NEWLANDS SIXTH FORM
COURAGE COMMITMENT COMPASSION

Year 12 Summer Transition Work Booklet 2026

Back to the contents

Contents

Please click on the link for the subject you are studying. This will take you to the relevant work.

Back to the contents

BTEC Level 3 in Applied Science Summer Work

Moving from GCSE to a Level 3 BTEC is a big step up. The biggest change isn't just the difficulty of the science, it is the focus on application.

This transition pack covers three core topics across Biology, Chemistry, and Physics to help you bridge the gap between Year 11 and Year 12.

Please find the other sheets to complete here:

Science Waves Revision Mat

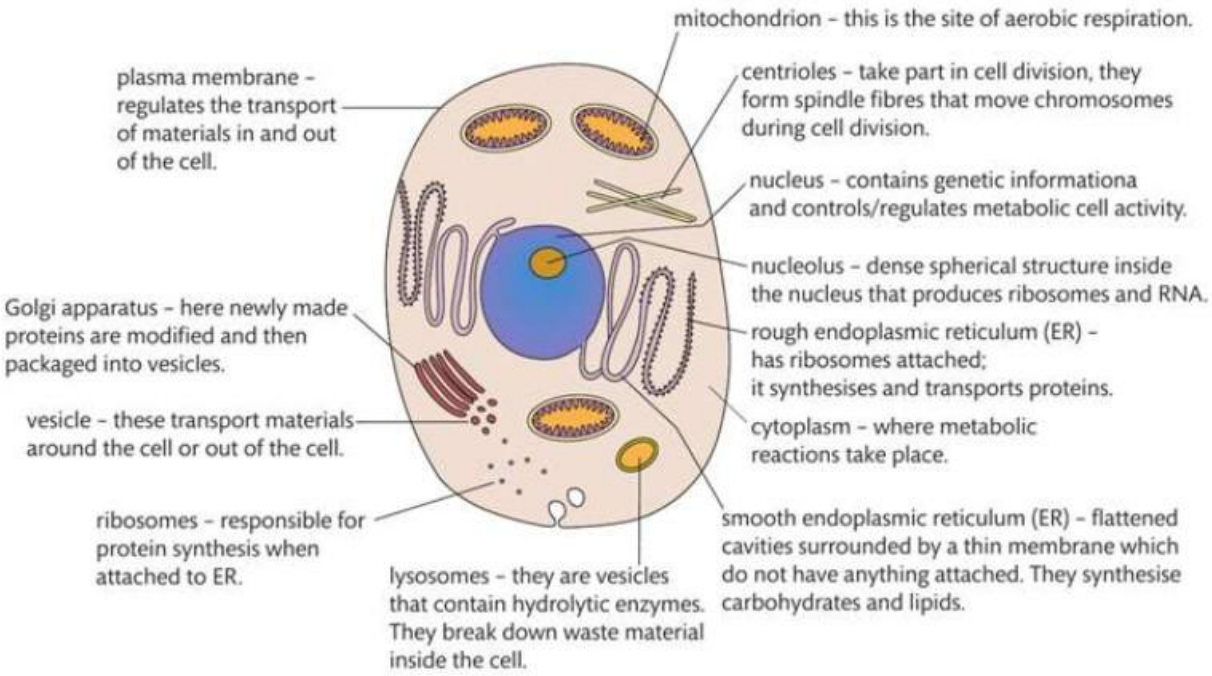
Cell Biology Higher Revision Mat

Atomic Structure and Periodic Table Revision activity mat

Biology: Cell Structure and Ultrastructure

GCSE Recap: You will remember that animal cells have a nucleus, cytoplasm, cell membrane, mitochondria, and ribosomes.

Level 3 Step-up: At Level 3, we move beyond simple diagrams to look at cell **ultrastructure**, the highly detailed components we can only see using powerful electron microscopes.



Notice the new structures:

- **Rough and Smooth Endoplasmic Reticulum (ER):** Vast networks of membranes. The rough ER is studded with ribosomes and is involved in making proteins; the smooth ER synthesises lipids.

Back to the contents

- **Golgi Apparatus:** The "post office" of the cell, which modifies, packages, and transports proteins in vesicles.
- **Lysosomes:** Vesicles containing digestive enzymes to break down cellular waste and pathogens.

In Applied Science, you won't just label these – you will learn how specialised cells (like secretory cells in the pancreas) rely on these specific organelles working together to perform their roles efficiently.

Chemistry: The Periodic Table & Periodicity

GCSE Recap: You learned that elements are arranged by atomic number, with metals on the left and non-metals on the right. You also learned the simple 2,8,8 rule for electron shells.

Level 3 Step-up: The periodic table becomes your ultimate analytical tool. You will abandon the 2,8,8 rule and learn about sub-shells You will also study **periodicity**, the repeating patterns in chemical and physical properties across the periods.

Instead of just knowing where elements sit, you will need to explain *why* they behave the way they do based on three key trends:

- **Atomic Radius:** The size of the atom. It *decreases* as you move left to right across a period (because more protons pull the electrons in tighter) and *increases* as you go down a group (because you add more electron shells).
- **Electronegativity:** An atom's ability to attract a pair of electrons in a covalent bond. It *increases* across a period and *decreases* down a group, making Fluorine the most electronegative element.
- **First Ionisation Energy:** The energy required to remove one electron from the outer shell of a gaseous atom. It generally *increases* across a period (harder to remove due to a stronger nuclear charge) and *decreases* down a group (easier to remove because the outer electron is further from the nucleus and shielded by inner shells).

Physics: Working with Waves

GCSE Recap: Waves transfer energy without transferring matter. You learned the difference between transverse waves (like light) and longitudinal waves (like sound), and you used the wave equation.

Level 3 Step-up: We look at the practical applications of wave behaviours, like diffraction, interference, and total internal reflection, and how they are utilised in modern technology and healthcare.

Your Transition Tasks

Please complete the following tasks and bring them to your first BTEC lesson in September.

Back to the contents

Task 1: Biology (Research)

Research the **Golgi Apparatus** and the **Rough Endoplasmic Reticulum**. Write a short paragraph explaining how these two organelles work closely together to produce and secrete a protein (like an enzyme or a hormone) out of the cell.

Task 2: Chemistry (Definitions)

At Level 3, definitions must be highly precise. Research and write down the exact definitions for:

1. First Ionisation Energy
2. Electronegativity
3. Relative Atomic Mass

Task 3: Physics (Applied Context)

Optical fibres are a massive part of the Physics unit. Research how optical fibres work. Draw a simple diagram of a step-index optical fibre and explain the core concept of **total internal reflection**.

TASK 4: Complete the GCSE Chapter Summaries

Be prepared to be quizzes on them in your first lesson

Optional Extra Reading

Books

- **A Short History of Nearly Everything** by Bill Bryson
  The Science: Atomic Structure, Evolutionary Biology, and the History of Scientific Discovery

  Before starting a Level 3 course, it helps to appreciate just how bizarre and unlikely the history of scientific discovery actually is. Bryson takes the driest textbook topics — from particle physics to geology — and turns them into a massive, hilarious story. This book won't just teach you *what* we know about atoms and cells; it shows you exactly *how* eccentric, obsessive scientists figured it out.

- **Children of Time** by Adrian Tchaikovsky
  The Science: Evolutionary Biology, Genetics, and Ecology

  This sci-fi masterpiece by British author Adrian Tchaikovsky is a brilliant thought experiment in accelerated evolution. When a biological agent intended to upgrade monkeys lands on a planet of invertebrates instead, it creates a terrifyingly fascinating, highly advanced society of sentience. It is a fantastic read for stretching your imagination regarding genetic adaptation and ecological balance.

- **The Disappearing Spoon** by Sam Kean
  The Science: Inorganic Chemistry and the Periodic Table

Back to the contents

If you think the periodic table is just a boring wall chart, this book will completely change your mind. It treats the elements as characters in a massive drama, tracking how they have triggered wars, saved lives, fuelled political scandals, and driven human progress.

- **Bad Science** by Ben Goldacre
  The Science: The Scientific Method, Statistics, and Clinical Trials

  Written by a UK doctor and epidemiologist, this is an essential handbook for any applied scientist. Goldacre rips into detox diets, media scare stories, and pharmaceutical companies to show how data can be manipulated. Learning how to spot flawed methodology is a massive advantage for your BTEC coursework.

Films

- **The Martian (2015)**
  The Science: Botany, Astrochemistry, and Physics

  This is quite literally the ultimate "applied science" film. When an astronaut is stranded on Mars, he doesn't survive through magic or luck — he survives by using the scientific method. From calculating orbital mechanics to chemically manufacturing water, it perfectly captures the grit and problem-solving at the heart of STEM fields.

- **Hidden Figures (2016)**
  The Science: Applied Mathematics, Physics, and Aerospace Engineering

  The true story of Katherine Johnson, Dorothy Vaughan, and Mary Jackson — the brilliant African-American women working at NASA who served as the brains behind the launch of astronaut John Glenn into orbit. It gives an excellent look into data verification and how physics equations translate into mechanical trajectories.

TV Shows & Documentaries

- **Forensics: The Real CSI (BBC iPlayer)**
  The Science: Analytical Chemistry, Toxicology, and Forensic Biology

  Because BTEC Applied Science features significant vocational modules in forensic science, this BBC documentary series is a must-watch. It follows real British police forces and forensic scientists as they gather trace evidence, analyse blood spatter, and run toxicology screens to solve complex crimes.

- **The Secret Life of the Cell (BBC)**
  The Science: Cellular Ultrastructure and Molecular Biology

  An incredible, visually stunning dive inside a single human cell as it fights off an invading virus. It uses high-end CGI to bring cell ultrastructure to life, mapping exactly how ribosomes, the endoplasmic reticulum, and motor proteins interact under threat. It acts as a perfect visual aid for Unit 1 Biology.

Back to the contents

Podcasts

- **The Rest Is Science**
  The Science: Scientific Problem-Solving and Questioning Reality

  Hosted by mathematician Professor Hannah Fry and Vsauce creator Michael Stevens, this podcast digs into the fascinating scientific questions that often go unexplored. It sits perfectly in the space between what we think we know and what we actually know, challenging you to question familiar ideas like thermodynamics, the properties of water, and human metabolism. It is brilliant for developing an investigative mindset before starting Level 3.

- **The Infinite Monkey Cage (BBC Radio 4)**
  The Science: Everything from Quantum Mechanics to Forensic Entomology Hosted by physicist Professor Brian Cox and comedian Robin Ince, this podcast is essentially a witty, irreverent panel show about science. They bring together top scientists and comedians to debate massive scientific concepts.

- **BBC Inside Science (BBC Radio 4)**
  The Science: Current Applied Science News, Ethical Debates, and Innovation

  If you want to know exactly what is happening in the scientific world *this week*, this is the podcast. It covers the latest breakthroughs, from how new vaccines are manufactured to the physics of space warfare and the realities of climate change.

- **Instant Genius (BBC Science Focus)**
  The Science: Deep dives into specific, fascinating topics

  This podcast delivers bite-sized masterclasses from world-leading experts. Each episode tackles one specific topic – like the biology of ageing, the science of laughter, or how statistics can be easily manipulated.

- **More or Less: Behind the Stats (BBC Radio 4)**
  The Science: Statistics, Data Analysis, and the Scientific Method

  Tim Harford investigates the numbers and statistics used in political debates, the news, and everyday life to see if they actually hold up to scientific scrutiny. Data analysis is a massive part of BTEC Applied Science, and this podcast trains you to spot flawed data instantly.

YouTube Channels

- **Ninja Nerd**
  The Science: Advanced Biology and Cellular Ultrastructure

  If you find cell biology difficult to picture, this channel is a lifesaver. The host draws out incredibly detailed biological structures live on a whiteboard step-by-step, making complex concepts like the inner workings of mitochondria incredibly easy to follow.

- **Tyler DeWitt**
  The Science: Chemistry Foundations and Electron Configurations

Back to the contents

Moving from the GCSE 2,8,8 rule to $s, p,$ and d orbitals can feel like learning a new language. Tyler DeWitt breaks down complex chemical bonding, atomic trends, and electron configurations using simple, clear visual aids with zero jargon.

- **The Science Asylum**
  The Science: Physics, Waves, and Quantum Concepts

  This channel uses fast-paced, humorous animations to explain physics concepts that are otherwise hard to visualise. It is brilliant for getting your head around wave behaviours and total internal reflection without getting bogged down in heavy mathematics right away.

Magazines & Websites

- **New Scientist (newscientist.com)**
  The Science: General Applied Science and Global Breakthroughs

The gold standard for popular science journalism. It takes cutting-edge research papers and translates them into engaging, digestible articles, showing exactly how textbook physics, chemistry, and biology solve real-world problems. ● **BBC Science Focus (sciencefocus.com)**

The Science: Everyday Science and Tech Innovation

Packed with answers to quirky everyday science questions, tech reviews, and beautifully illustrated articles on human anatomy, space exploration, and earth sciences.

- **Compound Interest (compoundchem.com)**
  The Science: Applied Chemistry and Real-World Graphics

  Created by a UK chemistry teacher, this website uses stunning, easy-to-read infographics to explain the everyday chemistry behind everything from the smell of old books to how antibiotics work.

Back to the contents

ART Summer Work

To be completed on A3 paper. But if you only have A4 then please use that.

Task 1

Choose a current headline and create a mind map (s) linking to it. Think about objects, personal links and potential artists you could explore. This should be completed on an A3/A4 page.
The top half should contain:

- Your headline
- A short reason why you choose this headline and why it is important to be explored.
- A range of mind maps for each different area you wish to explore linking to the headline.

Task 2

On the next page, please complete 3 detailed tonal observational linking to your headline. The subject matter should be your choice and please place key focus on the layout.
Your page should contain:

- 3 tonal detailed observations
- Annotations explaining their relevance and how this has helped trigger an idea for an outcome.

Task 3

On your next page practically research and respond to an artist linking to your headline. *Make sure your subject matter is the same as your observational studies.
Your page must contain:

- Title – Name of your artist
- Image of their chosen work
- A brief overview about the work and why you have chosen it. Make sure you explain how it links to your theme and will help develop your work towards a final outcome
- An A4 Artist copy

Back to the contents

A Level Biology Summer work

Everyone should complete task 1. You then have the option to complete either task 2 or 3

Access to the booklet is here: Biology task booklet

Task 1: Transition task booklet

Complete the transition tasks booklet

Task2: New Research

Read 3 articles on Biotechnology Archives - SingularityHub

Write 3 paragraphs, of about 250 words each, to summarise each article you read

Task 3: Essay

Write an essay on *the structure and function of proteins, lipids and carbohydrates.*

This essay will need to be A level standard so you will have to do some research. Your essay should be 1000 words in length and should be in good English and typed.

Resources:

AQA Biology A-level Topic 1: Biological Molecules - PMT

Lipids - AQA A-Level Biology

Proteins - AQA A-Level Biology

Carbohydrates - AQA A-Level Biology

Keywords to use in essay: amino acid, primary structure, secondary structure, tertiary structure, quaternary structure, peptide bond, ester bond, glyosidic bond, glycogen, cellulose, starch

Back to the contents

A Level Business: Summer work

Exam board: AQA

Task 1: Corporate social responsibility

One of the models you will learn about in A-level Business is **Carroll's corporate social responsibility pyramid.** According to Carroll, 'corporate social responsibility involves the conduct of a business so that it is economically profitable, law abiding, ethical and socially supportive'. Carroll produced a pyramid that identifies the different types of obligations that society expects of businesses.

Businesses are recognising the importance of behaving in a more ethical and corporately responsible way. This affects how they treat their employees, their suppliers, the local community, the environment.

a) Tesco

Go to Tesco plc website and click on the 'sustainability' tab.

https://www.tescoplc.com/

Here, under the headings Planet, Health, People, Communities, you will find several examples of how Tesco is trying to behave in a more corporate socially responsible way. Click on some of these to find out more about what Tesco is doing.

Produce a written report giving an overview / explanation of how Tesco is behaving in a corporate socially responsible way. Include examples and figures and diagrams where appropriate. This should be approximately 2-3 sides of information.

b) CSR in a second business

Choose a second business (try to select one that is a contrast to Tesco).

Research what your chosen business is doing to behave in a more corporate socially responsible way. This might include how they treat their employees, their suppliers, the local community and the environment.

Produce a written report giving an overview / explanation of how your chosen business is behaving in a corporate socially responsible way. Include examples and figures and diagrams where appropriate. This should be approximately 2-3 sides of information.

Task 2: Business in the news: Marketing – Swatch Royal Pocket watch launch

Read the following case study about the launch Swatch Royal Pocket watch and then complete the following tasks.

Back to the contents

Huge demand for new watch causes overcrowding at stores around the UK.

Swiss watchmaker Swatch generated considerable consumer interest with the launch of its Royal Pop pocket watch.

The brand collaboration with luxury manufacturer Audemars Piguet is priced at £335, placing it far below the premium pricing typical of Audemars Piguet's core range, which can command tens of thousands of pounds.

The lower price point the perceived exclusivity of a luxury brand, created intense demand, particularly amongst Generation Z consumers.

Social media played a central role in the promotional strategy, with viral content spreading rapidly online ahead of and during the launch. This word-of-mouth marketing, caused large crowds at Swatch's 220 bricks-and-mortar stores worldwide.

The surge in footfall caused safety concerns at numerous UK locations, several of which were temporarily closed. Swatch's chief executive maintained that high demand at a product launch represented a positive sign for the brand

A secondary market quickly emerged, with resellers exploiting the willingness of early adopters to pay having been unable to access the product at launch.. Many consumers mistakenly believed the watch to be a limited edition, which further increased demand

Click on this link to read the BBC news article and for video reports about the launch.

https://www.bbc.co.uk/news/articles/cq6p0vzyvrmo

a) Define the terms '

- 'generation z'
- 'early adopters'
- 'premium pricing'

b) Explain why demand for the Royal Pop pocket watch was so high.

Useful terms you may wish to consider using in your answer

- Social media
- Viral marketing
- Word of mouth
- Trend
- FOMO

Back to the contents

- Availability

c) Explain how Swatch uses segmentation, targeting and positioning in the marketing of products such as the Royal Pop pocket watch.

- **Segmentation** involves dividing the total market into distinct groups who share similar characteristics or needs.
- **Targeting** refers to the process of selecting which market segment(s) a business chooses to focus its marketing efforts on.
- **Positioning** describes how a business wants it product to be perceived by consumers relative to competitor offerings.

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Task 3: Business application

In A-level Business you will need to be able to apply business concepts to different industries so it is important that you have awareness of different industries and how to apply concepts to that industry.

a) Go the Tutor 2 U A-level Business Application Matrix
https://sims.tutor2u.net/business/alevel/all/applicationmatrix

b) Choose 10 industries – try to get a range of contrasting industries.

Copy and complete the table below for your 10 chosen industries. **Use the application matrix** to help.

Industry	Examples	Stakeholders			Competitors	Market segments
		Customers	Employees	Suppliers		

Back to the contents

Example: Theme Parks

Industry	Examples	Stakeholders			Competitors	Market segments
		Customers	Employees	Suppliers		
Theme parks	Alton Towers Thorpe Park Legoland Chessington	Families Thrill-seekers Day trippers Hotel guests Season pass holders	Ride operators Entertainers Hospitality staff Engineers Lifeguards	Ride manufacturers Food suppliers Merchandise vendors Maintenance contractors	Other theme parks Zoos Attractions Staycation alternatives Overseas holidays	Families Teens Day visitors Resort guests Season pass Pay per visit

Back to the contents

BTEC Business: Summer work

Exam board: Pearson

Task 1: Corporate social responsibility

Businesses are recognising the importance of behaving in a more ethical and corporately responsible way. This affects how they treat their employees, their suppliers, the local community, the environment.

a) Tesco

Go to Tesco plc website and click on the 'sustainability' tab.

https://www.tescoplc.com/

Here, under the headings Planet, Health, People, Communities, you will find several examples of how Tesco is trying to behave in a more corporate socially responsible way. Click on some of these to find out more about what Tesco is doing.

Produce a written report giving an overview / explanation of how Tesco is behaving in a corporate socially responsible way. Include examples and figures and diagrams where appropriate. This should be approximately 2-3 sides of information.

b) CSR in a second business

Choose a second business (try to select one that is a contrast to Tesco).

Research what your chosen business is doing to behave in a more corporate socially responsible way. This might include how they treat their employees, their suppliers, the local community and the environment. This task is designed to help you develop your research skills which is a key skill you need in the BTEC Business qualification.

Produce a written report giving an overview / explanation of how your chosen business is behaving in a corporate socially responsible way. Include examples and figures and diagrams where appropriate. This should be approximately 2-3 sides of information.

Task 2: Personal finance: financial planning

As part of Unit 3 we will look at Personal and Business Finance.

Watch these video clips about Debra who needs to improve how she manages her personal finances.

- The Bank of Mum and Dad

Back to the contents

- https://www.youtube.com/watch?v=1lp7mLRkioo
- Timings: Watch the first 8 minutes, 12–16 mins, 34-37 mins, 54 min to the end

Explain why Debra needs to improve her financial planning. Explain at least three reasons and try to use some financial terminology.

Task 3: Personal finance: student bank accounts

In Unit 3 you need to know about different types of bank accounts and to make recommendations as to which are most suitable for the given scenario. Banks offer a range of different types of bank account. One type of current account is a bank account especially for students/ graduates.

Go to https://www.moneyhelper.org.uk/en/family-and-care/student-and-graduate-money/student-and-graduate-bank-accounts?source=mas#

Read the Money helper guide to Student and graduate bank accounts to get an overview of what student bank accounts are.

Then scroll down to '**Compare student bank accounts**'

Use the links to review and compare different student accounts,

a) Write an introductory paragraph explaining what student bank accounts are.

b) Produce a table comparing at least 4 different student bank accounts and their features e.g. requirements, interest, overdraft facilities, fees, benefits.

c) Imagine you have just finished 6th form and are about to go off to university. Which student account would you choose? Give reasons to explain why you think this is the best student account for you.

Back to the contents

A Level Chemistry

Transition Tasks

This pack contains several tasks to prepare you for the start of your course in September.

Please contact Mrs Baker (laurabaker@newlandgirls.co.uk) if you have any questions.

Access to the booklet:

C3 Bonding and Structure

C4 Chemical Calculations

Contents

You are expected to complete all of the above tasks.

Tasks should be collated and submitted to your teacher at the start of your first Chemistry lesson in September.

Task 1:

Revise C3 - Structure and Bonding from your GCSE

As a minimum you must complete all parts of the revision booklet, and bring to your first lesson to mark.

You may wish to complete additional revision.

It is important that you learn this key content as this is also part of the A Level course. There will be an assessment within the first week in September, which will be used to determine your suitability to continue with the course.

Task 2:

Revise C4 – Chemical Calculations from your GCSE

As a minimum you must complete all parts of the revision booklet, and bring to your first lesson to mark.

You may wish to complete additional revision.

Back to the contents

It is important that you learn this key content as this is also part of the A Level course. There will be an assessment within the first week in September, which will be used to determine your suitability to continue with the course.

Task 3:

Wider Reading

In order to explore the subject beyond the specification, we would like you to read at least one article on chemistry and/or its application.

Prepare a 2 minute presentation to share with the class during the first week in September.

Below is a list of suggested articles but this is by no means exhaustive:

NOTE You can read up to 2 articles per month for free on the Chemistry World website without registering, and can access more articles if you register for free!

20-years-20-chemists-20-stories
To mark 20 years for "Chemistry World" magazine, this article gives an insight into the careers of 20 members of the RSC (Royal Society of Chemistry) over the last 20 years; illustrating the breadth of career opportunities within the sector. Part 2 : 20 years. 20 chemists. 20 stories. Part 2 | Feature | Chemistry World

'A mix of amazement, pure joy and relief': chemists reflect on their Eureka moments | News | Chemistry World

A career journey where nothing is lost and everything is transformed | Careers | Chemistry World
Three chemistry Nobel laureates shared their failures – and how they overcame them | News | Chemistry World
How sketching and painting have enhanced my scientific practice | Opinion | Chemistry World

Chemistry has always been women's business | Opinion | Chemistry World

How to Raise a Jellyfish - American Chemical Society (acs.org)
Describes a classroom experiment in which students had to keep jellyfish thriving by making sure the chemistry of the aquarium's water matched that of their natural habitat.

