and privation)
- Girl, Interrupted (mental hospital)
- Falling Down (stress)

Visit:
- Science Museum
- Wellcome Collection
- Freud Museum
- Bethlem Royal Hospital Museum
- Natural History Museum

Summer holiday task:

Research:
The Rosenhan Study, Schizophrenia, memory and the origin of antipsychotic drugs.

Watch:
The Stanford Prison Experiment (2016) and apply research to the characters.

Produce:
A film review which explicitly uses the above ideas.

SOCIOLOGY

Prepare for Year 12 by:

Task 1: Collect a range of newspaper articles. All newspapers are valuable resources. A number of key newspapers have sociologists writing articles, and cover stories in a very sociological in-depth way.

Key newspapers: The Guardian, The Independent, The Times, The Observer, The Telegraph, The Financial Times.

Key magazines: Sociology Review, New Internationalist, The New Statesmen, The Economist

Task 2: Watch some television programmes for their sociological value, from soaps and Big Brother to current affairs and documentaries.

Ones to look out for include: Panorama (BBC1), Channel 4 News, Cutting Edge (C4), Have I Got News For You.

Additional Resources:

Go online:

* www.educationforum.co.uk/sociology_2/onlinesochome.htm
* www.sociology.org.uk/AQA Home Page: http://www.aqa.org.uk/qual/gce/sociology_new.php
* S-Cool Revision Site: http://www.s-cool.co.uk/topic_index.asp?subject_id=64
* Sociology Central: http://www.sociology.org.uk/
* National Statistics: http://www.statistics.gov.uk/glance/
* Sociology Resources http://www.ruthssociology.com/

Summer holiday task:

Research:
Functionalism, Marxism, New Right & Feminism.

Watch:
I, Daniel Blake

Produce:
A film review using the theories above, looking at how the theories would explain the circumstances of the characters in the film.

SPANISH

Prepare for Year 12 by:

Read:

- La casa de Bernarda Alba by Federico García Lorca
- Bécquer (poemas y leyendas)
- Any books by: Vargas Llosa, Gabriel García Márquez, Carlos Fuentes, Carlos Ruiz Zafón, Isabel Allende

Go online:
- www.kerboodle.com (goes with textbooks)
- www.languagesonline.org.uk (gap fillers, reading comprehension)
- www.memrise.com (vocab revision)
- www.quizlet.com (vocab revision)
- www.elmundo.es (Spanish newspaper)
- www.elpais.es (Spanish newspaper)
- www.los40.es (popular music station)
- www.languagesresources.co.uk (good worksheets, reading activities…)

Watch:
- Volver 2006
- Mujeres al borde de un ataque de nervios 1998
- La mala educación 2004
- Tesis 1996
- Abre los ojos 1997
- La Isla mínima 2014
- Ocho apellidos vascos 2014
- Los lunes al sol 2002

Summer holiday tasks:

Task 1: Tenéis que leer una novela en español: Bécquer, Vargas Llosa, Pío Baroja, Cortázar, Juan Rulfo, Isabel Allende, Carlos Fuentes, Clarín, Galdós, García Márquez… son algunos autores con obras famosas. Podéis descargar algunas novelas gratis en e-book.

Task 2: Ved una nueva película: OCHO APELLIDOS VASCOS, THE UNEXPECTED GUEST, MARIA LLENA ERES DE GRACIA, SOLAS, LOS LUNES AL SOL, EL LABERINTO DEL FAUNO, EL ESPINAZO DEL DIABLO, LA ESPALDA DE DIOS… Son algunas películas de calidad.

Task 3: Tenéis que investigar sobre un personaje famoso de España o Iberoamérica: puede ser un político, un cantante, un deportista, un actor, un personaje histórico, como Frida Khalo… y debéis hacer una ficha técnica sobre este personaje.