Compound Interest: The chemistry of henna

Compound Interest: The Science of Sunscreen & How it Protects Your Skin

Compound Interest: The Chemistry of Nail Polish – Polymers, Plasticisers and Pigments

Solid body wash comes without packaging. But does that make it eco-friendly?

Compound Interest: The Chemistry of Deodorants vs. Antiperspirants

Compound Interest: The Chemistry of Moisturisers

Compound Interest: Cosmetic Chemistry – The Compounds in Red Lipstick

Compound Interest: How Do Tanning Lotions Work? – The Chemistry of Fake Tan

Compound Interest: Chemical Concerns – Does Acrylamide in Toast & Roast Potatoes Cause Cancer?
Back to the contents

Compound Interest: Fugu and tetrodotoxin: how the pufferfish can kill

Compound Interest: Jupiter & Juno – What Do We Already Know About Jupiter's Chemistry?

Compound Interest: Sir Harry Kroto & Buckminsterfullerene

Compound Interest: What causes the colours of the aurora?

Compound Interest: Broccoli colour changes and cancer-fighting compounds

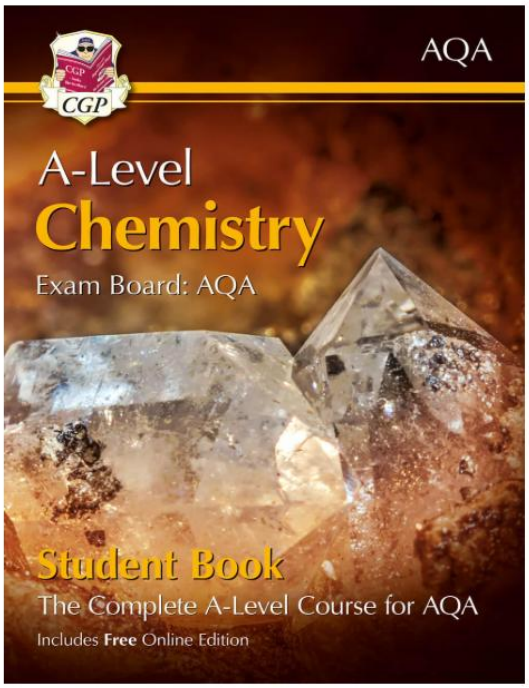
Compound Interest: Broccoli colour changes and cancer-fighting compounds

Compound Interest: Today in Chemistry History – Rosalind Franklin and the structure of DNA

Task 4:

Textbook and folder check

You will require access to the following textbook in all of your chemistry lessons:



A-Level Chemistry for AQA: Year 1 & 2 Student Book with Online Edition: course companion for the 2026 and 2027 exams (CGP AQA A-Level Chemistry) Paperback – 5 Oct. 2020

The course textbook is available from Amazon:

A-Level Chemistry for AQA: Year 1 & 2 Student Book with Online Edition: course companion for the 2026 and 2027 exams (CGP AQA A-Level Chemistry): Amazon.co.uk: CGP Books, CGP Books: 9781789080476: Books

There will be a folder check during the first week of September.

We will expect to see the following:

1. **Completed transition booklets**
2. **Large A4 Lever Arch file (not a day folder)**
3. **Pack of file dividers**
4. **Pad of A4 paper**

Back to the contents

A Level Dance Summer Work

1. Rambert has played an important role in the history of dance in the UK. Research the origins of the company, with particular focus on Marie Rambert and her influence on its development.
2. Watch the documentary *Different Steps – Three Approaches to Choreography* and make notes on the following:

Different Steps – Three Approaches to Choreography | Videos & Movies on Vimeo

a) What is Ballet Rambert / Rambert Dance Company?
b) Who founded Ballet Rambert, and when was it established?
c) Identify the three choreographers featured in the documentary. For each choreographer, summarise the key characteristics of their work. You may wish to include:

- Dance style
- Training and background
- Music/aural setting
- Costume and set design
- Choreographic starting points and inspirations used in creating their work.

Back to the contents

Year 12 Design & Technology – Summer Homework

As you begin your journey into Year 12 Design & Technology, this summer homework has been designed to help you develop the key skills that will underpin your success in the course.

This transition to A Level requires increased independence, creativity, and analytical thinking. The following tasks will introduce you to these expectations by encouraging you to explore influential designers, investigate materials and processes, and communicate your ideas effectively.

You will begin to develop your own design identity, build confidence in your creativity, and learn how to present your ideas in a clear and professional way.

Approach this work with curiosity and care. Take pride in your presentation and aim to show thoughtful, personal responses to each task.

Your completed work must be ready for submission in your first lesson in September. This work will be assessed, so it is essential that all tasks are completed to a high standard.

We look forward to seeing your ideas—use this as an opportunity to explore, experiment, and start thinking like a designer.

Choose ONE of the following AQA designers:

- Joe Casely-Hayford
- Rei Kawakubo
- Pierre Davis
- David Adjaye
- Yinka Ilori
- Zaha Hadid
- Elsie Owusu
- Karim Rashid
- Kusheda Mensah
- Aljoud Lootah
- Morag Myerscough
- The Singh Twins

Task 1: Designer Research & Mood Board

Research your chosen designer, focusing on why they are considered influential within Design & Technology and the wider design world.

You should consider:

- Their design style and signature features

Back to the contents

- Key products, buildings, or designs
- Materials and processes they use
- Their impact on society, culture, or sustainability
- How they have influenced other designers or design movements

Mood Board Requirements

Create a visual mood board that represents your designer's work and ideas.

Your mood board should include:

- A range of images (products, interiors, architecture, graphics, textures, materials, etc.)
- A clear visual theme and layout

Annotations must include:

- Names of key designs / projects / products
- Dates (when relevant)
- Materials and manufacturing processes used
- An explanation of why each design is significant or innovative
- Relevant contextual information (social, environmental, or cultural influences)

Your annotations should be clear, concise, and analytical, not just descriptive.

☑ Aim for:

- A high standard of presentation
- A visually engaging layout
- Evidence of independent research and thinking

Task 2: Design Development & Concept Sketching

Using your chosen designer as inspiration, produce **two design concepts** (minimum A4 size).

These can be:

- A product
- A piece of furniture
- An architectural concept
- A lighting design
- A functional everyday object

Your designs should clearly reflect elements of your designer's work, such as:

- Form and shape
- Colour and pattern

Back to the contents

- Materials and finishes
- Functionality and user experience

Your design work must include:

- Detailed sketches or drawings (hand drawn or digital)
- Use of appropriate media (pencil, fine liner, shading, colour, or CAD if appropriate)
- Attention to proportion, perspective, and detail

Annotations must explain:

- How your design is inspired by your chosen designer
- Key design features and functions
- Proposed materials and manufacturing processes
- Any sustainability considerations
- Why you made specific design decisions

☑ Aim for:

- Clear communication of ideas
- Creativity and originality
- A high standard of visual presentation

Presentation Expectations

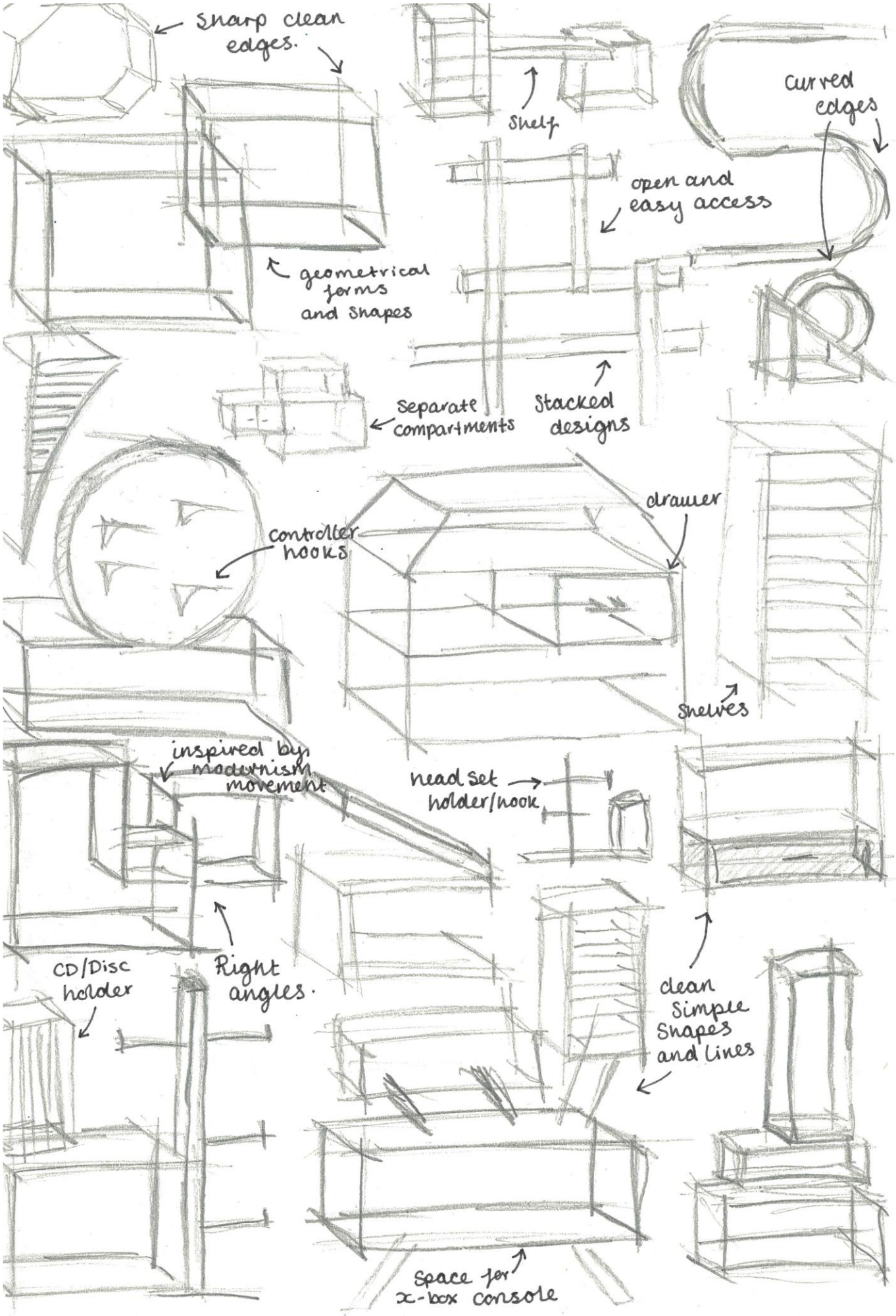
- Work should be presented on A3 or A4 paper or in a sketchbook/project folder
- Use neat layouts, clear titles, and structured annotation
- Include colour, visual detail, and careful organisation
- Show effort, independence, and creativity throughout

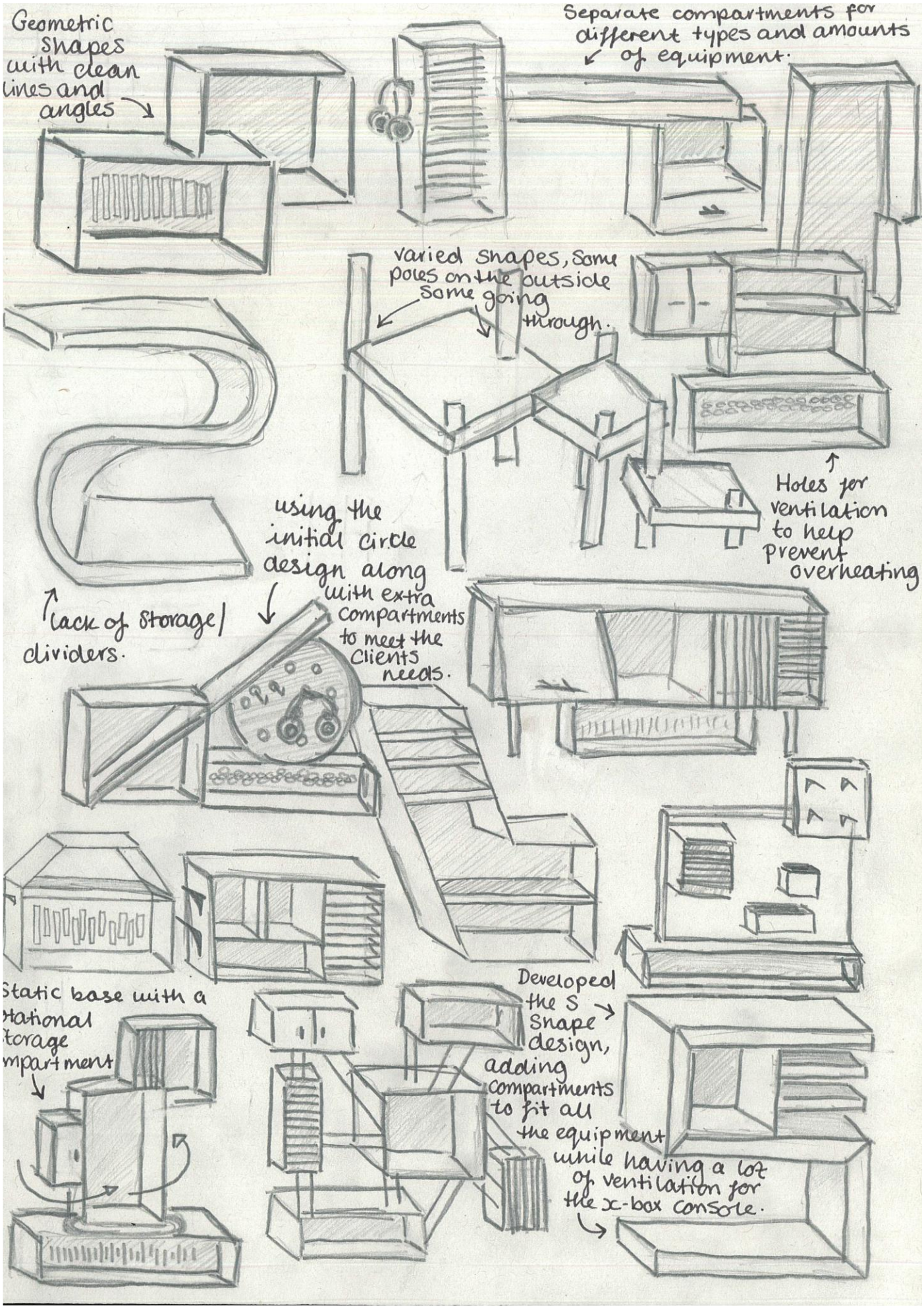
Submission

Bring your completed work to your first lesson in September.

This work will form part of your baseline assessment and will help us understand your strengths and areas for development as you begin the course.

Back to the contents


sharp clean edges.
shelf
curved edges
open and easy access
geometrical forms and shapes
separate compartments
stacked designs
drawer
controller hooks
shelves
inspired by modernism movement
head set holder/hook
CD/Disc holder
Right angles.
clean simple shapes and lines
space for x-box console


Geometric shapes with clean lines and angles
Separate compartments for different types and amounts of equipment.
varied shapes, some poles on the outside some going through.
Holes for ventilation to help prevent overheating
lack of storage/ dividers.
using the initial circle design along with extra compartments to meet the clients needs.
Static base with a rotational storage compartment
Developed the S shape design, adding compartments to fit all the equipment while having a lot of ventilation for the x-box console.

A Level Economics : Summer work

Exam board: Edexcel Economics A

Task 1: Positive and normative statements

In economics we distinguish between positive and normative statements.

Positive statements

Positive statements are objective statements that can tested, to prove if they are true or false
E.g. The retired population of Mexico has increased over the last 15 years

Normative statements

Normative statements are subjective statements i.e. carry value judgements. They are often based on opinions. They cannot be tested or proven. E.g. Mobile phones should be banned in all public places

Positive vs Normative

Positive	Normative
• Objective • Can be proved right or wrong using data • Can be false!	• Subjective • Value judgements • Impossible to 'prove'
Words like: • Risen, fallen • Increased, decreased • If, then • X causes Y • Greater than, smaller than	Words like: • Should • Ought to • Normal • Too • Acceptable

Remember that you can 'test positive' (e.g Covid) – if you can test it, it's positive!

a) Watch these two video clips on positive and normative statements and economic methodology.

- 60 second economics: Positive and normative economics https://www.youtube.com/shorts/KVB00c1iHGE
- Econplus Dal: Positive and normative statements and economic methodology https://www.youtube.com/watch?v=eG-6_Il9daA

b) Find two economic news articles and find examples of positive and normative statements within the article. Annotate or highlight the statements and explain why that statement is a positive statement or a normative statement.

Useful sources:

https://www.bbc.co.uk/news/business/economy

https://www.theguardian.com/business/economics

Task 2: Economic data for two countries

In macroeconomics we consider what is happening in the economy at a national and international level. It is beneficial to have an awareness of data and trends in key economic variables.

Back to the contents

a) The UK economy

Research and collate information on the following economic variables for the UK economy. This could be in tables, graphs etc

- Economic growth
- Inflation rates
- Employment / unemployment figures
- Interest rates
- Fiscal government budget
- Balance of payments of the current account and/ or balance of trade in goods and services
- International trade e.g. main trading partners, exports, imports

Useful sources:
www.ons.gov.uk
https://commonslibrary.parliament.uk/

b) Data for a second country

Research and collate information on the above variables for a second country.

This can be any country of your choice.
Unsure who to choose – then pick one of the following: Germany, China, USA, Japan, Vietnam

Task 3: Economic systems

There are a number of different economic systems with different approaches to organising the economy. This can be a free market economy, a mixed economy and a command economy.

a) Research the three different economic systems
   - Free market economy
   - Mixed economy
   - Command economy (aka planned economy)

   Research how each system is organised, how that affects the allocation of resources and advantages and disadvantages of each system.

b) Present the information in a suitable format e.g. word document, poster

c) Answer the following questions

   (i) Which do you think is the fairest economic system? Give reasons to justify your answer.

Back to the contents

(ii) Which economic system is the most efficient at allocating resources? Give reasons to justify your answer

(iii) Which economic system would you prefer to live in? Give reasons to justify your answer

Useful sources

- https://www.tutor2u.net/economics/topics/economic-systems?srsltid=AfmBOopmuiYO5LRV_C7wDyLv71xXiyQRm5mTsh9yshoxYM-mGmFWi4-A

- https://www.tutor2u.net/economics/collections/economic-systems?srsltid=AfmBOorL1V1_HYqixQkmjmEDmE-FwVrZnuKYZZYymveKL-rSM9FrPutU

- 60 second economics: Economic systems https://www.youtube.com/shorts/ZgMGVpxfP24

- Econplus Dal: Economic Systems - Market, Command and Mixed Economies https://www.youtube.com/watch?v=ntvD6nwKORs

Back to the contents

English Language (AQA) Summer Work

Task 1 – Language Investigation

Collect three real examples of language in use, e.g.:

- Social media post
- News article
- Conversation transcript

Analyse:

- Audience
- Purpose
- Key language features

Write one short paragraph for each example.

Task 2 – Intro to Language Change

Research how English has changed (for example through slang, technology, and globalisation). Produce a one-page explanation.

Include:

- 3–5 examples of changed words/meanings
- Brief reasons for change

Task 3 – Original Writing

Write either a story opening or a magazine article (approx. 400 words).

Then add a short commentary (200 words):

- Intended audience
- Key language choices
- Purpose

Back to the contents

English Literature Summer Work

English Literature (AQA)

Task 1 – Love and Marriage (Renaissance Context)

Create a notes page or poster on marriage and romantic relationships in the Renaissance (Elizabethan period).

Include:

- Whether marriage was based on love, status, or family arrangement
- Expectations of men and women in relationships
- 3–4 specific facts (e.g. parental control, reputation, gender roles)
- One short note: how might this shape how relationships are presented in literature?

Task 2 – Shakespearean Tragedy

Create a simple guide explaining the key features of a Shakespearean tragedy.

Include:

- Key conventions (tragic hero, fatal flaw, downfall)
- 1 simple example (e.g. a character's flaw leading to their downfall)
- 3–5 bullet points

Task 3 – 1920s America (*The Great Gatsby* Context)

Create a fact sheet on wealth, class, and the American Dream in 1920s USA.

Include:

- 4–5 concrete facts
- 1–2 short explanations of key ideas

Back to the contents

A Level Fashion and Textiles Summer Work

As you begin your journey into Year 12 Fashion and Textiles, the summer homework has been designed to help you develop key skills that will underpin your success in the course. This transition year requires a greater level of independence, creativity, and critical thinking, and the tasks set are intended to gently introduce you to these expectations.

The activities will encourage you to explore a range of designers, textiles, and techniques, while also building your ability to research, analyse, and present your ideas effectively. You will begin to form your own design style and develop confidence in expressing your creativity through both practical and written work.

It is important that you approach this work with care and curiosity. Take pride in your presentation and aim to demonstrate a thoughtful and personal response to each task.

Your completed summer homework must be ready to submit in your first lesson in September. This work will be assessed, so it is essential that you complete all tasks to the best of your ability.

We look forward to seeing your ideas and creativity—enjoy the process and use this as an opportunity to experiment, take inspiration from the world around you, and begin thinking like a designer.

Choose **one** of the following **AQA** designers:

- Paul Poiret (1920's)
- Coco Chanel
- Christian Dior
- Mary Quant
- Yves Saint Laurent
- Pierre Cardin
- Vivienne Westwood
- Alexander McQueen

Task: Designer Research & Mood Board

Research your chosen designer, focusing on **why they are considered influential in the fashion industry**. Consider aspects such as their signature style, innovations, cultural impact, and how they have inspired other designers or trends.

Using your research, create a **visual mood board** that clearly showcases the designer's work. Your mood board should include a range of images (e.g. garments, runway shows, close-up fabric details, or campaigns) that represent their aesthetic and key ideas.

Alongside your images, you must include **clear annotations**. These should demonstrate your understanding and must include:

- The **names of iconic garments or collections**
- **Dates** (year or season where relevant)
- **Materials and components** used

Back to the contents

- An explanation of **why each piece is considered significant or iconic**
- Any **interesting facts or contextual information** (e.g. cultural influences, historical context, or impact on fashion)

Your annotations should be **concise but informative,** showing thoughtful analysis rather than simple description.

This task will help you develop your research, analysis, and presentation skills—key components of A-Level Fashion & Textiles. Aim for a **visually engaging layout** and a **high standard of presentation** throughout.

2. Task 2: Fashion Illustration

Back to the contents

Create **two fashion illustrations** (minimum A4 size) of a garment or garments inspired by your chosen designer. Your designs should clearly reflect elements of the designer's style, such as silhouette, colour palette, patterns, textures, or overall aesthetic.

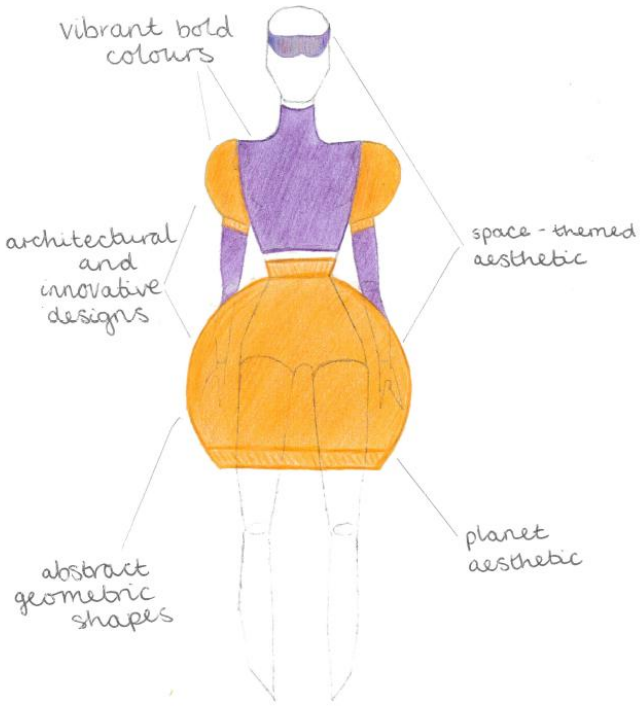
Your illustrations should be **carefully rendered** using appropriate media (e.g. pencil, fine liner, coloured pencil, watercolour, or digital methods). Consider proportion, detail, and presentation to ensure a high-quality outcome.

Alongside your illustrations, you must include **clear annotations**. These should explain:

- How your design has been **inspired by your chosen designer**
- Key design features (e.g. shape, structure, detailing)
- **Fabrics and materials,** you would use
- Any **techniques or processes** involved in making the garment
- Why you made certain **design choices**

Your annotations should show thoughtful explanation rather than simple description, demonstrating your understanding of design development.

This task is designed to develop your **creative design skills** and your ability to communicate ideas visually and in writing. Aim for a **high standard of presentation**, with neat layout and clear, readable annotations.



Back to the contents

A Level French Summer work

TASK1: CULTURAL RESEARCH

A/ Aspects of French-speaking society: current trends

1. The changing nature of family (La famille en voie de changement)

a. What was the marriage rate in the 1950s in France? What is it now?

b. What is the current rate of divorce in France? Choose two further French-speaking countries. Do the results differ? If so, why do you think that is?

c. What is "le mariage pour tous"?

2. The 'cyber-society' (La « cyber-société »)

a. What are some of the main dangers of using the Internet? Make a list of five issues.

b. What percentage of homes in France have access to the Internet? Choose two further French-speaking countries. Do the results differ? If so, why do you think that is?

c. Are French pupils allowed to use their phones in school?

3. The place of voluntary work (Le rôle du bénévolat)

a. Research the charity 'Les Restos du Coeur'. What is their goal and how to they go about this?

b. What is the 'Service Civique' and what are its aims?

c. What percentage of French people engage with volunteering? What do you notice about the demographics of these statistics?

d. Make a list of the advantages and disadvantages of volunteering, for both the volunteers and those they help

B/ Artistic culture in the French-speaking world

1. A culture proud of its heritage (Une culture fière de son patrimoine)

a. Make a list of 5 Francophone sites listed on the UNESCO world heritage list.

Back to the contents

b. What happened to the Notre Dame Cathedral in 2019 and how did the world react?

c. What can you visit at the Lascaux caves?

d. Funerary and memory sites of the First World War (Western Front) are listed in the UNESCO world heritage list. What are the particularities of these sites?

2. Contemporary francophone music (La musique francophone contemporaine)

a. Listen to the artists Jacques Brel, Aya Nakamura, Black M, Orelsan, Jean-Jaques Goldman. What do you think of their music. Research the background of each artist and create a short fact file.

b. What is the "French cultural exception"? Note down some key statistics

c. What is "la fête de la musique"?

3. Cinema: the 7th art form (Cinéma : le septième art)

a. How many films come out each year in France? What was the most successful film in France last year?

b. What is the Cannes Film festival?

c. What are the César awards?

TASK 2: LANGUAGE

Fill in the gap with the relevant form of the verb or adjective between brackets

Saoud Massi _____ depuis l'âge de quatre ans. **(chanter)**

En deux ans, elle est _____ une grande star de la musique francophone. **(devenir)**

La chanteuse _____ fait actuellement une grande tournée mondiale. **(algérien)**

Souad nous dit: « Mes chansons montrent la présence de _____ influences espagnoles, le flamenco, par exemple. **(nombreux)**

Je chante en arabe, mais les spectateurs français _____ ma musique à travers les émotions. **(comprendre)**

Je viens d' _____ un appartement à Paris. **(acheter)**

Par rapport à ma vie en Algérie, beaucoup de choses ont _____ . **(changer)**

En tant que femme, je me sens plus _____ et plus libre. **(sûr)**

A l'avenir, je veux continuer à voyager. J'espère faire de _____ rencontres intéressantes partout. **(beau)**

Si j'avais une baguette magique, je _____ parler toutes les langues! » **(vouloir)**

Back to the contents

(Total 10 marks)

TASK 3: SKILLS PRACTICE

1. LISTENING:

Audio resource:

https://vewunog.exampro.net/#rtarget

Un nouveau film canadien

Ecoutez cette critique parler du film québécois *Le club Vinland*.

Quelle est l'attitude de la critique envers les aspects mentionnés ?

Pour une attitude **positive**, notez **P**.
Pour une attitude **négative**, notez **N**.
Pour une attitude **positive** et **négative**, notez **P+N**.

Ecrivez les bonnes lettres dans les cases.

1 Le travail du réalisateur ☐

2 L'intrigue du film ☐

3 Le début du film ☐

4 Le choix du protagoniste masculin ☐

5 La durée du film ☐

6 Le dénouement ☐

2. READING:

La vie de famille au Québec

Lisez cet article sur les familles au Québec.

Julien, 37 ans, en union libre et père de trois enfants, a déménagé il y a deux ans de la ville de Québec vers la campagne. « Dans un premier temps, nous cherchions un rythme plus calme, loin de la pollution, du trafic et des nuisances sonores. Les heures de présence au bureau en plus des heures de transport m'épuisaient et nuisaient à la vie familiale. Les caractéristiques de la campagne comme le contact

Back to the contents

avec la nature, la quiétude et les relations plus personnalisées ont été des facteurs cruciaux pour notre choix. »

La trajectoire de cette famille est loin d'être atypique au Québec. Souvent diplômés mais sans connaissances particulières de la vie rurale, de plus en plus de couples créent de nouvelles entreprises. Ce faisant, ils réalisent leurs rêves de créativité et d'indépendance et font très souvent les premiers pas dans l'enseignement à domicile.

Néanmoins, l'isolement géographique, le manque de distractions ou les difficultés associées à la scolarisation des adolescents nécessitent parfois un retour en ville. Le fait d'avoir des amis à proximité, de nombreuses activités communautaires et des enfants du même âge, facilite la vie des enfants et de leurs parents. Satisfaites d'une période prolongée en nature, les familles envisagent un retour en ville.

Pour chacune des phrases ci-dessous, notez :

V – vrai

F – faux

ou **ND** – information non-donnée.

1 Julien est marié. ☐

(1)

2 Julien a longtemps vécu en milieu urbain avec sa famille. ☐

(1)

3 Le trajet jusqu'au bureau a été un motif pour le déménagement. ☐

1)

4 Les attraits de la campagne sont aussi bien physiques que sociaux. ☐

(1)

5 Un nombre grandissant de couples s'installent à la campagne. ☐

(1)

6 Les nouveaux résidents à la campagne fondent souvent leur propre activité commerciale. ☐

(1)

7 Leurs enfants sont tous scolarisés dans les écoles locales. ☐

1)

Back to the contents

8 Les nouveaux résidents retournent en ville pour faire des achats. ☐

(1)

9 La campagne offre peu d'activités de loisirs. ☐

(1)

10 Les familles qui repartent pour la ville ont de bons souvenirs. ☐

(1)

3. TRANSLATION:

Un concours de chanson francophone

Read this passage from a Belgian website.

Translate the passage into **English**.

Depuis plus de dix ans, des centaines de chanteurs amateurs belges participent à un concours, organisé par le Ministère de l'Education. Près de mille jeunes qui apprennent le français ont déjà profité de cette expérience. Ils interprètent une chanson en français devant un jury composé de professionnels de la musique ainsi que de professeurs de français. On vient d'annoncer qu'à partir de cette année, la finale sera ouverte à des chanteurs de quinze à trente ans.

_____

_____

_____

_____

_____

_____

_____

_____

_____

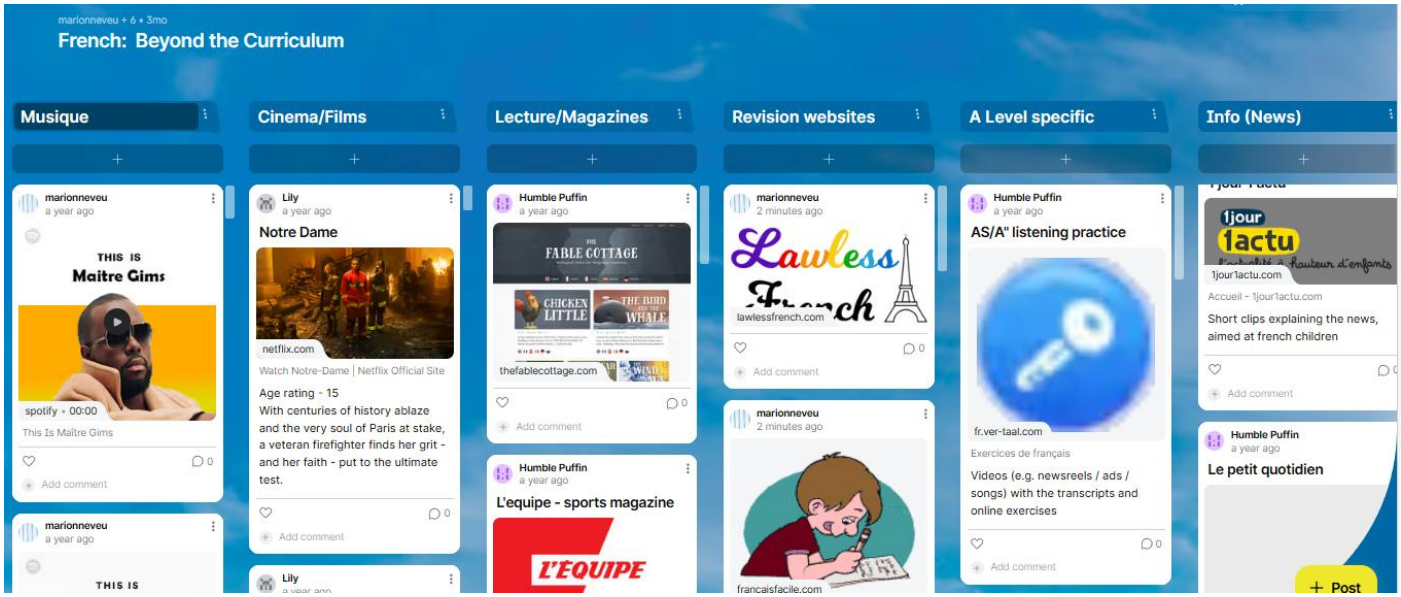
_____

_____Total 10 marks)

Back to the contents

USEFUL LINKS

French: Beyond the Curriculum On this website, you will find links to videos, songs, grammar, news articles...



Back to the contents

A Level Geography transition tasks

Paper 1 – Physical Geography

In preparation for studying coastal landscapes in terms 1 and 2 of Year 12, you should produce a report about the Jurassic coast in Dorset to cover the following:

- Geology
- Discordant coastline
- Concordant coastline
- Coastal landforms and their formation including the following landforms: Durdle Door, Old Harry, Lulworth Cove, Chesil beach, Swanage bay
- Coastal management schemes such as those in Swanage Bay or Lyme Regis

Paper 2 – Human Geography

In preparation for studying A Level Geography in September, you should ensure you are keeping up-to-date with events taking place around the world and in your local area. You should complete a 'news diary' during the summer break to show the reading you have been doing about current events.

Every week, for six weeks, you should aim to read several news articles or watch current events programmes. To ensure you are engaging with a broad range of ideas, you should aim to find:

- At least one article about things happening in Maidenhead (e.g. changes to the town centre)
- At least one article about international politics (e.g. any on-going conflicts, meetings of powerful countries, migration policies or numbers, international agreements, price of oil, trade policies)

For each article you read, you should make a note of:

- The date the article was published
- The headline of the article
- A brief description/summary of the content of the article (including key points that you think might link to the Geography course)
- A link to the news article (if published online) or the place it was published (e.g. the newspaper)

1) Week beginning Monday _____

1	**Date**	
	Headline	
	Description	
	Link	
2	**Date**	
	Headline	
	Description	

Back to the contents

	Link	
3	Date	
	Headline	
	Description	
	Link	

2) Week beginning Monday _____

1	Date	
	Headline	
	Description	
	Link	
2	Date	
	Headline	
	Description	
	Link	
3	Date	
	Headline	
	Description	
	Link	

3) Week beginning Monday _____

1	Date	
	Headline	
	Description	

Back to the contents

	Link	
2	Date	
	Headline	
	Description	
	Link	
3	Date	
	Headline	
	Description	
	Link	

4) Week beginning Monday _____

1	Date	
	Headline	
	Description	
	Link	
2	Date	
	Headline	
	Description	
	Link	
3	Date	
	Headline	
	Description	
	Link	

5) Week beginning Monday _____

Back to the contents

1	Date	
	Headline	
	Description	
	Link	
2	Date	
	Headline	
	Description	
	Link	
3	Date	
	Headline	
	Description	
	Link	

6) Week beginning Monday _____

1	Date	
	Headline	
	Description	
	Link	
2	Date	
	Headline	
	Description	
	Link	
3	Date	
	Headline	
	Description	

Back to the contents

	Link	

Task 3 Documentary Review

In order to improve your knowledge of Geography beyond the specification, we would like you to watch at least one "popular geography" documentary on some aspect of geography and/or its application.

Prepare a short, written review to share with the class during the first week in September.

BBC iPlayer

Back to the contents

A Level German Summer work

TASK1: CULTURAL RESEARCH

A/ Aspects of German-speaking society

1.The changing state of the family (Familie im Wandel)

a.What are the most common types of family structure in German-speaking countries?

b. What was the birth rate in the 1950s in Germany? What is it now?

c. What support does the German government offer to families?

d. What are "Mehrgenerationenhäuser"?

2. The digital world (Die digitale Welt)

a. Name 3 benefits and 3 dangers of social media.

b. How are young people protected from these dangers in German speaking countries?

c. Are there differences between generations / regions in their use of technology?

3. Youth culture: fashion and trends, music, television (Jugendkultur: Mode, Musik und Fernsehen)

a. What music genres are the most popular among young people in German speaking countries?

b. Listen to some German artists and give your opinion about their music: Mark Forster, AnnenMayKantereit, AYLIVA, Nina Chuba, Apache 207

c. Name two major TV channels of one German speaking country. Do young people watch them?

d. How do sustainability movements affect fashion choices in Germany?

B/ Political and artistic culture

1. Festivals and traditions (Feste und Traditionen)

a.Alpabzug, Krampuslauf oder Martinstag: what would you prefer to experience?.

b.Where and how is carneval celebrated in German speaking countries?

c.Why are festivals important for the economy?

2.Art and architecture (Kunst und Architektur)

a. Look at the paintings *Der Wanderer über dem Nebelmeer* by Caspar David Friedrich and *Blaues Pferd I* by Franz Marc: which one do you prefer?

b.Why did the Brandenburger Gate become a symbol?

Back to the contents

c.Where is the Albertina Museum and which famous artists can be seen there?

d. What is a "Passivhaus"?

3. Cultural life in Berlin, past and present (Das Berliner Kulturleben damals und heute)

a.Give examples on how is the history of Nazism and the Cold War remembered in Berlin today.

b. Why is Museum Island (Museumsinsel) important internationally?

c. What makes Berlin attractive to artists from around the world?

d. What is the "Karneval der Kulturen"?

TASK 2: LANGUAGE

A) 1. Wortstellung – ist alles ganz richtig? Explain your answers.

1. Ich denke nicht, dass bestehen werde meine Prüfungen ich im Sommer denn ich arbeitete sehr fleißig

2. Weil habe ich kein Geld im Moment, ich muss sparen monatenlang, bevor kann ich es mir ins Ausland zu fahren leisten

3. Obwohl habe ich studiert viel während der Ferien, ich denke nicht, dass ich werde bekommen gute Noten

4. Das ist die Frau, die gestern habe ich im Laden mit ihren Mann gesehen

5. Ich weiss nicht, was machen ich diesen Sommer werde, weil habe ich gar keine Ideen

6. Weil Fremdsprachen sind schwierig, ich habe vor zu arbeiten sehr fleissig

7. Sodass kann ich studieren in der Uni dieses Jahr, ich werde mich zu bekommen gute Noten bemühen

8. Um zu eine gute Stelle kriegen, man muss einen Universitätsabschluss haben und dann man gut verdienen kann. Also in die Uni gehe ich

9. Er fragt oft sich warum es gibt in der Welt viele Armut

10. Weil sie ist sehr ausgiebig, hat sie gegeben viele teueren Geschenke mir zu Weihnachten

11. Weil ist sie Einzelkind, man kann sagen wohl, dass ist verwöhnt sie

Back to the contents

B) Put these conjunctions under the correct heading

VERB TO THE END	NO CHANGE	SWAP ROUND

meistens	weil	denn	warum ?	warum	und	also	dass	auch	wenn	gestern	
obwohl	normalerweise	aber	denn	was	wo	,die	damit	auch	oder	dann	

C) Complete the table with the conjugated present tense forms of the modal vebs.

	dürfen may/to be allowed to	können can/to be able to	müssen must/to have to	sollen shall/ought to	wollen to want to
ich					
du					
er					
sie					
es					
wir					
ihr					
sie					
Sie					

TASK 3: SKILLS PRACTICE

1. LISTENING:

Musik

Sie hören Interviews mit drei deutschen Jugendlichen zum Thema Musik. Lesen Sie dann die Aussagen unten. Schreiben Sie den passenden Namen (Birgit, Jasmin, Tatjana) ins Kästchen.

Back to the contents

Audio resource:

https://kyciyuj.exampro.net/

(a) Wer hört seit der Kindheit Musik?

(1)

(b) Wer glaubt, dass Musik gesundheitliche Vorteile bringt?

(1)

(c) Wer mag Musik verschiedener Arten?

(1)

(d) Wer denkt, dass Musik Menschen zusammenbringt?

(1)

(e) Wer hört Musik, wenn sie unterwegs ist?

(1)

(f) Wer verbindet Musik mit verschiedenen Emotionen?

(1)

(g) Wer mag **nicht** die ganze Zeit Musik hören?

(1)

(h) Wer findet Musik unbedingt nötig?

(1)

(Total 8 marks)

2. READING:

Lesen Sie die folgenden Äußerungen über Eltern in Deutschland. Schreiben Sie dann den passenden Namen (Julia, Serkan, Maximilian, Vanessa) zu jeder Aussage auf der nächsten Seite.

Gute Eltern, schlechte Eltern

Back to the contents

Julia

Gute Eltern machen ihre Kinder glücklich. Glückliche Kinder sind normalerweise gesund und voller Energie. Im Allgemeinen finden sie aus Problemen leichter einen Ausweg. Gute Eltern setzen auch erreichbare Ziele, sonst werden die Kinder schnell enttäuscht.

Serkan

Um die Entwicklung Ihres Kindes zu unterstützen, sollten Sie seine Persönlichkeit respektieren. Alle Kinder sind verschieden. Man darf sein Kind zwar auf seine Schwächen und Stärken hinweisen, muss sich aber auf die Stärken konzentrieren.

Maximilian

Kinder sind Egoisten und sehr auf sich selbst gerichtet. Zeigen Sie Ihrem Kind, welche Regeln zwischen Menschen gültig sind. Ihr Kind wird nie sozial akzeptiert werden, wenn ihm unsoziales Verhalten erlaubt wird.

Vanessa

Unternehmen Sie gemeinsam Dinge mit Ihrem Kind. Reden Sie jeden Tag mit ihm. Halten Sie sich aber bei der Schularbeit des Kindes zurück. Eltern sollten bei den Hausaufgaben nur helfen.

(a) Jedes Kind ist anders. ☐

(1)

(b) Man sollte nicht alles tolerieren. ☐

(1)

(c) Es ist wichtig, dass das Kind zufrieden ist. ☐

(1)

(d) Disziplin muss eine Rolle spielen. ☐

(1)

Back to the contents

(e) Man muss Zeit für das Kind haben, aber nicht alles für es machen. ☐

(1)

(f) Man darf keine unrealistischen Leistungen erwarten. ☐

(1)

(g) Gute Eltern betonen das Positive. ☐

1)

(Total 7 marks)

3. TRANSLATION:

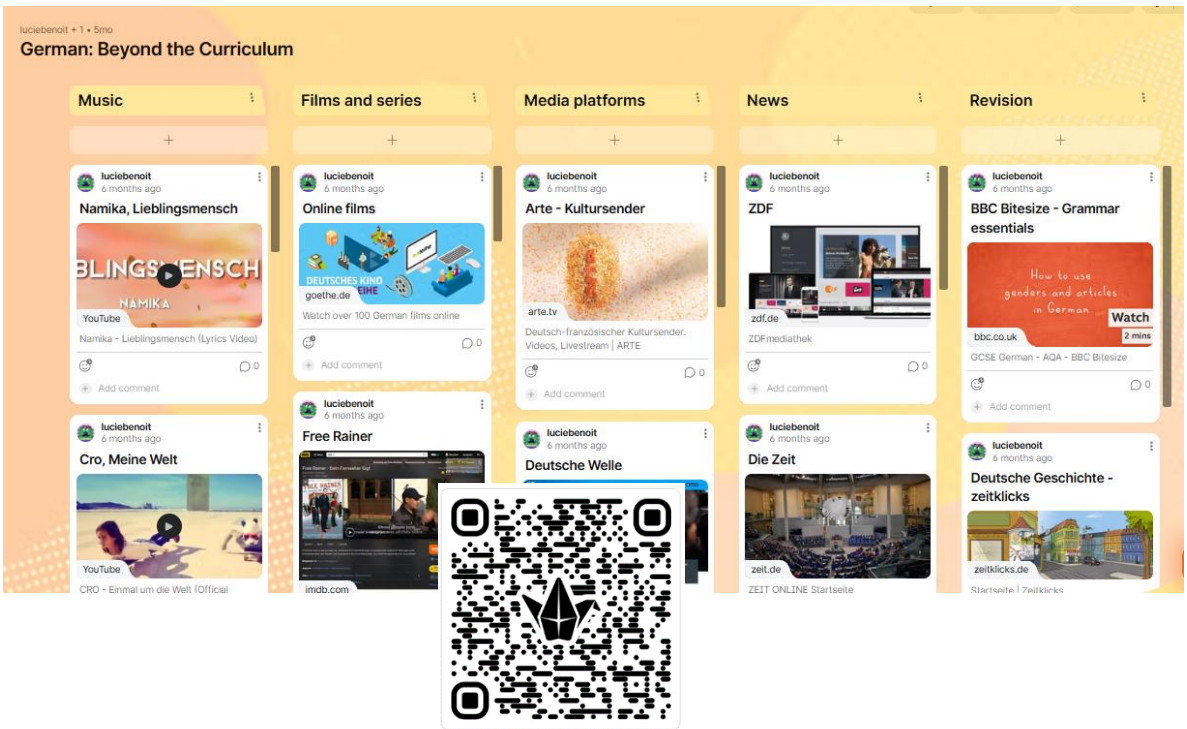
Berlin

Translate the following passage into **English**.

Die deutsche Hauptstadt hat sich in den letzten dreißig Jahren grundsätzlich verändert. Ob Museen, Theater oder spannende Attraktionen, Berlin bietet Spaß für Groß und Klein! Außerdem besuchen immer mehr Naturfreunde Berlin. Keine andere deutsche Stadt hat so viele Seen und Grünanlagen. Sie ist nicht nur die interessanteste Stadt Deutschlands, sondern auch bestimmt eine der schönsten. Neue Hochgeschwindigkeitszüge sollen bald den Touristen aus Paris erlauben, Berlin in vier Stunden zu erreichen.

USEFUL LINKS

German Beyond the Curriculum On this website, you will find links to videos, songs, grammar, news articles...



Back to the contents

BTEC Health and Social Care Transition Pack

Moving from Year 11 to Year 12 is an exciting step. At Level 3 (Year 12 and 13), you are expected to move beyond simply memorising biological facts to understanding how these systems impact human health, wellbeing, and the care people need.

This transition pack focuses on the **Respiratory System**. It will refresh your GCSE biology knowledge and introduce you to the depth expected at Level 3. Please read through the guide and complete the tasks at the end before your first lesson in September.

Links to tasks:

Cell Biology revision mat

Organisation Revision Mat

The Golden Rule: Respiration is not the same as Breathing

The most common mistake students make is confusing *respiration* with *breathing* (ventilation). At Level 3, you must use these terms accurately.

- **Breathing (Ventilation):** The physical, mechanical process of moving air in and out of the lungs.
- **Respiration:** A chemical reaction that happens inside *every single living cell* (in the mitochondria) to release energy from glucose.

Aerobic Respiration (requires oxygen):

Glucose + Oxygen → Carbon Dioxide + Water + Energy

Anaerobic Respiration (without oxygen, during intense exercise):

Glucose → Lactic Acid + Energy

The respiratory system's job is to bring in the oxygen needed for aerobic respiration and remove the carbon dioxide produced as waste.

Anatomy of the Respiratory System

To understand how we breathe, you need to know the specific organs and structures involved.

- **Trachea (Windpipe):** The tube connecting the throat to the lungs. It contains rings of cartilage to keep it open and stop it from collapsing under pressure.
- **Bronchi (Singular: Bronchus):** The trachea splits into two large tubes, one going into each lung.
- **Bronchioles:** The bronchi divide into many smaller, branching tubes (like the branches of a tree) called bronchioles.
- **Alveoli:** Tiny, grape-like air sacs at the very end of the bronchioles. This is where gas exchange actually happens.
- **Diaphragm:** A large, dome-shaped sheet of muscle sitting right at the base of the lungs.

Back to the contents

- **Intercostal Muscles:** The muscles located between your ribs that help expand and contract the chest cavity.

The Mechanics of Ventilation

Breathing happens because of changes in **pressure** and **volume** inside your chest cavity (the thorax). Air will always move from an area of high pressure to an area of low pressure.

Inhalation (Breathing In)

1. The **intercostal muscles** contract, pulling the ribcage up and out.
2. The **diaphragm** contracts and flattens downwards.
3. This **increases the volume** of the chest cavity.
4. Because the volume increases, the **pressure decreases** inside the lungs.
5. Atmospheric pressure is now higher outside the body, so air is forced **into** the lungs.

Exhalation (Breathing Out)

1. The **intercostal muscles** relax, and the ribcage moves down and in.
2. The **diaphragm** relaxes and domes upwards.
3. This **decreases the volume** of the chest cavity.
4. Because the volume decreases, the **pressure increases** inside the lungs.
5. Pressure is now higher inside the lungs than outside, so air is forced **out**.

Gas Exchange at the Alveoli

Once oxygen travels down into the alveoli, it needs to get into the bloodstream. It does this via **diffusion**, the movement of particles from an area of high concentration to an area of low concentration.

The alveoli are perfectly adapted for this job:

- **Massive surface area:** There are millions of alveoli in each lung, providing a huge surface for diffusion.
- **Thin walls:** The walls of the alveoli and the surrounding blood capillaries are only one cell thick, creating a very short diffusion pathway.
- **Moist lining:** Gases dissolve in the moisture, helping them diffuse across the membranes faster.
- **Rich blood supply:** A dense network of capillaries carries oxygen away immediately, maintaining a steep concentration gradient so diffusion keeps happening quickly.

Your Transition Tasks

Please complete the following tasks on paper or a digital document and bring them to your first lesson in September.

Task 1: The Physiology Glossary

Create a glossary defining the following terms in your own words. Do not just copy from above, write them so that a 12-year-old could understand them:

- Ventilation
- Aerobic Respiration
- Diffusion

Back to the contents

- Alveoli
- Diaphragm

Task 2: The Journey of Oxygen

Write a short creative paragraph or a step-by-step flowchart tracking a single molecule of oxygen. Start from the moment it enters the nose, describing every structure it passes through until it diffuses into the red blood cells.

Task 3: Applied Health & Social Care (Research)

At Level 3, we look at what happens when these systems fail. Choose **ONE** of the following respiratory conditions:

- Asthma
- Chronic Obstructive Pulmonary Disease (COPD)
- Cystic Fibrosis

Research your chosen condition and write a half-page summary covering:

1. How does this condition physically affect the respiratory system? (e.g., what happens to the bronchi or alveoli?)
2. What are three common symptoms the patient will experience?
3. Name one treatment or intervention a healthcare professional might use to manage it.

TASK 4: Biology Recap

Complete the Twinkl Summary, be prepared for a short qu **Optional Extra tasks**

and further reading:

Books

- This is Going to Hurt by Adam Kay: The hilarious, heartbreaking, and brutally honest diaries of a former NHS junior doctor. It is essential reading for understanding the day-to-day pressures frontline healthcare staff face.
- The Language of Kindness: A Nurse's Story by Christie Watson: A beautiful memoir spanning twenty years of nursing. It explores the vital importance of compassion, communication, and dignity in patient care.
- Elizabeth is Missing by Emma Healey: A gripping fiction mystery told from the perspective of an elderly woman experiencing dementia. It puts the reader directly inside the mind of someone living with cognitive decline, which is brilliant for understanding person-centred care.
- Pig Heart Boy by Malorie Blackman: A thought-provoking young adult novel about a teenager who needs a heart transplant and is offered an experimental pig's heart. It is excellent for exploring medical ethics and consent.

Back to the contents

Films

- Help (2021): Starring Jodie Comer and Stephen Graham, this powerful UK TV film is set in a Liverpool care home during the outbreak of the COVID-19 pandemic. It highlights the realities of dementia care and the massive strain placed on the social care sector.
- I, Daniel Blake (2016): Directed by Ken Loach, this film follows a carpenter recovering from a heart attack as he attempts to navigate the UK welfare system. It is a crucial watch for understanding the "social" side of the curriculum, including poverty, benefits, and systemic barriers to health.
- Still Alice (2014): While set in the US, this film is frequently recommended on UK curriculums. It follows a linguistics professor diagnosed with early-onset Alzheimer's disease and shows the profound impact the condition has on her independence and her family dynamics.

TV Shows

- 24 Hours in A&E (Channel 4): A documentary series offering a fly-on-the-wall look at some of the UK's busiest emergency departments. It shows the incredible teamwork of medical professionals and the diverse, unpredictable needs of the patients coming through the doors.
- Ambulance (BBC): This series follows UK paramedics and emergency call handlers. It provides brilliant insight into emergency response, mental health crises, and how social issues in the community directly impact the NHS on a daily basis.
- Call the Midwife (BBC): Set in East London in the 1950s and 60s, this drama follows a group of midwives and nuns. While historical, it is fantastic for understanding public health, community nursing, and how social conditions (like housing and poverty) influence medical care.
- Louis Theroux: Mothers on the Edge (BBC): TRIGGER WARNING: This is harrowing and I would check the description before you watch it.

Back to the contents

A Level History Summer Work

1. **Do:** Buy 2 lever arch files and dividers: one will be for your Tudor Unit, the other for your Cold War Unit.
2. **Watch:** Youtube 'Henry VII: The Winter King' and answer the questions attached – link on question sheet below. (Tudors)
3. **Listen:** Spotify 'It's Just a Bunch of Stories' the Korean War episode. Explain what you consider to be the main cause of the war and the most significant consequence. (Cold War)

Henry the VII – the Winter King

https://www.youtube.com/watch?v=aBpSRQ6wVPU

1. How does Thomas Penn describe Henry?
2. How does Penn describe the regime Henry VII established?
3. Who made up Henry VII's army?
4. Who had the biggest Army?
5. Why didn't Lord Stanley join Henry immediately?
6. When was Henry crowned?
7. What was Henry's claim to the throne?
8. What effect did Henry's upbringing have upon him?
9. What did Henry do with Parliament on their first meeting?
10. Why did Henry backdate the start of his reign one day?
11. What did the marriage/union with Elizabeth Woodville promise?
12. Why would Henry be worried about the family tree/roll?
13. What happened in 1487?
14. What was dearest to Henry's heart?
15. How does the pound reinforce that Henry was King?
16. What happened in 1493?
17. How did Henry deal with the Perkin Warbeck threat?
18. Where did the trail of the Warbeck threat lead to?
19. What did money mean to Henry?
20. What was Henry building up?
21. What happened to Perkin Warbeck?
22. What did the ambassador say about England?
23. Who was Arthur going to marry?
24. What did Thomas More say about the arrival of Catherine of Aragon?
25. 1502 – What message did the messenger bring the King?
26. How is Henry VII described at Arthur's funeral?
27. 11th Feb 1503 – what happened?
28. How did Henry respond/react to Elizabeth's death?
29. How does Penn describe Henry now in his older years?
30. What did Henry's councillors force people to do?
31. What was the council learned in law?
32. Who was Edmund Dudley and what was his role under Henry?
33. What happened to the Duke of Suffolk?
34. How does Penn describe Henry's subjects?
35. How did Henry VII differ from his son?

Back to the contents

36. 21st April 1509 – What happened?
37. What happened to Edmund Dudley?
38. What did Henry VIII promise?
39. How does More describe the coming of Henry VIII?
40. What is the inscription on Henry and Elizabeth's tomb?

Further reading: ***The Winter King*** *by Thomas Penn (Tudors).* ***The Cold War*** *by John Lewis Gaddis (Cold War).*

Back to the contents

A Level Maths and Further Maths Summer work

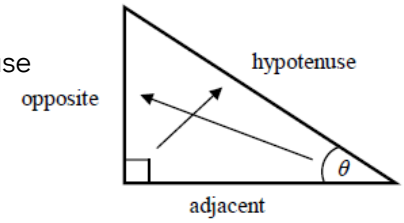
Please complete all of the following if you are doing Further Maths and/or Maths

Trigonometry in right-angled triangles

A LEVEL LINKS
Scheme of work: 4a. Trigonometric ratios and graphs

Key points

- In a right-angled triangle:
  - the side opposite the right angle is called the hypotenuse
  - the side opposite the angle θ is called the opposite
  - the side next to the angle θ is called the adjacent.



- In a right-angled triangle:
  - the ratio of the opposite side to the hypotenuse is the sine of angle θ, $\sin\theta = \frac{\text{opp}}{\text{hyp}}$
  - the ratio of the adjacent side to the hypotenuse is the cosine of angle θ, $\cos\theta = \frac{\text{adj}}{\text{hyp}}$
  - the ratio of the opposite side to the adjacent side is the tangent of angle θ, $\tan\theta = \frac{\text{opp}}{\text{adj}}$

- If the lengths of two sides of a right-angled triangle are given, you can find a missing angle using the inverse trigonometric functions: $\sin^{-1}$, $\cos^{-1}$, $\tan^{-1}$.

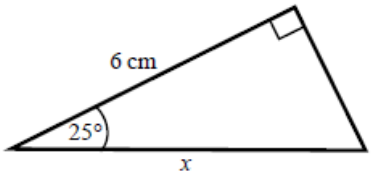
- The sine, cosine and tangent of some angles may be written exactly.

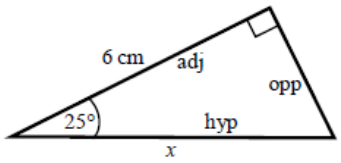
	0	30°	45°	60°	90°
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	

Back to the contents

Examples

Example 1 Calculate the length of side x.
Give your answer correct to 3 significant figures.





$\cos\theta = \frac{\text{adj}}{\text{hyp}}$

$\cos 25° = \frac{6}{x}$

$x = \frac{6}{\cos 25°}$

x = 6.620 267 5...

x = 6.62 cm

1 Always start by labelling the sides.

2 You are given the adjacent and the hypotenuse so use the cosine ratio.

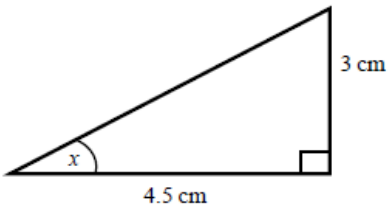
3 Substitute the sides and angle into the cosine ratio.

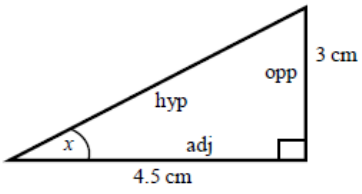
4 Rearrange to make x the subject.

5 Use your calculator to work out 6 ÷ cos 25°.

6 Round your answer to 3 significant figures and write the units in your answer.

Example 2 Calculate the size of angle x.
Give your answer correct to 3 significant figures.





$\tan\theta = \frac{\text{opp}}{\text{adj}}$

$\tan x = \frac{3}{4.5}$

$x = \tan^{-1}\left(\frac{3}{4.5}\right)$

x = 33.690 067 5...

x = 33.7°

1 Always start by labelling the sides.

2 You are given the opposite and the adjacent so use the tangent ratio.

3 Substitute the sides and angle into the tangent ratio.

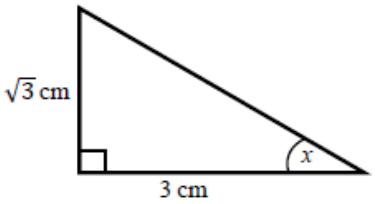
4 Use $\tan^{-1}$ to find the angle.

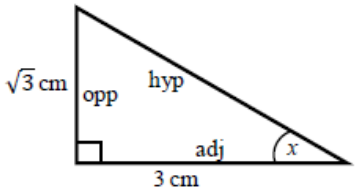
5 Use your calculator to work out $\tan^{-1}(3 \div 4.5)$.

Back to the contents

	6 Round your answer to 3 significant figures and write the units in your answer.

Example 3 Calculate the exact size of angle x.

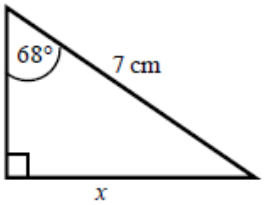


 $\tan\theta = \frac{\text{opp}}{\text{adj}}$ $\tan x = \frac{\sqrt{3}}{3}$ $x = 30°$	1 Always start by labelling the sides. 2 You are given the opposite and the adjacent so use the tangent ratio. 3 Substitute the sides and angle into the tangent ratio. 4 Use the table from the key points to find the angle.

Practice

1 Calculate the length of the unknown side in each triangle.
Give your answers correct to 3 significant figures.

a



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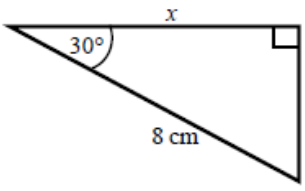
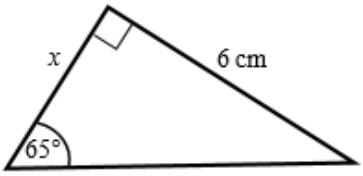


Back to the contents

c



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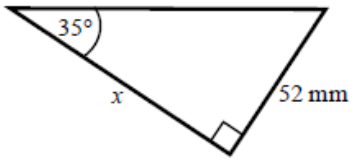

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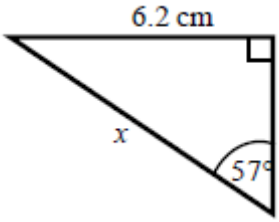

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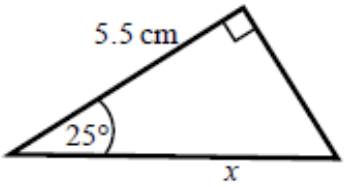
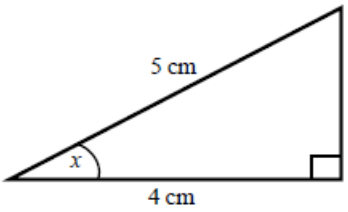


Back to the contents

2 Calculate the size of angle x in each triangle.
Give your answers correct to 1 decimal place.

a



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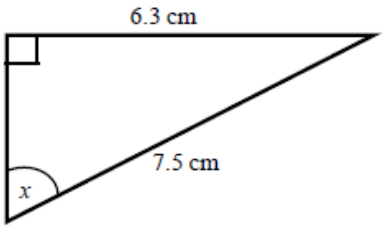

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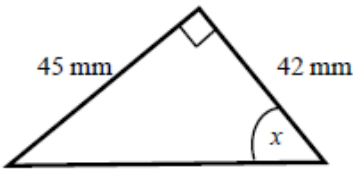

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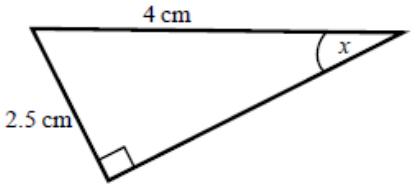
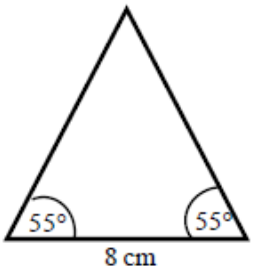


3 Work out the height of the isosceles triangle.
Give your answer correct to 3 significant figures

Hint:

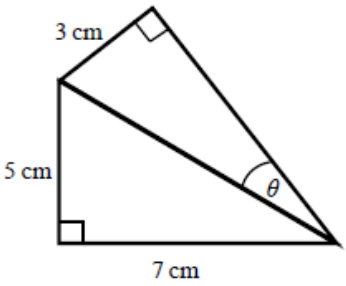
Split the triangle into two right-angled triangles.



4 Calculate the size of angle θ.
Give your answer correct to 1 decimal place.

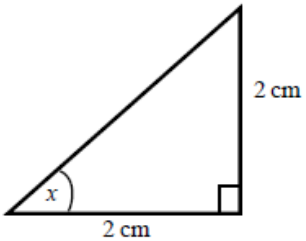
Hint:

First work out the length of the common side to both triangles, leaving your answer in surd form.



5 Find the exact value of x in each triangle.

a



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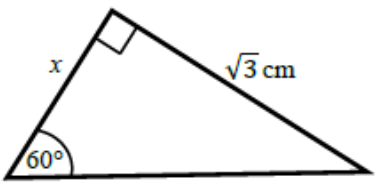

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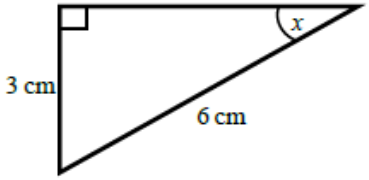

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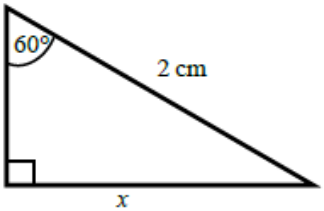


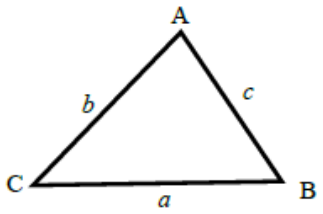
Back to the contents

The cosine rule

A LEVEL LINKS
Scheme of work: 4a. Trigonometric ratios and graphs
Textbook: Pure Year 1, 9.1 The cosine rule

Key points

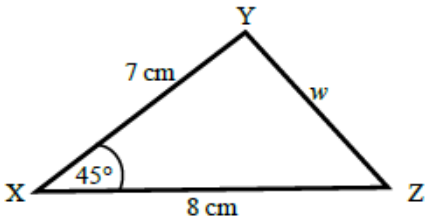
- a is the side opposite angle A.
  b is the side opposite angle B.
  c is the side opposite angle C.

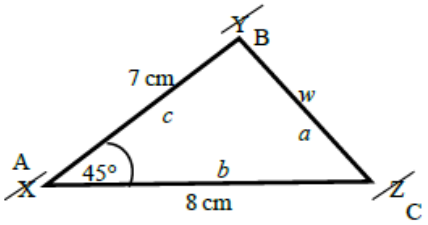


- You can use the cosine rule to find the length of a side when two sides and the included angle are given.
- To calculate an unknown side use the formula $a^2 = b^2 + c^2 - 2bc\cos A$.
- Alternatively, you can use the cosine rule to find an unknown angle if the lengths of all three sides are given.
- To calculate an unknown angle use the formula $\cos A = \dfrac{b^2 + c^2 - a^2}{2bc}$.

Examples

Example 4 Work out the length of side w.
Give your answer correct to 3 significant figures.





$a^2 = b^2 + c^2 - 2bc\cos A$

$w^2 = 8^2 + 7^2 - 2\times 8\times 7\times \cos 45°$

$w^2 = 33.804\,040\,51...$

$w = \sqrt{33.804\,040\,51}$

$w = 5.81$ cm

1 Always start by labelling the angles and sides.

2 Write the cosine rule to find the side.

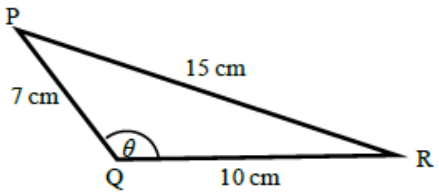
3 Substitute the values a, b and A into the formula.

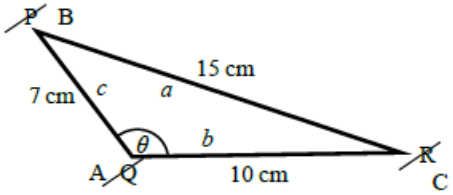
4 Use a calculator to find w^2 and then w.

5 Round your final answer to 3 significant figures and write the units in your answer.

Back to the contents

Example 5 Work out the size of angle θ.
Give your answer correct to 1 decimal place.





$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$\cos\theta = \frac{10^2 + 7^2 - 15^2}{2 \times 10 \times 7}$$

$$\cos\theta = \frac{-76}{140}$$

θ = 122.878 349...

θ = 122.9°

1 Always start by labelling the angles and sides.

2 Write the cosine rule to find the angle.

3 Substitute the values a, b and c into the formula.

4 Use $\cos^{-1}$ to find the angle.

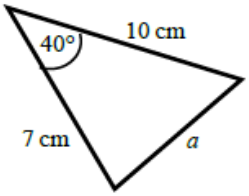
5 Use your calculator to work out $\cos^{-1}(-76 \div 140)$.

6 Round your answer to 1 decimal place and write the units in your answer.

Practice

6 Work out the length of the unknown side in each triangle.
Give your answers correct to 3 significant figures.

a



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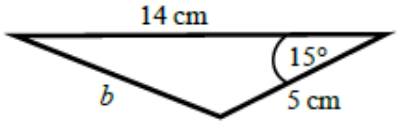

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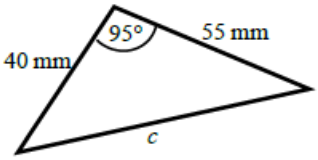

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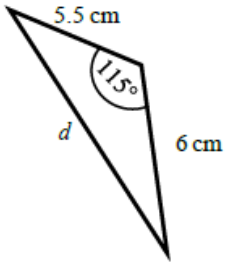
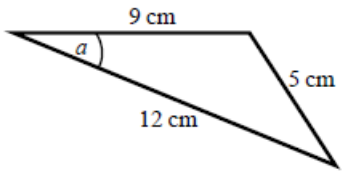


Back to the contents

7 Calculate the angles labelled θ in each triangle.
Give your answer correct to 1 decimal place.

a



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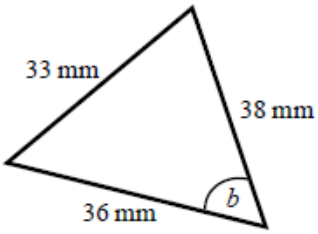

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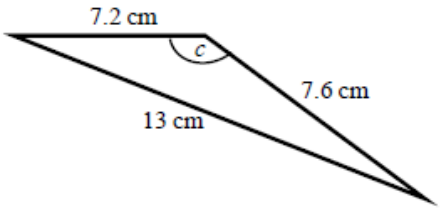

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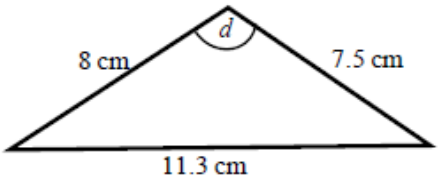
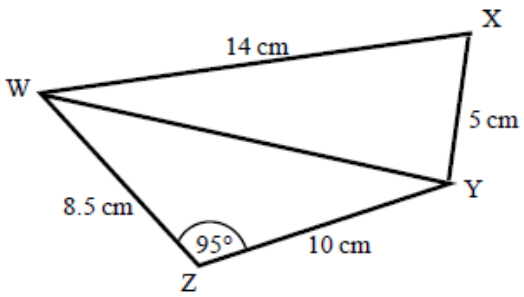


8 a Work out the length of WY.
Give your answer correct to
3 significant figures.

b Work out the size of angle WXY.
Give your answer correct to
1 decimal place.



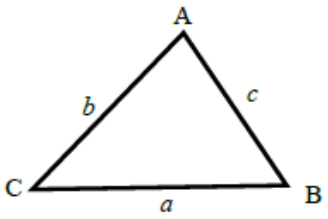
Back to the contents

The sine rule

A LEVEL LINKS
Scheme of work: 4a. Trigonometric ratios and graphs
Textbook: Pure Year 1, 9.2 The sine rule

Key points

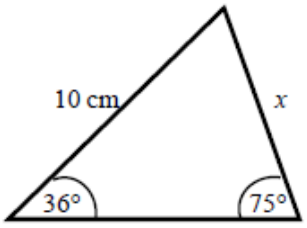
- *a* is the side opposite angle A.
  b is the side opposite angle B.
  c is the side opposite angle C.

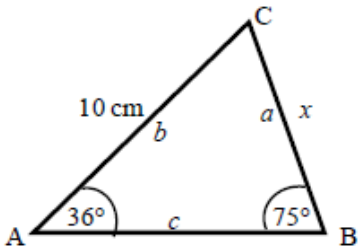


- You can use the sine rule to find the length of a side when its opposite angle and another opposite side and angle are given.
- To calculate an unknown side use the formula $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$.
- Alternatively, you can use the sine rule to find an unknown angle if the opposite side and another opposite side and angle are given.
- To calculate an unknown angle use the formula $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$.

Examples

Example 6 Work out the length of side *x*.
Give your answer correct to 3 significant figures.





$\frac{a}{\sin A} = \frac{b}{\sin B}$

$\frac{x}{\sin 36°} = \frac{10}{\sin 75°}$

$x = \frac{10 \times \sin 36°}{\sin 75°}$

x = 6.09 cm

1 Always start by labelling the angles and sides.

2 Write the sine rule to find the side.

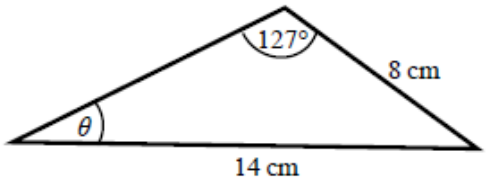
3 Substitute the values *a*, *b*, *A* and *B* into the formula.

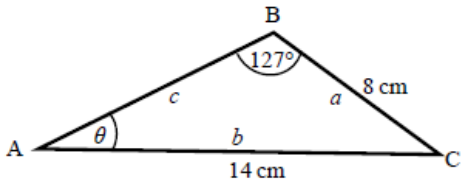
4 Rearrange to make *x* the subject.

5 Round your answer to 3 significant figures and write the units in your answer.

Back to the contents

Example 7 Work out the size of angle θ.
Give your answer correct to 1 decimal place





$$\frac{\sin A}{a} = \frac{\sin B}{b}$$

$$\frac{\sin\theta}{8} = \frac{\sin 127°}{14}$$

$$\sin\theta = \frac{8 \times \sin 127°}{14}$$

$\theta = 27.2°$

1 Always start by labelling the angles and sides.

2 Write the sine rule to find the angle.

3 Substitute the values a, b, A and B into the formula.

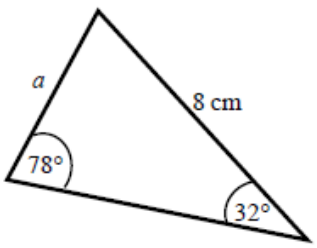
4 Rearrange to make sin θ the subject.

5 Use $\sin^{-1}$ to find the angle. Round your answer to 1 decimal place and write the units in your answer.

Practice

9 Find the length of the unknown side in each triangle.
Give your answers correct to 3 significant figures.

a



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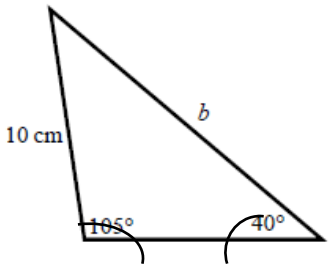

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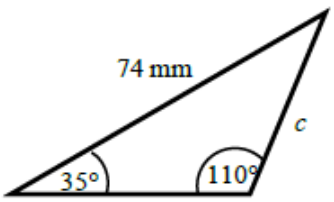
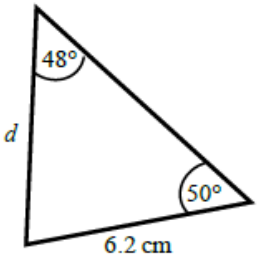


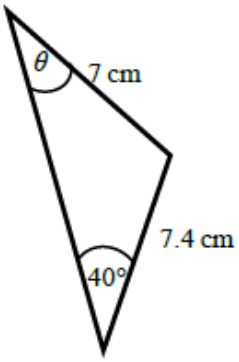
d



Back to the contents

10 Calculate the angles labelled θ in each triangle.
Give your answer correct to 1 decimal place.

a



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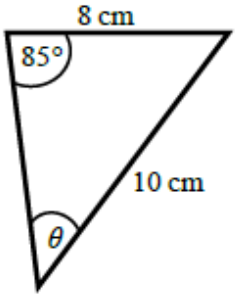

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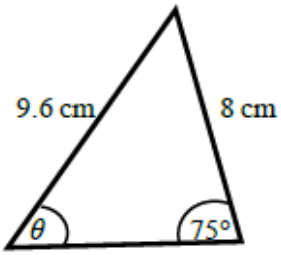

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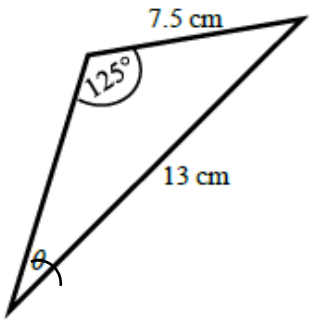
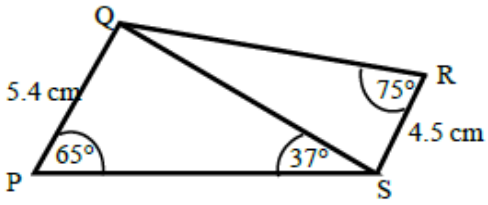


11 a Work out the length of QS.
Give your answer correct to 3 significant figures.

b Work out the size of angle RQS.
Give your answer correct to 1 decimal place.



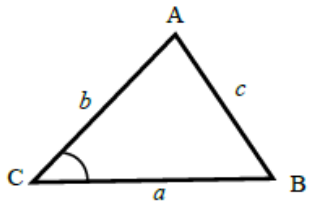
Back to the contents

Areas of triangles

A LEVEL LINKS
Scheme of work: 4a. Trigonometric ratios and graphs
Textbook: Pure Year 1, 9.3 Areas of triangles

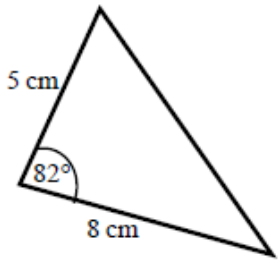
Key points

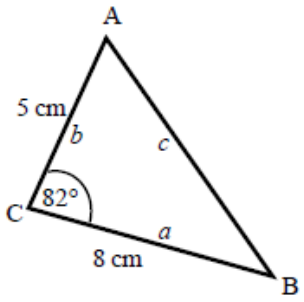
- a is the side opposite angle A.
  b is the side opposite angle B.
  c is the side opposite angle C.
- The area of the triangle is $\frac{1}{2}ab\sin C$.



Examples

Example 8 Find the area of the triangle.





Area = $\frac{1}{2}ab\sin C$

Area = $\frac{1}{2}\times 8\times 5\times \sin 82°$

Area = 19.805 361...

Area = 19.8 cm^2

1 Always start by labelling the sides and angles of the triangle.

2 State the formula for the area of a triangle.

3 Substitute the values of a, b and C into the formula for the area of a triangle.

4 Use a calculator to find the area.

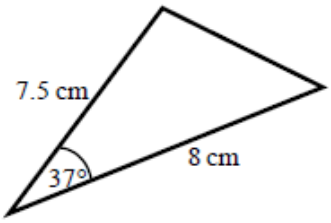
5 Round your answer to 3 significant figures and write the units in your answer.

Back to the contents

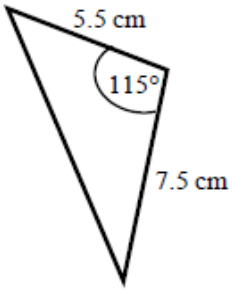
Practice

12 Work out the area of each triangle.
Give your answers correct to 3 significant figures.

a



b



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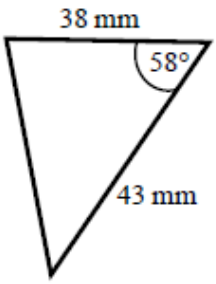
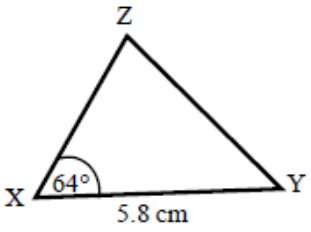


13 The area of triangle XYZ is 13.3 cm^2.
Work out the length of XZ.



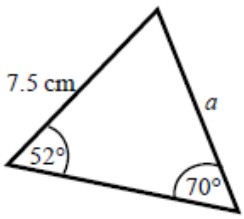
> **Hint:**
>
> Rearrange the formula to make a side the subject.

Extend

14 Find the size of each lettered angle or side.
Give your answers correct to 3 significant figures.

> **Hint:**
>
> For each one, decide whether to use the cosine or sine rule.

a



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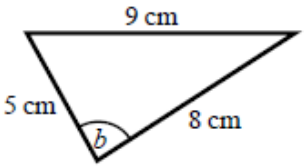
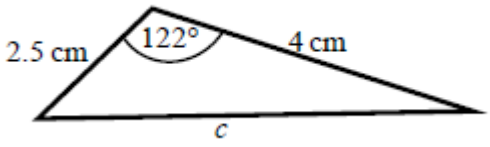


Back to the contents

c



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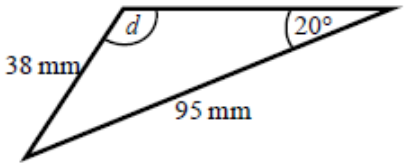
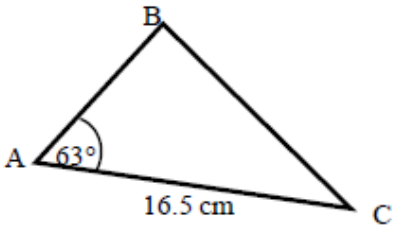


15 The area of triangle ABC is 86.7 cm^2.
Work out the length of BC.
Give your answer correct to 3 significant figures.



Back to the contents

Answers

1	a	6.49 cm	b	6.93 cm	c	2.80 cm	
	d	74.3 mm	e	7.39 cm	f	6.07 cm	
2	a	36.9°	b	57.1°	c	47.0°	d 38.7°
3	5.71 cm						
4	20.4°						
5	a	45°	b	1 cm	c	30°	d $\sqrt{3}$ cm
6	a	6.46 cm	b	9.26 cm	c	70.8 mm	d 9.70 cm
7	a	22.2°	b	52.9°	c	122.9°	d 93.6°
8	a	13.7 cm	b	76.0°			
9	a	4.33 cm	b	15.0 cm	c	45.2 mm	d 6.39 cm
10	a	42.8°	b	52.8°	c	53.6°	d 28.2°
11	a	8.13 cm	b	32.3°			
12	a	18.1 cm^2	b	18.7 cm^2	c	693 mm^2	
13	5.10 cm						
14	a	6.29 cm	b	84.3°	c	5.73 cm	d 58.8°
15	15.3 cm						

Rearranging equations

A LEVEL LINKS
Scheme of work: 6a. Definition, differentiating polynomials, second derivatives
Textbook: Pure Year 1, 12.1 Gradients of curves

Key points

- To change the subject of a formula, get the terms containing the subject on one side and everything else on the other side.

Back to the contents

- You may need to factorise the terms containing the new subject.

Examples

Example 1 Make t the subject of the formula $v = u + at$.

$v = u + at$ $v - u = at$ $t = \frac{v-u}{a}$	**1** Get the terms containing t on one side and everything else on the other side. **2** Divide throughout by a.

Example 2 Make t the subject of the formula $r = 2t - \pi t$.

$r = 2t - \pi t$ $r = t(2 - \pi)$ $t = \frac{r}{2-\pi}$	**1** All the terms containing t are already on one side and everything else is on the other side. **2** Factorise as t is a common factor. **3** Divide throughout by $2 - \pi$.

Example 3 Make t the subject of the formula $\frac{t+r}{5} = \frac{3t}{2}$.

$\frac{t+r}{5} = \frac{3t}{2}$ $2t + 2r = 15t$ $2r = 13t$ $t = \frac{2r}{13}$	**1** Remove the fractions first by multiplying throughout by 10. **2** Get the terms containing t on one side and everything else on the other side and simplify. **3** Divide throughout by 13.

Example 4 Make t the subject of the formula $r = \frac{3t+5}{t-1}$.

Back to the contents

$r = \frac{3t+5}{t-1}$ $r(t-1) = 3t+5$ $rt - r = 3t + 5$ $rt - 3t = 5 + r$ $t(r-3) = 5 + r$ $t = \frac{5+r}{r-3}$	1 Remove the fraction first by multiplying throughout by $t-1$. 2 Expand the brackets. 3 Get the terms containing t on one side and everything else on the other side. 4 Factorise the LHS as t is a common factor. 5 Divide throughout by $r-3$.

Practice

Change the subject of each formula to the letter given in the brackets.

1 $C = \pi d$ [d]

2 $P = 2l + 2w$ [w]

3 $D = \frac{S}{T}$ [T]

4 $p = \frac{q-r}{t}$ [t]

5 $u = at - \frac{1}{2}t$ [t]

6 $V = ax + 4x$ [x]

7 $\frac{y-7x}{2} = \frac{7-2y}{3}$ [y]

8 $x = \frac{2a-1}{3-a}$ [a]

9 $x = \frac{b-c}{d}$ [d]

10 $h = \frac{7g-9}{2+g}$ [g]

11 $e(9 + x) = 2e + 1$ [e]

12 $y = \frac{2x+3}{4-x}$ [x]

13 Make r the subject of the following formulae.

a $A = \pi r^2$ b $V = \frac{4}{3}\pi r^3$ c $P = \pi r + 2r$ d $V = \frac{2}{3}\pi r^2 h$

14 Make x the subject of the following formulae.

a $\frac{xy}{z} = \frac{ab}{cd}$ b $\frac{4\pi cx}{d} = \frac{3z}{py^2}$

15 Make sin B the subject of the formula $\frac{a}{\sin A} = \frac{b}{\sin B}$

16 Make cos B the subject of the formula $b^2 = a^2 + c^2 - 2ac\cos B$.

Extend

17 Make x the subject of the following equations.

a $\frac{p}{q}(sx+t) = x - 1$ b $\frac{p}{q}(ax+2y) = \frac{3p}{q^2}(x-y)$

Back to the contents

Answers

1 $d = \frac{C}{\pi}$ 2 $w = \frac{P-2l}{2}$ 3 $T = \frac{S}{D}$

4 $t = \frac{q-r}{p}$ 5 $t = \frac{2u}{2a-1}$ 6 $x = \frac{V}{a+4}$

7 $y = 2 + 3x$ 8 $a = \frac{3x+1}{x+2}$ 9 $d = \frac{b-c}{x}$

10 $g = \frac{2h+9}{7-h}$ 11 $e = \frac{1}{x+7}$ 12 $x = \frac{4y-3}{2+y}$

13 a $r = \sqrt{\frac{A}{\pi}}$ b $r = \sqrt[3]{\frac{3V}{4\pi}}$

c $r = \frac{P}{\pi+2}$ d $r = \sqrt{\frac{3V}{2\pi h}}$

14 a $x = \frac{abz}{cdy}$ b $x = \frac{3dz}{4\pi cpy^2}$

15 $\sin B = \frac{b\sin A}{a}$

16 $\cos B = \frac{a^2+c^2-b^2}{2ac}$

17 a $x = \frac{q+pt}{q-ps}$ b $x = \frac{3py+2pqy}{3p-apq} = \frac{y(3+2q)}{3-aq}$

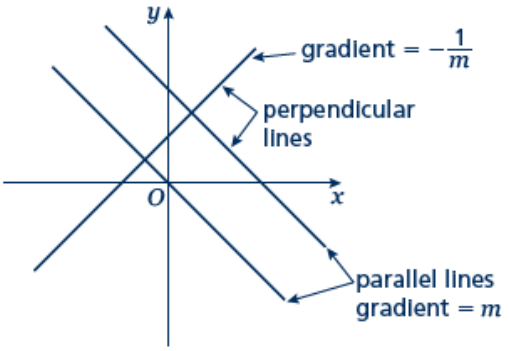
Parallel and perpendicular lines

A LEVEL LINKS
Scheme of work: 2a. Straight-line graphs, parallel/perpendicular, length and area problems

Back to the contents

Key points

- When lines are parallel they have the same gradient.
- A line perpendicular to the line with equation $y = mx + c$ has gradient $-\frac{1}{m}$.



Examples

Example 1 Find the equation of the line parallel to $y = 2x + 4$ which passes through the point (4, 9).

$y = 2x + 4$ $m = 2$ $y = 2x + c$ $9 = 2 \times 4 + c$ $9 = 8 + c$ $c = 1$ $y = 2x + 1$	**1** As the lines are parallel they have the same gradient. **2** Substitute $m = 2$ into the equation of a straight line $y = mx + c$. **3** Substitute the coordinates into the equation $y = 2x + c$ **4** Simplify and solve the equation. **5** Substitute $c = 1$ into the equation $y = 2x + c$

Example 2 Find the equation of the line perpendicular to $y = 2x - 3$ which passes through the point (−2, 5).

$y = 2x - 3$ $m = 2$ $-\frac{1}{m} = -\frac{1}{2}$ $y = -\frac{1}{2}x + c$ $5 = -\frac{1}{2} \times (-2) + c$ $5 = 1 + c$ $c = 4$ $y = -\frac{1}{2}x + 4$	**1** As the lines are perpendicular, the gradient of the perpendicular line is $-\frac{1}{m}$. **2** Substitute $m = -\frac{1}{2}$ into $y = mx + c$. **3** Substitute the coordinates (−2, 5) into the equation $y = -\frac{1}{2}x + c$ **4** Simplify and solve the equation. **5** Substitute $c = 4$ into $y = -\frac{1}{2}x + c$.

Example 3 A line passes through the points (0, 5) and (9, −1).
Find the equation of the line which is perpendicular to the line and passes through its midpoint.

Back to the contents

$x_1 = 0$, $x_2 = 9$, $y_1 = 5$ and $y_2 = -1$ $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1-5}{9-0}$ $= \frac{-6}{9} = -\frac{2}{3}$ $-\frac{1}{m} = \frac{3}{2}$ $y = \frac{3}{2}x + c$ Midpoint = $\left(\frac{0+9}{2}, \frac{5+(-1)}{2}\right) = \left(\frac{9}{2}, 2\right)$ $2 = \frac{3}{2} \times \frac{9}{2} + c$ $c = -\frac{19}{4}$ $y = \frac{3}{2}x - \frac{19}{4}$	1 Substitute the coordinates into the equation $m = \frac{y_2 - y_1}{x_2 - x_1}$ to work out the gradient of the line. 2 As the lines are perpendicular, the gradient of the perpendicular line is $-\frac{1}{m}$. 3 Substitute the gradient into the equation $y = mx + c$. 4 Work out the coordinates of the midpoint of the line. 5 Substitute the coordinates of the midpoint into the equation. 6 Simplify and solve the equation. 7 Substitute $c = -\frac{19}{4}$ into the equation $y = \frac{3}{2}x + c$.

Practice

1 Find the equation of the line parallel to each of the given lines and which passes through each of the given points.

a $y = 3x + 1$ (3, 2)

b $y = 3 - 2x$ (1, 3)

c $2x + 4y + 3 = 0$ (6, –3)

d $2y - 3x + 2 = 0$ (8, 20)

2 Find the equation of the line perpendicular to $y = \frac{1}{2}x - 3$ which passes through the point (–5, 3).

Hint

If $m = \frac{a}{b}$ then the negative reciprocal $-\frac{1}{m} = -\frac{b}{a}$

3 Find the equation of the line perpendicular to each of the given lines and which passes through each of the given points.

a $y = 2x - 6$ (4, 0)

b $y = -\frac{1}{3}x + \frac{1}{2}$ (2, 13)

c $x - 4y - 4 = 0$ (5, 15)

d $5y + 2x - 5 = 0$ (6, 7)

4 In each case find an equation for the line passing through the origin which is also perpendicular to the line joining the two points given.

a (4, 3), (–2, –9)

b (0, 3), (–10, 8)

Back to the contents

Extend

5 Work out whether these pairs of lines are parallel, perpendicular or neither.

a $y = 2x + 3$
$y = 2x - 7$

b $y = 3x$
$2x + y - 3 = 0$

c $y = 4x - 3$
$4y + x = 2$

d $3x - y + 5 = 0$
$x + 3y = 1$

e $2x + 5y - 1 = 0$
$y = 2x + 7$

f $2x - y = 6$
$6x - 3y + 3 = 0$

6 The straight line L_1 passes through the points A and B with coordinates (–4, 4) and (2, 1), respectively.

a Find the equation of L_1 in the form $ax + by + c = 0$

The line L_2 is parallel to the line L_1 and passes through the point C with coordinates (–8, 3).

b Find the equation of L_2 in the form $ax + by + c = 0$

The line L_3 is perpendicular to the line L_1 and passes through the origin.

c Find an equation of L_3

Back to the contents

Answers

1 a $y = 3x - 7$ b $y = -2x + 5$

c $y = -\frac{1}{2}x$ d $y = \frac{3}{2}x + 8$

2 $y = -2x - 7$

3 a $y = -\frac{1}{2}x + 2$ b $y = 3x + 7$

c $y = -4x + 35$ d $y = \frac{5}{2}x - 8$

4 a $y = -\frac{1}{2}x$ b $y = 2x$

5 a Parallel b Neither c Perpendicular

d Perpendicular e Neither f Parallel

6 a $x + 2y - 4 = 0$ b $x + 2y + 2 = 0$ c $y = 2x$

Solving linear and quadratic simultaneous equations

A LEVEL LINKS
Scheme of work: 1c. Equations – quadratic/linear simultaneous

Key points

- Make one of the unknowns the subject of the linear equation (rearranging where necessary).
- Use the linear equation to substitute into the quadratic equation.
- There are usually two pairs of solutions.

Examples

Example 1 Solve the simultaneous equations $y = x + 1$ and $x^2 + y^2 = 13$

$x^2 + (x + 1)^2 = 13$	**1** Substitute $x + 1$ for y into the second equation.
$x^2 + x^2 + x + x + 1 = 13$ $2x^2 + 2x + 1 = 13$	**2** Expand the brackets and simplify.
$2x^2 + 2x - 12 = 0$ $(2x - 4)(x + 3) = 0$	**3** Factorise the quadratic equation.

Back to the contents

So $x = 2$ or $x = -3$ Using $y = x + 1$ When $x = 2$, $y = 2 + 1 = 3$ When $x = -3$, $y = -3 + 1 = -2$ So the solutions are $x = 2$, $y = 3$ and $x = -3$, $y = -2$ Check: equation 1: $3 = 2 + 1$ YES and $-2 = -3 + 1$ YES equation 2: $2^2 + 3^2 = 13$ YES and $(-3)^2 + (-2)^2 = 13$ YES	**4** Work out the values of x. **5** To find the value of y, substitute both values of x into one of the original equations. **6** Substitute both pairs of values of x and y into both equations to check your answers.

Example 2 Solve $2x + 3y = 5$ and $2y^2 + xy = 12$ simultaneously.

$x = \frac{5-3y}{2}$ $2y^2 + \left(\frac{5-3y}{2}\right)y = 12$ $2y^2 + \frac{5y-3y^2}{2} = 12$ $4y^2 + 5y - 3y^2 = 24$ $y^2 + 5y - 24 = 0$ $(y + 8)(y - 3) = 0$ So $y = -8$ or $y = 3$ Using $2x + 3y = 5$ When $y = -8$, $2x + 3 \times (-8) = 5$, $x = 14.5$ When $y = 3$, $2x + 3 \times 3 = 5$, $x = -2$ So the solutions are $x = 14.5$, $y = -8$ and $x = -2$, $y = 3$ Check: equation 1: $2 \times 14.5 + 3 \times (-8) = 5$ YES and $2 \times (-2) + 3 \times 3 = 5$ YES equation 2: $2 \times (-8)^2 + 14.5 \times (-8) = 12$ YES and $2 \times (3)^2 + (-2) \times 3 = 12$ YES	**1** Rearrange the first equation. **2** Substitute $\frac{5-3y}{2}$ for x into the second equation. Notice how it is easier to substitute for x than for y. **3** Expand the brackets and simplify. **4** Factorise the quadratic equation. **5** Work out the values of y. **6** To find the value of x, substitute both values of y into one of the original equations. **7** Substitute both pairs of values of x and y into both equations to check your answers.

Practice

Solve these simultaneous equations.

Back to the contents

1 $y = 2x + 1$
$x^2 + y^2 = 10$

2 $y = 6 - x$
$x^2 + y^2 = 20$

3 $y = x - 3$
$x^2 + y^2 = 5$

4 $y = 9 - 2x$
$x^2 + y^2 = 17$

5 $y = 3x - 5$
$y = x^2 - 2x + 1$

6 $y = x - 5$
$y = x^2 - 5x - 12$

7 $y = x + 5$
$x^2 + y^2 = 25$

8 $y = 2x - 1$
$x^2 + xy = 24$

9 $y = 2x$
$y^2 - xy = 8$

10 $2x + y = 11$
$xy = 15$

Extend

11 $x - y = 1$
$x^2 + y^2 = 3$

12 $y - x = 2$
$x^2 + xy = 3$

Answers

1 $x = 1, y = 3$
$x = -\frac{9}{5}, y = -\frac{13}{5}$

2 $x = 2, y = 4$
$x = 4, y = 2$

3 $x = 1, y = -2$
$x = 2, y = -1$

4 $x = 4, y = 1$
$x = \frac{16}{5}, y = \frac{13}{5}$

5 $x = 3, y = 4$
$x = 2, y = 1$

6 $x = 7, y = 2$
$x = -1, y = -6$

7 $x = 0, y = 5$
$x = -5, y = 0$

Back to the contents

8 $x = -\frac{8}{3}$, $y = -\frac{19}{3}$

$x = 3$, $y = 5$

9 $x = -2$, $y = -4$

$x = 2$, $y = 4$

10 $x = \frac{5}{2}$, $y = 6$

$x = 3$, $y = 5$

11 $x = \frac{1+\sqrt{5}}{2}$, $y = \frac{-1+\sqrt{5}}{2}$

$x = \frac{1-\sqrt{5}}{2}$, $y = \frac{-1-\sqrt{5}}{2}$

12 $x = \frac{-1+\sqrt{7}}{2}$, $y = \frac{3+\sqrt{7}}{2}$

$x = \frac{-1-\sqrt{7}}{2}$, $y = \frac{3-\sqrt{7}}{2}$

Solving quadratic equations by factorisation

A LEVEL LINKS
Scheme of work: 1b. Quadratic functions – factorising, solving, graphs and the discriminants

Key points

- A quadratic equation is an equation in the form $ax^2 + bx + c = 0$ where $a \neq 0$.
- To factorise a quadratic equation find two numbers whose sum is b and whose products is ac.
- When the product of two numbers is 0, then at least one of the numbers must be 0.
- If a quadratic can be solved it will have two solutions (these may be equal).

Examples

Example 1 Solve $5x^2 = 15x$

Back to the contents

$5x^2 = 15x$ $5x^2 - 15x = 0$ $5x(x - 3) = 0$ So $5x = 0$ or $(x - 3) = 0$ Therefore $x = 0$ or $x = 3$	**1** Rearrange the equation so that all of the terms are on one side of the equation and it is equal to zero. Do not divide both sides by x as this would lose the solution $x = 0$. **2** Factorise the quadratic equation. $5x$ is a common factor. **3** When two values multiply to make zero, at least one of the values must be zero. **4** Solve these two equations.

Example 2 Solve $x^2 + 7x + 12 = 0$

$x^2 + 7x + 12 = 0$ $b = 7$, $ac = 12$ $x^2 + 4x + 3x + 12 = 0$ $x(x + 4) + 3(x + 4) = 0$ $(x + 4)(x + 3) = 0$ So $(x + 4) = 0$ or $(x + 3) = 0$ Therefore $x = -4$ or $x = -3$	**1** Factorise the quadratic equation. Work out the two factors of $ac = 12$ which add to give you $b = 7$. (4 and 3) **2** Rewrite the b term ($7x$) using these two factors. **3** Factorise the first two terms and the last two terms. **4** $(x + 4)$ is a factor of both terms. **5** When two values multiply to make zero, at least one of the values must be zero. **6** Solve these two equations.

Example 3 Solve $9x^2 - 16 = 0$

$9x^2 - 16 = 0$ $(3x + 4)(3x - 4) = 0$ So $(3x + 4) = 0$ or $(3x - 4) = 0$ $x = -\frac{4}{3}$ or $x = \frac{4}{3}$	**1** Factorise the quadratic equation. This is the difference of two squares as the two terms are $(3x)^2$ and $(4)^2$. **2** When two values multiply to make zero, at least one of the values must be zero. **3** Solve these two equations.

Example 4 Solve $2x^2 - 5x - 12 = 0$

Back to the contents

$b = -5$, $ac = -24$	1 Factorise the quadratic equation. Work out the two factors of $ac = -24$ which add to give you $b = -5$. (−8 and 3)
So $2x^2 - 8x + 3x - 12 = 0$	2 Rewrite the b term ($-5x$) using these two factors.
$2x(x - 4) + 3(x - 4) = 0$	3 Factorise the first two terms and the last two terms.
$(x - 4)(2x + 3) = 0$	4 $(x - 4)$ is a factor of both terms.
So $(x - 4) = 0$ or $(2x + 3) = 0$	5 When two values multiply to make zero, at least one of the values must be zero.
$x = 4$ or $x = -\frac{3}{2}$	6 Solve these two equations.

Practice

1 Solve

a $6x^2 + 4x = 0$ **b** $28x^2 - 21x = 0$

c $x^2 + 7x + 10 = 0$ **d** $x^2 - 5x + 6 = 0$

e $x^2 - 3x - 4 = 0$ **f** $x^2 + 3x - 10 = 0$

g $x^2 - 10x + 24 = 0$ **h** $x^2 - 36 = 0$

i $x^2 + 3x - 28 = 0$ **j** $x^2 - 6x + 9 = 0$

k $2x^2 - 7x - 4 = 0$ **l** $3x^2 - 13x - 10 = 0$

2 Solve

a $x^2 - 3x = 10$ **b** $x^2 - 3 = 2x$

c $x^2 + 5x = 24$ **d** $x^2 - 42 = x$

e $x(x + 2) = 2x + 25$ **f** $x^2 - 30 = 3x - 2$

g $x(3x + 1) = x^2 + 15$ **h** $3x(x - 1) = 2(x + 1)$

Hint

Get all terms onto one side of the

Solving quadratic equations by completing the square

A LEVEL LINKS

Scheme of work: 1b. Quadratic functions – factorising, solving, graphs and the discriminants

Key points

Back to the contents

- Completing the square lets you write a quadratic equation in the form $p(x + q)^2 + r = 0$.

Examples

Example 5 Solve $x^2 + 6x + 4 = 0$. Give your solutions in surd form.

$x^2 + 6x + 4 = 0$	**1** Write $x^2 + bx + c = 0$ in the form $\left(x+\frac{b}{2}\right)^2 - \left(\frac{b}{2}\right)^2 + c = 0$
$(x + 3)^2 - 9 + 4 = 0$	**2** Simplify.
$(x + 3)^2 - 5 = 0$ $(x + 3)^2 = 5$	**3** Rearrange the equation to work out x. First, add 5 to both sides.
$x + 3 = \pm\sqrt{5}$	**4** Square root both sides. Remember that the square root of a value gives two answers.
$x = \pm\sqrt{5} - 3$	**5** Subtract 3 from both sides to solve the equation.
So $x = -\sqrt{5} - 3$ or $x = \sqrt{5} - 3$	**6** Write down both solutions.

Example 6 Solve $2x^2 - 7x + 4 = 0$. Give your solutions in surd form.

$2x^2 - 7x + 4 = 0$	**1** Before completing the square write $ax^2 + bx + c$ in the form $a\left(x^2 + \frac{b}{a}x\right) + c$
$2\left(x^2 - \frac{7}{2}x\right) + 4 = 0$	
$2\left[\left(x - \frac{7}{4}\right)^2 - \left(\frac{7}{4}\right)^2\right] + 4 = 0$	**2** Now complete the square by writing $x^2 - \frac{7}{2}x$ in the form $\left(x + \frac{b}{2a}\right)^2 - \left(\frac{b}{2a}\right)^2$
$2\left(x - \frac{7}{4}\right)^2 - \frac{49}{8} + 4 = 0$	**3** Expand the square brackets.
$2\left(x - \frac{7}{4}\right)^2 - \frac{17}{8} = 0$	**4** Simplify.
$2\left(x - \frac{7}{4}\right)^2 = \frac{17}{8}$	*(continued on next page)* **5** Rearrange the equation to work out x. First, add $\frac{17}{8}$ to both sides.

Back to the contents

$\left(x-\frac{7}{4}\right)^2=\frac{17}{16}$ $x-\frac{7}{4}=\pm\frac{\sqrt{17}}{4}$ $x=\pm\frac{\sqrt{17}}{4}+\frac{7}{4}$ So $x=\frac{7}{4}-\frac{\sqrt{17}}{4}$ or $x=\frac{7}{4}+\frac{\sqrt{17}}{4}$	**6** Divide both sides by 2. **7** Square root both sides. Remember that the square root of a value gives two answers. **8** Add $\frac{7}{4}$ to both sides. **9** Write down both the solutions.

Practice

3 Solve by completing the square.

a $x^2 - 4x - 3 = 0$

b $x^2 - 10x + 4 = 0$

c $x^2 + 8x - 5 = 0$

d $x^2 - 2x - 6 = 0$

e $2x^2 + 8x - 5 = 0$

f $5x^2 + 3x - 4 = 0$

4 Solve by completing the square.

a $(x - 4)(x + 2) = 5$

b $2x^2 + 6x - 7 = 0$

c $x^2 - 5x + 3 = 0$

Hint

Get all terms onto one side of the

Back to the contents

Solving quadratic equations by using the formula

A LEVEL LINKS
Scheme of work: 1b. Quadratic functions – factorising, solving, graphs and the discriminants

Key points

- Any quadratic equation of the form $ax^2 + bx + c = 0$ can be solved using the formula $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
- If $b^2 - 4ac$ is negative then the quadratic equation does not have any real solutions.
- It is useful to write down the formula before substituting the values for a, b and c.

Examples

Example 7 Solve $x^2 + 6x + 4 = 0$. Give your solutions in surd form.

$a = 1$, $b = 6$, $c = 4$ $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	**1** Identify a, b and c and write down the formula. Remember that $-b \pm \sqrt{b^2 - 4ac}$ is all over $2a$, not just part of it.
$x = \dfrac{-6 \pm \sqrt{6^2 - 4(1)(4)}}{2(1)}$	**2** Substitute $a = 1$, $b = 6$, $c = 4$ into the formula.
$x = \dfrac{-6 \pm \sqrt{20}}{2}$	**3** Simplify. The denominator is 2, but this is only because $a = 1$. The denominator will not always be 2.
$x = \dfrac{-6 \pm 2\sqrt{5}}{2}$	**4** Simplify $\sqrt{20}$. $\sqrt{20} = \sqrt{4 \times 5} = \sqrt{4} \times \sqrt{5} = 2\sqrt{5}$
$x = -3 \pm \sqrt{5}$	**5** Simplify by dividing numerator and denominator by 2.
So $x = -3 - \sqrt{5}$ or $x = \sqrt{5} - 3$	**6** Write down both the solutions.

Back to the contents

Example 8 Solve $3x^2 - 7x - 2 = 0$. Give your solutions in surd form.

$a = 3$, $b = -7$, $c = -2$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	1 Identify a, b and c, making sure you get the signs right and write down the formula. Remember that $-b \pm \sqrt{b^2 - 4ac}$ is all over $2a$, not just part of it.
$x = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(3)(-2)}}{2(3)}$	2 Substitute $a = 3$, $b = -7$, $c = -2$ into the formula.
$x = \frac{7 \pm \sqrt{73}}{6}$	3 Simplify. The denominator is 6 when $a = 3$. A common mistake is to always write a denominator of 2.
So $x = \frac{7 - \sqrt{73}}{6}$ or $x = \frac{7 + \sqrt{73}}{6}$	4 Write down both the solutions.

Practice

5 Solve, giving your solutions in surd form.

a $3x^2 + 6x + 2 = 0$ **b** $2x^2 - 4x - 7 = 0$

6 Solve the equation $x^2 - 7x + 2 = 0$

Give your solutions in the form $\frac{a \pm \sqrt{b}}{c}$, where a, b and c are integers.

7 Solve $10x^2 + 3x + 3 = 5$

Give your solution in surd form.

> **Hint**
>
> Get all terms onto one side of the equation.

Extend

8 Choose an appropriate method to solve each quadratic equation, giving your answer in surd form when necessary.

a $4x(x - 1) = 3x - 2$

b $10 = (x + 1)^2$

c $x(3x - 1) = 10$

Back to the contents

Answers

1 a $x = 0$ or $x = -\frac{2}{3}$ b $x = 0$ or $x = \frac{3}{4}$

c $x = -5$ or $x = -2$ d $x = 2$ or $x = 3$

e $x = -1$ or $x = 4$ f $x = -5$ or $x = 2$

g $x = 4$ or $x = 6$ h $x = -6$ or $x = 6$

i $x = -7$ or $x = 4$ j $x = 3$

k $x = -\frac{1}{2}$ or $x = 4$ l $x = -\frac{2}{3}$ or $x = 5$

2 a $x = -2$ or $x = 5$ b $x = -1$ or $x = 3$

c $x = -8$ or $x = 3$ d $x = -6$ or $x = 7$

e $x = -5$ or $x = 5$ f $x = -4$ or $x = 7$

g $x = -3$ or $x = 2\frac{1}{2}$ h $x = -\frac{1}{3}$ or $x = 2$

3 a $x = 2 + \sqrt{7}$ or $x = 2 - \sqrt{7}$ b $x = 5 + \sqrt{21}$ or $x = 5 - \sqrt{21}$

c $x = -4 + \sqrt{21}$ or $x = -4 - \sqrt{21}$ d $x = 1 + \sqrt{7}$ or $x = 1 - \sqrt{7}$

e $x = -2 + \sqrt{6.5}$ or $x = -2 - \sqrt{6.5}$ f $x = \frac{-3+\sqrt{89}}{10}$ or $x = \frac{-3-\sqrt{89}}{10}$

4 a $x = 1 + \sqrt{14}$ or $x = 1 - \sqrt{14}$ b $x = \frac{-3+\sqrt{23}}{2}$ or $x = \frac{-3-\sqrt{23}}{2}$

c $x = \frac{5+\sqrt{13}}{2}$ or $x = \frac{5-\sqrt{13}}{2}$

5 a $x = -1 + \frac{\sqrt{3}}{3}$ or $x = -1 - \frac{\sqrt{3}}{3}$ b $x = 1 + \frac{3\sqrt{2}}{2}$ or $x = 1 - \frac{3\sqrt{2}}{2}$

6 $x = \frac{7+\sqrt{41}}{2}$ or $x = \frac{7-\sqrt{41}}{2}$

7 $x = \frac{-3+\sqrt{89}}{20}$ or $x = \frac{-3-\sqrt{89}}{20}$

8 a $x = \frac{7+\sqrt{17}}{8}$ or $x = \frac{7-\sqrt{17}}{8}$

b $x = -1 + \sqrt{10}$ or $x = -1 - \sqrt{10}$

c $x = -1\frac{2}{3}$ or $x = 2$

Back to the contents

Summer Work- Media Studies (Eduqas)

Task 1 – Media Analysis

Choose **one** media product from the following: film, advert, music video, or magazine cover.

Analyse:

- Target audience
- Representation
- Use of images, language, colour, and layout

Present as annotations or bullet point notes.

Task 2 – Industry Research

Research one media company (e.g. Netflix, BBC, Disney). Produce a fact sheet on:

- Ownership
- Target audience
- How it makes money
- One recent release

Task 3 – Creative Production

Create your own magazine cover, advert, or social media campaign (minimum one page).

Include:

- Title
- Images (or descriptions)
- Taglines

Add a brief explanation:

- Audience
- Purpose
- Design choices

Back to the contents

Music Summer Work

Task 1 – Read a book on the History of Music

Task: Read "The Story of Music" by Howard Goodall. This is an excellent and accessible book.

(Free online alternative - e-book: "Understanding Music: Past and Present")

Create a one-page summary of:

- the chapters you found most interesting
- Three key things you learned about how music has changed over time
- One question you would like to explore further at A Level

Task 2 – Listening Log (4 Pieces from Different Periods/Genres)

Listen to the following four contrasting works:

1. Baroque – J.S. Bach: Brandenburg Concerto No. 2, Movement I

2. Classical – Mozart: Symphony No. 40 in G minor, Movement I

3. 20th Century / Film – John Williams: Hedwig's Theme (from Harry Potter)

4. Popular Music – Stevie Wonder: Superstition

Create a listening log and comment on the following things for each piece:

- Instrumentation & texture
- Melody
- Tonality & harmony
- Rhythm & metre
- Structure
- Key expressive features
- What you personally found effective or interesting

Task 3 – Research Task: A Musical Style or Composer

Choose one of the following research topics:

- The development of the symphony from 1750–1900
- The origins and evolution of jazz
- The rise of film music in the 20th century
- A study of a composer/artist

Create a 600-800 word report including:

- Key historical developments
- Important composers/performers
- Typical musical features of the style
- One piece of music analysed in detail

Back to the contents

- Why this topic is important for understanding music today

Back to the contents

A Level Photography Summer Work

We would like you to present your work on a PowerPoint.

Task 1:
Research one of the following photography compositional techniques: the use of

- **Framing**,
- **leading lines or**
- **rule of thirds**

On your first slide explain what compositional technique you have chosen and what it means. You may also want to include some images as examples and a photographer that has used this technique.

Task 2:
Now try take photographs that demonstrate 'Framing, leading lines or rule of thirds'
Record your findings on a new slide on your PowerPoint.
Practice taking many different photographs using the knowledge you have gained.
Take a minimum of 15 photographs and add them all to one slide – this is known as a 'contact sheet'.

Task 3:
On a new slide, choose **two** of your best photographs from above that show the compositional area you have explored.
You should try to edit these images using **photopea**.- (Free online website) Add them to your PowerPoint slide.
Here is a youtube video showing you how to use basic techniques.
Basic Photo Editing with Photopea https://youtu.be/y8EnO3qHdbE?si=0AMC_NrJwWMor4k7

Back to the contents

A Level Politics Summer Work

1. **Do:** Buy 2 lever arch files and dividers: one will be for your UK Government and Politics Unit, the other for your US Government and Politics.

2. **Research:** Create brief profiles of 4 current UK political parties. These should include the Labour Party, the Conservative Party and 2 other parties of your choice. Note the following:
   - A brief history of the party. When and/or how it was formed. Key people throughout its history. Historical policies/laws it championed.
   - Who is the current party leader?
   - Who are the key people in the cabinet/shadow cabinet?
   - What policies are in the manifesto?
   - Why might this party's manifesto promises be popular among voters?
   - Why might this party's manifesto promises not be popular among voters?
   - How successful was each party at the last general election? Why?
   - How successful was each party in the last local elections? Why?

3. **Think & Write:** Objectivity is an important skill that is needed when studying politics. What is objectivity and why do you think it is important?

4. **Listen:** Spotify (Observations) "Electoral reform: Should 16 year olds vote?" (39 mins) Explain what you think is the most important compelling argument for and against and then write a short conclusion.

Further reading: *How Westminster Works…and Why it Doesn't by Ian Dunt and How America Works…and Why it Doesn't by William Cooper.*

Recommended podcasts: *The Rest is Politics, hosted by Alastair Campbell and Rory Stewart and The Rest is Politics U.S, hosted by Katty Kay and Anthony Scaramucci.*

Back to the contents

A LEVEL PE Summer Work

A Level PE follows the OCR specification.

In order to help you prepare for starting the A Level PE course in September, we would like you to complete some tasks over the summer. These tasks will need to be completed and brought with you to your first A Level PE lesson in September.

Please use your knowledge from GCSE PE, plus your research skills to complete the tasks.

The OCR specification can be found at:

Cambridge OCR Level 3 Advanced GCE in Physical Education H555 Specification

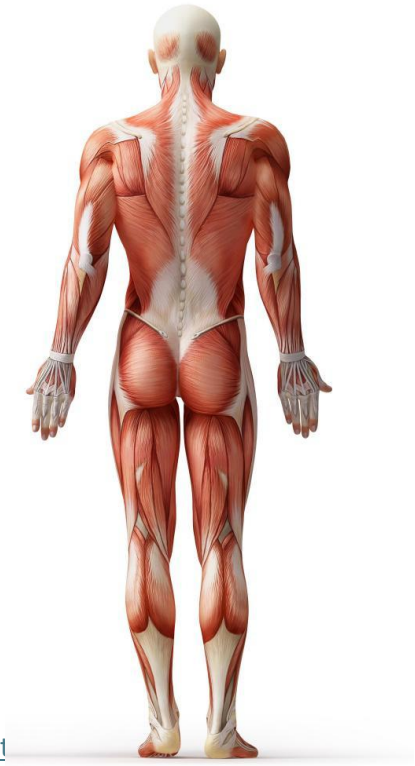
There are also lots of resources on the internet which may help you!

Back to the contents

PHYSIOLOGY

TASK 1: ANATOMY AND PHYSIOLOGY

Using what you know from GCSE and your research skills label the muscles on the muscular system below.



1. Deltoid
2. Latissimus Dorsi
3. Pectoralis Major
4. Trapezius
5. Teres Minor
6. Biceps Brachii
7. Triceps Brachii
8. Wrist Flexors
9. Wrist Extensors
10. Iliopsoas
11. Gluteus Maximus
12. Gluteus Medius
13. Gluteus Minimus
14. Adductor Longus
15. Adductor Brevis
16. Adductor Magnus
17. Biceps Femoris
18. Semi-membranosus
19. Semi-tendinosus
20. Rectus Femoris
21. Vastus Lateralis
22. Vastus Intermedius
23. Vastus Medialis
24. Tibialis Anterior
25. Soleus
26. Gastrocnemius

Back to the content

TASK 2: MOVEMENT ANALYSIS

Complete the table below on different types of movements.

Movement	Description of movement	Which joints allow this movement	Sporting example
Flexion			
Extension			
Abduction			
Adduction			
Rotation			
Plantar-flexion			
Dorsi-flexion			
Horizontal flexion			
Horizontal extension			
Medial rotation			
Lateral rotation			

Back to the contents

Circumduction			

TASK 3: MOVEMENT ANALYSIS

Choose three of the movements in task 2. Using your knowledge of antagonistic pairs and also by researching, can you complete the table below?

Hint: Use the A Level PE names for the muscles!

Movement	Occurring at the _____ joint	Sporting example	Agonist is the _____	Antagonist is the _____

TASK 4: LEVERS

There are three types of levers that we use in the human body.

1) Research the three levers, draw and describe each.

2) State whether they have a mechanical advantage or disadvantage and what this means.

3) Give examples of their use in sport and in everyday life.

TASK 5: NEWTON'S LAWS

1) Research Newton's three laws of linear motion applied to sporting movements.

2) Describe each law and give a sporting example of each.

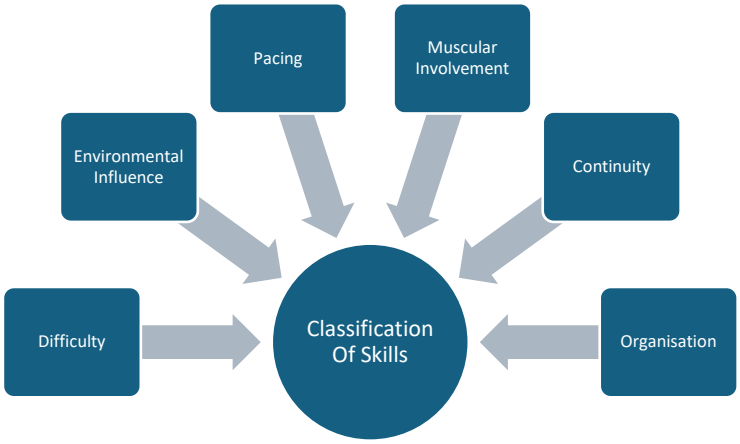
Back to the contents

PSYCHOLOGY

TASK 1:

Physical movement skills are classified on a range of continuums to be able to identify their characteristics. Skills are placed on continuums as it is not often easy to describe
a skill in a simplistic way as there are many elements involved in performing them.
A continuum is an imaginary line that is drawn between two opposing elements.

Drawing on your knowledge from GCSE. For each of the skill classification continuums, describe the characteristics at both ends of the continuum and provide one sporting example for each.



For example:

Environmental influence

Open ⟶ Closed

Open Skills

Description:
Skills performed in a **changing and unpredictable environment**, where performers must adapt to external factors (e.g. opponents & weather).

Sporting Example:

- Passing in football during a match

Back to the contents

Task 2:

Using the table classify each of these skills.

Skill	Environmental (Open/Closed)	Muscular (Gross/Fine)	Continuity (Discrete/Serial/Continuous)
Football pass in a match			
Gymnastics routine			
Basketball free throw			
Sprint start			

Task 3:

Discuss how a **tennis serve** fits into at least **three different classifications** from the list above.

SOCIOCULTURAL AND CONTEMPORARY ISSUES

TASK 1: BIOGRAPHY TASK

Please find and read a biography/ autobiography of a sports person in the sport that you will be assessed in for the practical element of the A level. You will be working on a presentation of this book to the rest of the class in September but for now you just need to read the book.

Back to the contents

PRACTICAL PERFORMANCE

TASK 1: PRACTICAL VIDEO EVIDENCE

Please open the link below and read the full instructions and guidance about filming your sport:

OCR A Level PE video task.docx

Next, read the guidance of the skills required for your sport:

Cambridge OCR AS and A Level Physical Education NEA Guide

For the summer task, we would like you to focus on 2 of your core skills and gain competitive footage of these. For example, if you are a games player you may film and edit footage of passing.

You will need to edit the footage you have taken and upload the footage to the OneDrive folder:

Back to the contents

Y12 Summer Holiday video task - practical evidence

A Level Psychology Summer Work

Name	
Tutor group	
Deadline	First Psychology lesson in September
Teacher	

Purpose of this booklet

This bridging work is designed to help you decide whether A-level Psychology is genuinely the right course for you. It gives you a sample of the topics, reading, research methods, ethics, data skills and extended writing expected at A-level. It should take around 5–7 hours if completed properly.

Student honesty statement: I confirm this work is my own. I have not copied answers from another student, a website or an AI tool. I have used sources to help me understand the topics, but the final responses are written in my own words.

_____

_____

What you will study on AQA Psychology

A-level Psychology is the scientific study of mind and behaviour. You will learn theories, research studies, practical research methods, data skills and debates about human behaviour.

Paper	Main content	Assessment	What this means for you
Paper 1: Introductory Topics	Social Influence; Memory; Attachment; Clinical Psychology and Mental Health	2 hours; 96 marks; 33.3% of A-level	You need accurate knowledge and the ability to apply it to real situations.
Paper 2: Psychology in Context	Approaches in Psychology; Biopsychology; Research Methods	2 hours; 96 marks; 33.3% of A-level	You need to understand how psychologists investigate behaviour and analyse data.
Paper 3: Issues and Options	Issues and Debates plus three optional topics chosen by the department	2 hours; 96 marks; 33.3% of A-level	You need to debate, compare theories and build extended evaluation.

Back to the contents

What A-level Psychology is really like

- **It is a science subject.** You will learn about research design, ethics, data, reliability, validity and statistical testing.
- **It is essay-based.** You will write explanations, applications and evaluative arguments.
- **It is not just common sense.** Good answers are based on evidence from research, not just personal opinion.
- **It rewards consistency.** Short, regular revision works better than trying to memorise everything at the end.

How to complete this booklet

- Complete all compulsory tasks in order.
- Write in full sentences unless a task asks for notes or bullet points.
- Use the recommended videos/articles, but write answers in your own words.
- Bring this booklet to your first Psychology lesson.
- Be ready to discuss which tasks interested you most and which you found difficult.

Task	What to complete	Tick
1	Psychology as a science and careers in Psychology	☐
2	Social Influence: Milgram and obedience	☐
4	Clinical Psychology and Mental Health: phobias, depression and OCD	☐
5	Approaches: behaviourism, cognitive, biological, psychodynamic and humanistic ideas	☐
6	Biopsychology: neurons, synapses and the brain	☐
8	Research Methods: design a mini investigation	☐
9	Issues and Debates: nature/nurture, free will/determinism, ethics and bias	☐

Task 1: What is Psychology?

Course link: Whole course	Suggested time: 35–45 minutes	A-level skills: knowledge, application, evaluation

Back to the contents

Why this matters: Before you start the course, you need to understand that Psychology studies behaviour scientifically. This task checks whether you can move beyond "people watching" and think like a psychologist.

Use these sources

- AQA A-level Psychology specification page: search "AQA 7182 Psychology specification".
- British Psychological Society: search "BPS What is Psychology?".
- BBC Radio 4 All in the Mind: listen to one episode that interests you.

Answer these questions

1. Define Psychology in one clear sentence.
2. Give three examples of behaviours psychologists might study.
3. Why does Psychology need research evidence rather than just opinion?
4. Choose one Psychology-related career and explain how Psychology would be useful in that job.
5. What surprised you most about the subject after researching it?

Task 2: Social Influence: Milgram and Obedience

Course link: Paper 1: Social Influence	Suggested time: 45–60 minutes	A-level skills: knowledge, application, evaluation

Why this matters: Social Influence explores how people change their behaviour because of others. Milgram's obedience research is one of the most famous and controversial studies in Psychology.

Use these sources

- Search: "Milgram experiment obedience original footage" or "Simply Psychology Milgram obedience study".
- Optional extension: research the difference between obedience and conformity.

Answer these questions

6. Why was Milgram interested in studying obedience?
7. What happened in the study? Summarise the procedure in no more than six bullet points.
8. What were the main findings?
9. What does the study suggest about ordinary people and authority figures?
10. Explain two ethical issues with the study.
11. Should a study like Milgram's be allowed today? Give a balanced answer.

Back to the contents

Task 3: Clinical Psychology and Mental Health

Course link: Paper 1: Clinical Psychology and Mental Health	Suggested time: 45–60 minutes	A-level skills: knowledge, application, evaluation

Why this matters: This topic introduces psychological explanations and treatments for mental health conditions. You need to think carefully and respectfully: psychological disorders are not labels to throw around casually.

Research

- Research the symptoms of phobias, depression and obsessive-compulsive disorder (OCD). Use a reliable source such as NHS, Mind or AQA-approved learning resources.
- Research one psychological therapy used for one of these conditions.

Complete the table

Condition	Key symptoms	Possible explanation	Possible treatment
Phobias			
Depression			

Back to the contents

Condition	Key symptoms	Possible explanation	Possible treatment
OCD			

Reflection questions

12. Why is it important to use accurate language when discussing mental health?
13. Why might two people with the same diagnosis still have different experiences?
14. Which explanation or treatment did you find most convincing, and why?

Task 4: Approaches in Psychology

Course link: Paper 2: Approaches in Psychology	Suggested time: 60 minutes	A-level skills: knowledge, application, evaluation

Why this matters: Approaches are the "big explanations" in Psychology. They offer different answers to the same question: why do humans behave the way they do?

Complete the summary table

Approach	Main idea	Example explanation of behaviour	One criticism/question
Behaviourist			
Social learning			
Cognitive			

Back to the contents

Approach	Main idea	Example explanation of behaviour	One criticism/question
Biological			
Psychodynamic			
Humanistic			

Application challenge

Scenario: A student avoids speaking in class because they once gave a wrong answer and people laughed. Explain this behaviour from two different approaches.

Task 5: Biopsychology: Brain, Neurons and Behaviour

Course link: Paper 2: Biopsychology	Suggested time: 40–50 minutes	A-level skills: knowledge, application, evaluation

Why this matters: Biopsychology helps explain behaviour through the nervous system, hormones, genes and brain structure. This is where Psychology looks most like Biology.

Research and define

Key term	Definition in your own words
neuron	
synapse	

Back to the contents

Key term	Definition in your own words
neurotransmitter	
central nervous system	
fight or flight response	
localisation of function	

Explain

15. How could activity in the brain affect behaviour?
16. Why might psychologists use brain scans or biological measures?
17. What is one danger of explaining behaviour only through biology?

Task 7: Research Methods: Design a Mini Investigation

Course link: Paper 2: Research Methods	Suggested time: 60–75 minutes	A-level skills: knowledge, application, evaluation

Why this matters: AQA Psychology has a major research methods element. You need to understand how studies are designed, how data is collected, and how psychologists decide whether evidence is trustworthy.

Mini investigation brief

Your research question
Does listening to music affect concentration?

Back to the contents

Plan the investigation

Research methods decision	Your answer
Write a testable hypothesis.	
Identify the independent variable.	
Identify the dependent variable.	
Would you use an independent groups, repeated measures or matched pairs design? Why?	
How would you select participants?	
What controls would you use to make it fair?	
What ethical issues must be considered?	
What data would you collect?	
How could you display the results?	

Maths confidence check

Skill	Question	Answer
Mean	Scores: 4, 6, 7, 8, 10. Calculate the mean.	
Range	Scores: 3, 5, 7, 9, 13. Calculate the range.	
Percentage	18 out of 24 students improved. What percentage improved?	

Back to the contents

Skill	Question	Answer
Graph choice	Which graph would you use to show a correlation between hours of sleep and test score?	

Task 8: Issues and Debates

Course link: Paper 3: Issues and Debates	Suggested time: 45–60 minutes	A-level skills: knowledge, application, evaluation

Why this matters: The best Psychology students do not just describe studies. They question assumptions, debate evidence and consider wider implications.

Choose four debates and complete the table

Debate	What does it mean?	Example in real life	Your view
Nature vs nurture			
Free will vs determinism			
Reductionism vs holism			
Ethical costs vs benefits			
Gender bias			
Cultural bias			

Discussion question

To what extent should psychologists be allowed to carry out research that causes distress if the findings could benefit society?

Back to the contents

Final Reflection: Is A-level Psychology right for you?

18. Which task interested you most? Explain why.
19. Which task did you find hardest? Explain why.
20. What do you think will be the biggest challenge of A-level Psychology?
21. What personal habit will you need to develop to succeed at A-level?
22. After completing this booklet, how interested are you in studying Psychology? Circle one: 1 2 3 4 5
23. Write one question you want to ask your Psychology teacher in September.

Useful links and recommended starting points

- AQA A-level Psychology 7182 specification
- British Psychological Society: What is Psychology?
- BBC Radio 4: All in the Mind
- NHS Mental Health
- Mind: Mental health information

Back to the contents

A Level Physics Summer Work

Physics Skills	1. Prefixes and units

In Physics we have to deal with quantities from the very large to the very small. A prefix is something that goes in front of a unit and acts as a multiplier. This sheet will give you practice at converting figures between prefixes.

Symbol	Name	What it means		How to convert	
P	peta	10^{15}	1000000000000000		↓ x1000
T	tera	10^{12}	1000000000000	↑ ÷ 1000	↓ x1000
G	giga	10^{9}	1000000000	↑ ÷ 1000	↓ x1000
M	mega	10^{6}	1000000	↑ ÷ 1000	↓ x1000
k	kilo	10^{3}	1000	↑ ÷ 1000	↓ x1000
			1	↑ ÷ 1000	↓ x1000
m	milli	10^{-3}	0.001	↑ ÷ 1000	↓ x1000
μ	micro	10^{-6}	0.000001	↑ ÷ 1000	↓ x1000
n	nano	10^{-9}	0.000000001	↑ ÷ 1000	↓ x1000
p	pico	10^{-12}	0.000000000001	↑ ÷ 1000	↓ x1000
f	femto	10^{-15}	0.000000000000001	↑ ÷ 1000	

Back to the contents

Convert the figures into the units required.

6 km	=	6×10^3	m
54 MN	=		N
0.086 µV	=		V
753 GPa	=		Pa
23.87 mm/s	=		m/s

Convert these figures to suitable prefixed units.

640	GV	=	640×10^9	V
		=	0.5×10^{-6}	A
		=	93.09×10^9	m
	kN	=	32×10^5	N
	nm	=	0.024×10^{-7}	m

Convert the figures into the prefixes required.

s	ms	µs	ns	ps
0.00045	0.45	450	450 000 or 450 x10^3	450 x 10^6
0.000000789				
0.000 000 000 64				

mm	m	km	µm	Mm
1287360				
295				

Physics Skills

2. Significant Figures

1. **All non-zero numbers ARE significant.** The number 33.2 has THREE significant figures because all of the digits present are non-zero.

2. **Zeros between two non-zero digits ARE significant.** 2051 has FOUR significant figures. The zero is between 2 and 5

3. **Leading zeros are NOT significant.** They're nothing more than "place holders." The number 0.54 has only TWO significant figures. 0.0032 also has TWO significant figures. All of the zeros are leading.

4. **Trailing zeros when a decimal is shown ARE significant.** There are FOUR significant figures in 92.00 and there are FOUR significant figures in 230.0.

5. **Trailing zeros in a whole number with no decimal shown are NOT significant.** Writing just "540" indicates that the zero is NOT significant, and there are only TWO significant figures in this value.

(THIS CAN CAUSE PROBLEMS!!! WE SHOULD USE POINT 8 FOR CLARITY, BUT OFTEN DON'T - 2/3 significant figures is accepted in IAL final answers - eg 500/260 = 1.9 to 2 sf. Better $5.0 \times 10^2 / 2.6 \times 10^2 = 1.9$)

8. **For a number in scientific notation: N x 10^x, all digits comprising N ARE significant by the first 5 rules; "10" and "x" are NOT significant.** 5.02 x 10^4 has THREE significant figures.

For each value state how many significant figures it is stated to.

Back to the contents

Value	Sig Figs	Value	Sig Figs	Value	Sig Figs	Value	Sig Figs
2		1066		1800.45		0.070	
2.0		82.42		2.483×10^4		69324.8	
500		750000		0.0006		0.0063	
0.136		310		5906.4291		9.81×10^4	
0.0300		3.10×10^4		200000		40000.00	
54.1		3.1×10^2		12.711		0.0004×10^4	

When adding or subtracting numbers

Round the final answer to the **least precise** number of decimal places in the original values.

Eg. 0.88 + 10.2 – 5.776 (= 5.304) = **5.3** (to 1d.p. , since 10.2 only contains 1 decimal place)

(Khan Academy- Addition/ subtraction with sig fig excellent video- make sure you watch .)

Add the values below then write the answer to the appropriate number of significant figures

Value 1	Value 2	Value 3	Total Value	Total to correct sig figs
51.4	1.67	3.23		
7146	–32.54	12.8		
20.8	18.72	0.851		
1.4693	10.18	–1.062		
9.07	0.56	3.14		
739762	26017	2.058		
8.15	0.002	106		
152	0.8	0.55		

Back to the contents

When multiplying or dividing numbers

Round the final answer to the **least** number of significant figures found in the initial values.

E.g. 4.02 x 3.1 ÷ 0.114 = (109.315…) = **110** (to 2s.f. as 3.1 only has 2 significant figures.

Multiply the values below then write the answer to the appropriate number of significant figures

Value 1	Value 2	Total Value	Total to correct sig figs
0.91	1.23		
8.764	7.63		
2.6	31.7		
937	40.01		
0.722	634.23		

Divide value 1 by value 2 then write the answer to the appropriate number of significant figures

Value 1	Value 2	Total Value	Total to correct sig figs
5.3	748		
3781	6.50		
91×10^2	180		
5.56	22×10^{-3}		
3.142	8.314		

When calculating a mean

1) Remove any **obvious** anomalies (circle these in the table)
2) Calculate the mean with the remaining values, and record this to the **least** number of decimal places in the included values

E.g. Average 8.0, 10.00 and 145.60:

1) Remove 145.60
2) The average of 8.0 and 10.00 is **9.0** (to 1 d.p.)

Calculate the mean of the values below then write the answer to the appropriate number of significant figures

Value 1	Value 2	Value 3	Mean Value	Mean to correct sig figs
1	1	2		
435	299	437		
5.00	6.0	29.50		
5.038	4.925	4.900		
720.00	728.0	725		
0.00040	0.00039	0.000380		
31	30.314	29.7		

Back to the contents

Physics Skills	3. Converting length, area and volume

Whenever substituting quantities into an equation, you must always do this in SI units – such as time in seconds, mass in kilograms, distance in metres…

If the question doesn't give you the quantity in the correct units, you should always convert the units **first**, rather than at the end. Sometimes the question may give you an area in mm^2 or a volume in cm^3, and you will need to convert these into m^2 and m^3 respectively before using an equation.

To do this, you first need to know your length conversions:

1m = 100 cm = 1000 mm (1 cm = 10 mm)

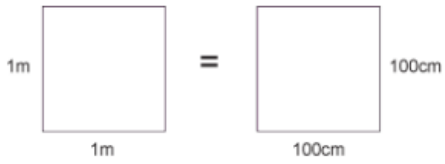
m ⍰ cm	x 100	cm ⍰ m	÷ 100
m ⍰ mm	x 1000	m ⍰ mm	÷ 1000

Always think –

"Should my number be getting larger or smaller?" This will make it easier to decide whether to multiply or divide.

Converting Areas

A 1m x 1m square is equivalent to a 100 cm x 100 cm square.



Therefore, $1\ m^2 = 10\ 000\ cm^2$

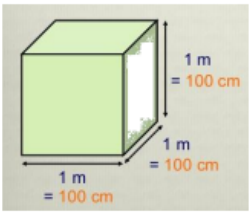
Similarly, this is equivalent to a 1000 mm x 1000 mm square;

So, $1\ m^2 = 1\ 000\ 000\ mm^2$

m^2 ⍰ cm^2	x 10 000	cm^2 ⍰ m^2	÷ 10 000
m^2 ⍰ mm^2	x 1 000 000	m^2 ⍰ mm^2	÷ 1 000 000

Converting Volumes

A 1m x 1m x 1m cube is equivalent to a 100 cm x 100 cm x 100 cm cube.



Therefore, $1\ m^3 = 1\ 000\ 000\ cm^3$

Similarly, this is equivalent to a 1000 mm x 1000 mm x 1000 mm cube;

So, $1\ m^3 = 10^9\ mm^3$

m^3 ⍰ cm^3	x 1 000 000	cm^3 ⍰ m^3	÷ 1 000 000
m^3 ⍰ mm^3	x 10^9	m^3 ⍰ mm^3	÷ 10^9

Back to the contents

$6\ m^2$	=	cm^2
$0.002\ m^2$	=	mm^2
$24\ 000\ cm^2$	=	m^2
$46\ 000\ 000\ mm^3$	=	m^3
$0.56\ m^3$	=	cm^3

$750\ mm^2$	=	m^2
$5 \times 10^{-4}\ cm^3$	=	m^3
$8.3 \times 10^{-6}\ m^3$	=	mm^3
$3.5 \times 10^{2}\ m^2$	=	cm^2
$152000\ mm^2$	=	m^2

Now use the technique shown on the previous page to work out the following conversions:

$31 \times 10^{8}\ m^2$	=	km^2
$59\ cm^2$	=	mm^2
$24\ dm^3$	=	cm^3
$4\ 500\ mm^2$	=	cm^2
$5 \times 10^{-4}\ km^3$	=	m^3

(*Hint: There are 10 cm in 1 dm)*

A 2.0 m long solid copper cylinder has a cross-sectional area of $3.0 \times 10^2\ mm^2$. What is its volume in cm^3?

Volume = _____ cm^3

For the following, think about whether you should be writing a smaller or a larger number down to help decide whether you multiply or divide.

Eg. *To convert 5 m ms^{-1} into m s^{-1} – you will travel more metres in 1 second than in 1 millisecond, therefore you should multiply by 1000 to get 5000 m s^{-1}.*

$5\ N\ cm^{-2}$	=	$N\ m^{-2}$
$1150\ kg\ m^{-3}$	=	$g\ cm^{-3}$
$3.0\ m\ s^{-1}$	=	$km\ h^{-1}$
$65\ kN\ cm^{-2}$	=	$N\ mm^{-2}$
$7.86\ g\ cm^{-3}$	=	$kg\ m^{-3}$

Back to the contents

Physics Skills	4. Rearranging Equations

Rearrange each equation into the subject shown in the middle column.

Equation		Rearrange Equation
$V = IR$	R	
$I = \frac{Q}{t}$	t	
$\rho = \frac{RA}{l}$	A	
$\varepsilon = V + Ir$	r	
$s = \frac{(u+v)}{2}t$	u	

Equation		Rearrange Equation
$hf = \phi + E_K$	f	
$E_P = mgh$	g	
$E = \frac{1}{2}Fe$	F	
$v^2 = u^2 + 2as$	u	
$T = 2\pi\sqrt{\frac{m}{k}}$	m	

Back to the contents

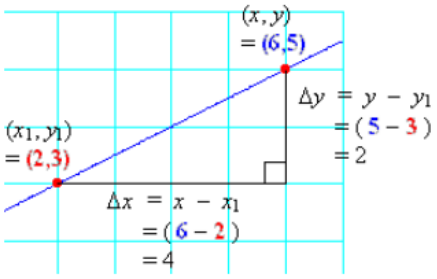
Physics Skills	9. Calculating Gradients – Straight Lines

Gradients are a useful tool that show how fast or slow quantities change – eg speed tells us how fast distance is changing, or how quickly energy is being lost over time.

To calculate the gradient, pick any two points on the line as far away as possible and draw a large triangle between them.
The gradient is given by:

$$gradient = \frac{difference\ in\ y\ values}{difference\ in\ x\ values}$$

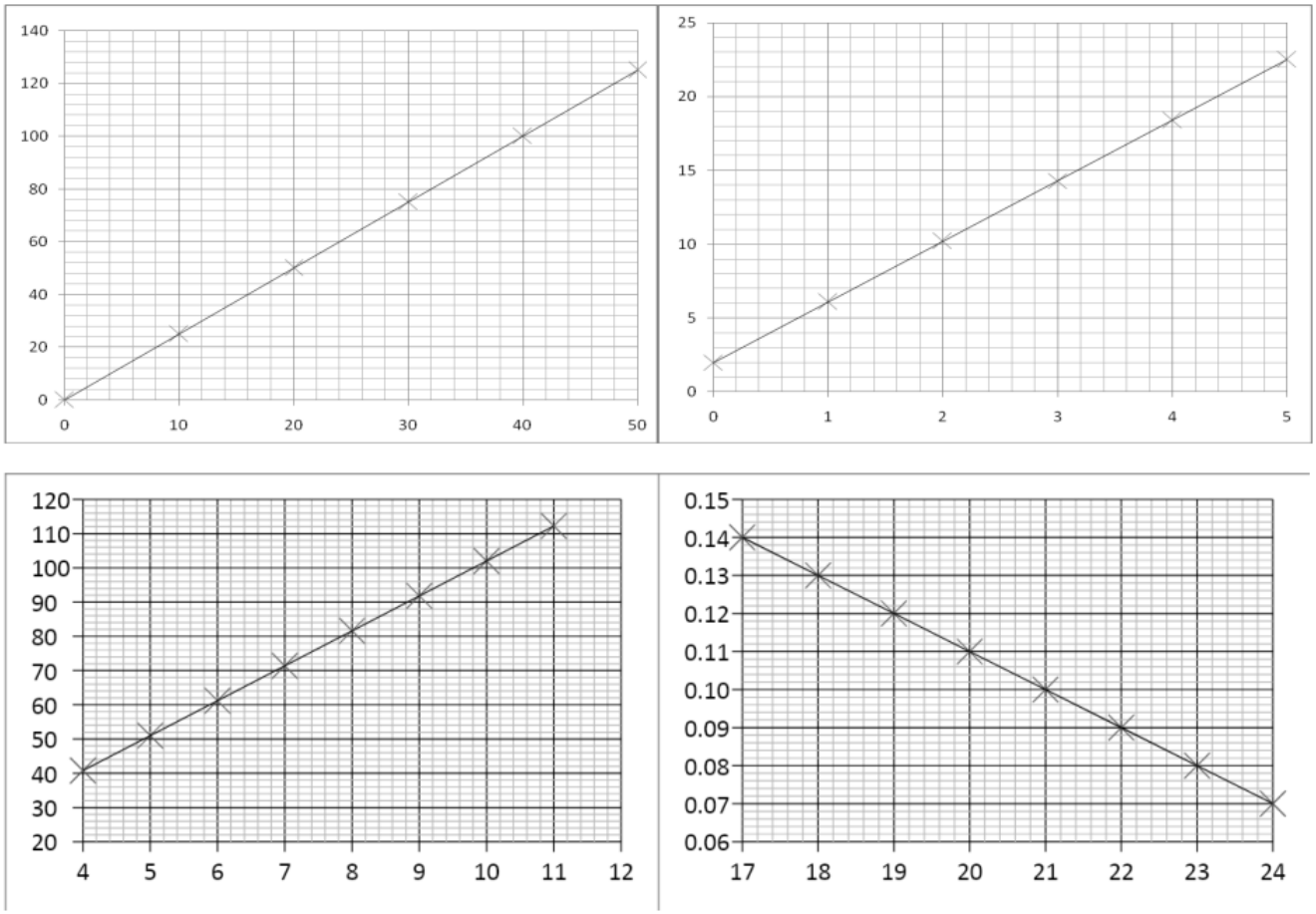
But make sure the you subtract the values in the same order! Remember – if the line slopes up, the gradient should be positive; if the line slopes down, then the gradient should be negative.



$$Gradient = \frac{difference\ in\ y}{difference\ in\ x}$$
$$= \frac{2}{4}$$
$$\mathbf{= 0.5}$$

Calculate the gradients of the graphs below

Back to the contents



Physics Skills	10. Calculating Gradients – Curved Lines

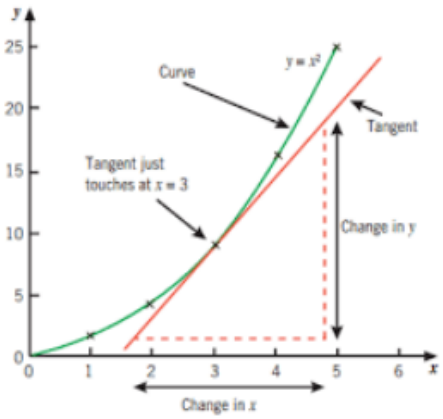
Most graphs in real life are not straight lines, but curves; however it is still useful to know how the quantity changes over time, hence we still need to calculate gradients.

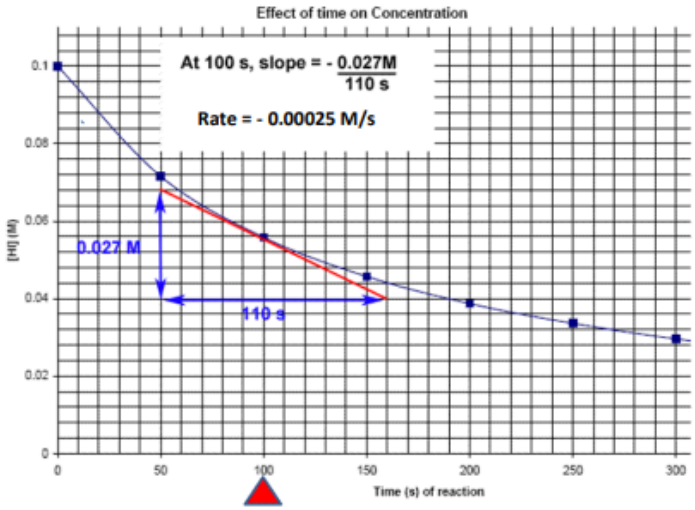
If we want to know the gradient at a particular point, firstly we need to draw a *tangent* to the curve at that point. A tangent is a straight line that follows the gradient at the required point. Once we have drawn the straight line tangent, its gradient can be calculated in exactly the same way as the previous page showed.

Tip – make sure your tangents and gradient triangles are as big as possible to be as accurate as you can!

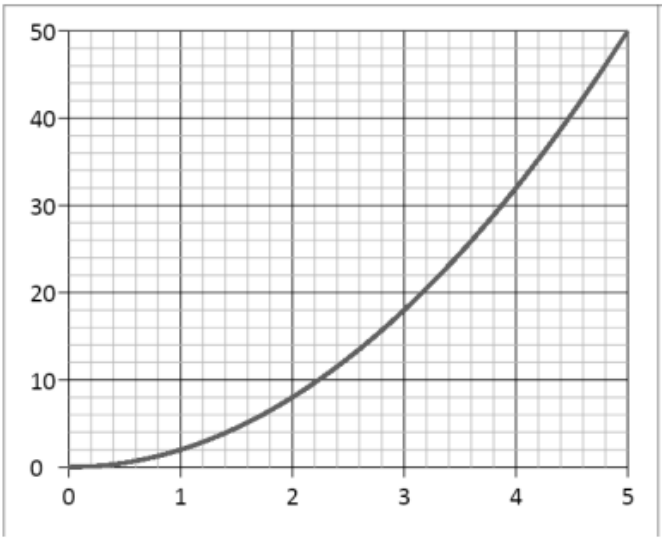
Examples of drawing tangents and calculating the gradient of a tangent:

Back to the contents

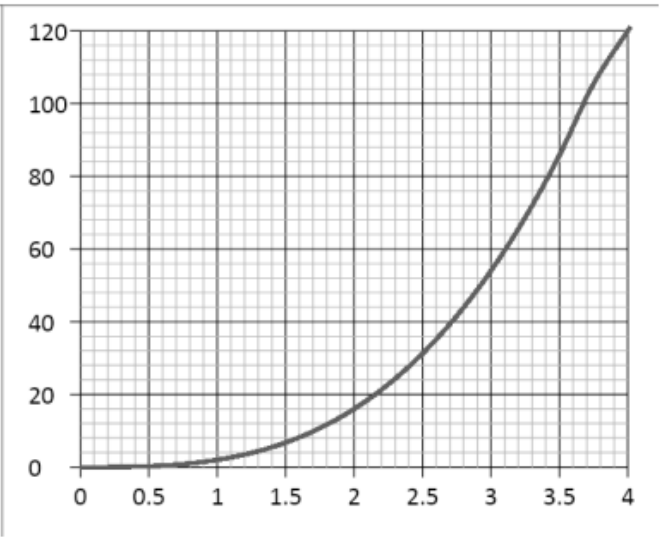




Draw a tangent to the line and calculate its gradient at the following x-axis values:



2.0 and 4.0



1.5 and 3.5

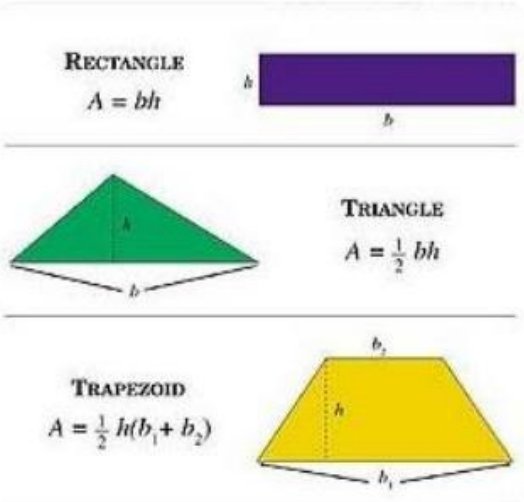
(Note - gradients in Physics often have units, this is something we will consider as we progress in the course)

Back to the contents

Physics	11. Calculating Areas – Straight line Graphs
Skills	

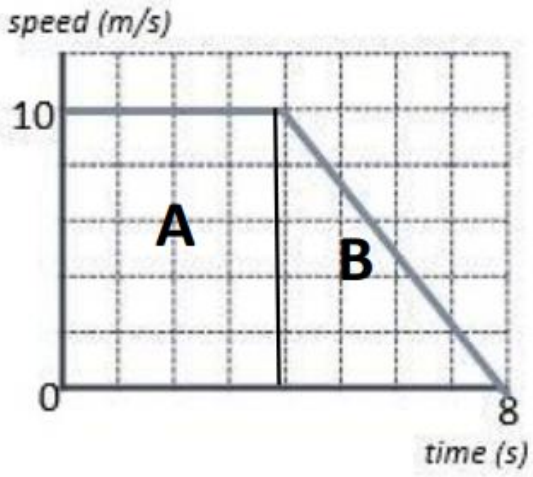
Often other quantities can be found by multiplying the two quantities represented on a graph together (for example, multiplying velocity and time gives distance travelled). The exact quantity can be found by calculating the area under the graph.

If the graph is made of straight lines, the total area can be found by splitting the graph into segments of rectangles and triangles (or into a trapezium) and adding those areas together.



Important – the heights that you use should always be the perpendicular height from the base.

Calculate the distance travelled by determining the area under the graph:



Area A = 10 x 4 = 40 m

Area B = ½ x 4 x 10 = 20 m

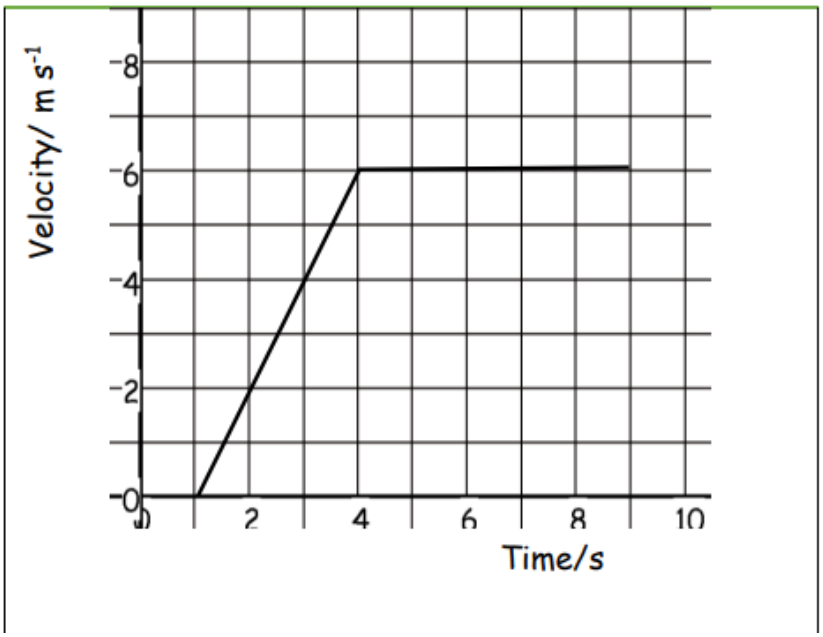
Total Area = A + B = 40 + 20 = **60 m**

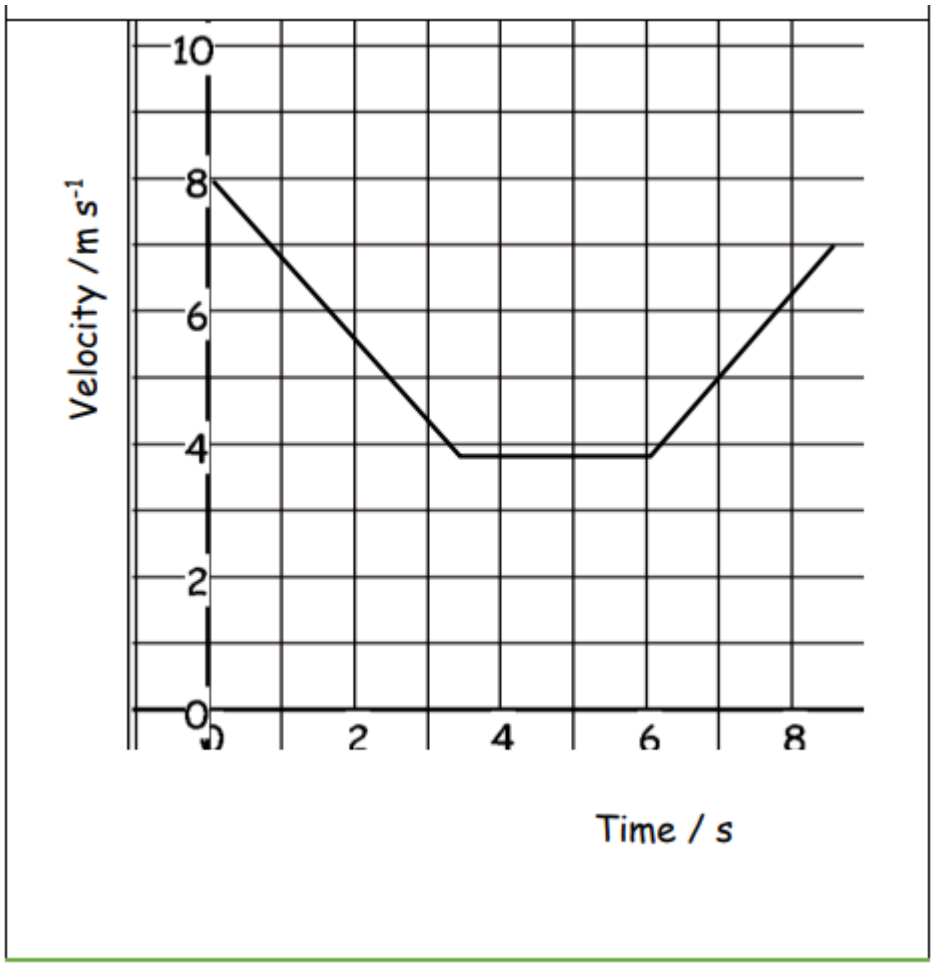
Or

Area of trapezium = ½ (4 + 8) x 10 = **60 m**

Back to the contents

Calculate the area of the below graphs and the correct unit for that area.





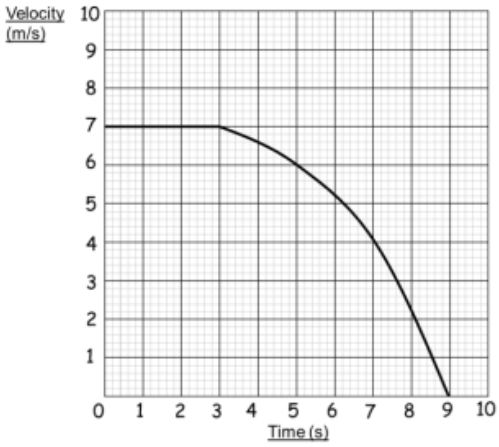
Back to the contents

Physics Skills	12. Calculating Areas – Curved line Graphs

When graphs have curved lines we use a simple process of counting squares and estimating.

1) Calculate the area of 1 small (but the not smallest!) square on the graph
2) Count the number of whole squares under the line
3) Estimate the whole number of squares that have been segmented by the line.
4) Multiply the total number of squares by the area of one square to estimate the area.

Eg. Work out the distance travelled by calculating the area under the graph.

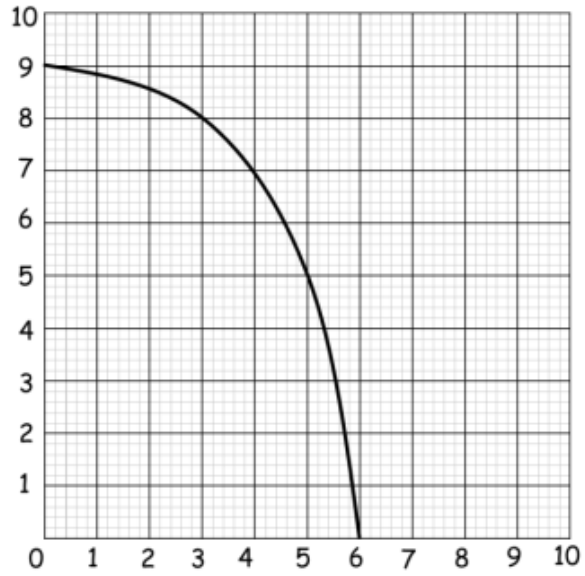


1) 1 square = 1 m s^{-1} x 1 s = 1 m
2) Whole Squares = 44
3) Segmented squares = 4
4) 48 squares x 1 m = **48 m**

Back to the contents

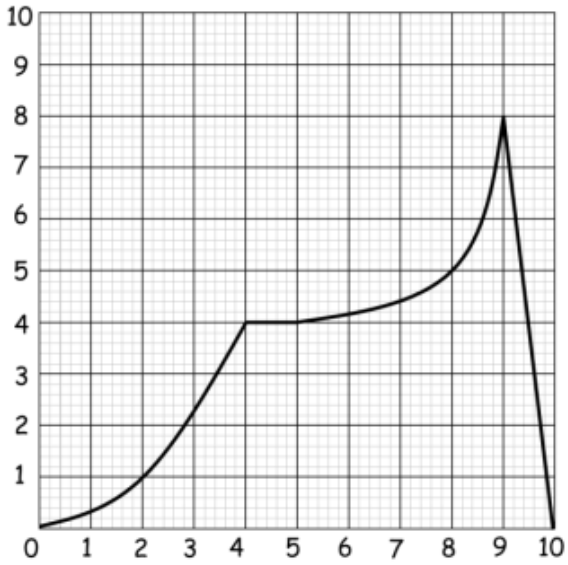
Calculate the area under the following graphs.

velocity/m s^{-1}



time /s

velocity/ km s^{-1}



time /min

Back to the contents

A Level Religious Studies Summer work

There are 3 parts to the RS transition work.

Please complete all of them to prepare you for the different units of work.

Activity 1.

This is the first episode of Stephen Fry's series 'Out There', where he explores attitudes to homosexuality in different parts of the world.

Watch and answer the below questions – try to support your answers with reasoning:

https://www.youtube.com/watch?v=IMPl25oraVc

1. Do you think there is a 'right' attitude and a 'wrong' attitude towards homosexuality? What is it that makes these attitudes right or wrong?

2. Some people might argue that different cultures have different ideas about morality, and that these different cultural beliefs should be respected even if we don't agree with them. Do you think we should always respect the beliefs and attitudes of cultures different from our own, or should we try to persuade them to adopt our own beliefs instead?

3. What do you think are the aims of this television series? Do you think they are good aims? Do you think this first episode is successful in achieving its aims?

4. What religious reasons do people sometimes give for opposing homosexual relationships? How would you support or oppose these views?

Activity 2

Read chapter one of Bentham's 'An Introduction to the Principles of Morals and Legislation (1789)' This is freely available to read online http://www.econlib.org/library/Bentham/bnthPML1.html
Key question: What does Bentham mean by the principle of utility?
Make notes in response to the following questions:

1. What does the author propose as the governing forces that determine human behaviour, and how do they shape our actions, thoughts, and speech?
2. How does the author define the "principle of utility," and in what ways does it serve as the foundation for the moral and legislative system discussed in the text?
3. In the author's view, what is the relationship between the interest of the community and the interests of individual members? How does the author define the interest of the community, and how is it derived from the interests of its individual members?
4. How does he address the challenges and objections that may arise in accepting or applying the principle of utility?

Back to the contents

Introduction to Philosophy of Religion
Eduqas A Level Religious Studies – Component 2
Theme 1: Arguments for the Existence of God

☑ Section 1: Types of Reasoning and Knowledge

To understand arguments for God, you need to understand ways of reasoning.

Key Terms

- Deductive reasoning: If the premises are true, the conclusion must be true
- Inductive reasoning: Evidence makes the conclusion probable but not certain

---

Task 1: Identify the Reasoning

1. All mammals are warm-blooded. A whale is a mammal. Therefore, a whale is warmblooded.
2. The sun has risen every day in recorded history. Today is like previous days. Therefore, the sun will rise tomorrow.
3. Every time I've eaten at that restaurant, the food was good. I am going there again today. Therefore, the food will probably be good again.
4. All students in the RS class passed the exam. Sam is a student in the RS class. Therefore, Sam passed the exam.

For each example, decide if the conclusion is deductive or inductive and explain your reasoning.

Key Terms – latin phrases so always shown as two words

- a priori: Knowledge that is independent of experience. It is derived from reason alone, such as mathematical truths and logical deductions
- a posteriori: Knowledge that depends on empirical evidence or experience. It is derived from observation and experimentation, such as scientific knowledge

---

☑ Section 2: Introduction to God (Key Ideas)

Before studying arguments for God's existence, you must understand what philosophers mean by 'God'.

When philosophers debate an idea, it is usually necessary to agree a definition first, to ensure everyone discusses the same concept. Classical theism has a traditional understanding of 'God'. Classical Theism God is understood as:

- Omnipotent (all-powerful)

Back to the contents

- Omniscient (all-knowing)
- Omnibenevolent (all-loving)

Philosophy often considers concepts that are metaphysical which in philosophy pertains to abstract ideas about existence or causality. There are different philosophical interpretations and challenges that relate to the concept of God.

1. If God is all-powerful, he can do anything so can he tell a lie?
2. If God is all-knowing, he knows everything including your future so are you really making free decisions or are you following a predetermined path?
3. If God is all-loving does he loves everyone equally and if so why do some people suffer more than others?

Task 2: Write down your response to questions 1,2 and 3 knowing that we may never be able to prove whether your answers are correct.

☑ Section 3: Why Do People Believe in God?

People believe for different reasons:

- Upbringing
- Religious experience
- Evidence or arguments
- Personal need or comfort

Task 3: Reflection

Rank the following reasons for belief from most convincing (1) to least convincing (5) and explain reasons for your choices:

- Scientific evidence
- Personal experience
- Religious texts
- Family tradition
- Philosophical arguments

Back to the contents

☑ Section 4: Introduction to Arguments for God's Existence

You will study three main argument types:

---

1. Cosmological Argument

- Based on cause and existence •

Asks: Why does the universe exist?

Aquinas' Cosmological Argument

Thomas Aquinas (1225–1274) argued that the existence of the universe requires a first cause, which he identified as God. His argument appears in his "Five Ways,". The first three ways form his version of the cosmological argument.

Core Idea

Everything in the universe depends on something else for its existence. This chain of dependence cannot go back infinitely, so there must be a first cause or necessary being that started it all.

Key Points (from Aquinas' First Three Ways)

1. Argument from Motion (Change) o Things in the world are always changing (moving from potential to actual). o Nothing can change itself; it must be changed by something else. o This leads to a chain of causes.
   - o The chain cannot go back infinitely → there must be a First Mover (God).
2. Argument from Cause o Everything has a cause. o Nothing can cause itself. o Causes form a chain of dependency.
   - o An infinite chain is impossible → there must be a First Cause (God).
3. Argument from Contingency (Existence) o Things in the world are contingent (they can exist or not exist). o If everything were contingent, there could have been a time when nothing existed.
   - o But if nothing ever existed, nothing could exist now.
   - o Therefore, there must be a necessary being that always exists (God). Conclusion

Aquinas concludes that:

- There must be a first cause, first mover, or necessary being.
- This being is not dependent on anything else.
- This being is what we call God.

Back to the contents

Task 4: Short answer questions

1. What does Aquinas mean by "motion" in the Argument from Motion?

2. Define what Aquinas means by a "First Mover."

3. What is the difference between a contingent being and a necessary being?

4. According to Aquinas, why is it impossible for everything to be contingent?

5. What does Aquinas mean by a "First Cause"?

6. What characteristics does Aquinas give to the necessary being?

---

2. Teleological Argument (Design Argument) – a posteriori and inductive

- Based on design and purpose
- Asks: Does the universe look designed?

Paley's Teleological Argument (Design Argument)

William Paley (1743–1805) argued that the complexity and order in the world show that it must have been designed by an intelligent creator—God.

Core Idea

The natural world is too complex and purposeful to have come about by chance, so it must have been designed.

The Watch Analogy

Paley explains his argument using a famous example:

- Imagine finding a watch on the ground.
- You would notice it has many intricate parts working together for a purpose (telling time).
- Because of this complexity and purpose, you would naturally conclude it was designed by a watchmaker.

Applying the Analogy to the Universe

Back to the contents

- The universe and living things are even more complex than a watch.
- For example: the human eye is highly detailed and functions perfectly for seeing.
- Therefore, just like the watch has a designer, the universe must have a designer (God).

Key Features of the Argument

- Design (complex structure) → suggests a designer
- Purpose (everything has a function) → suggests intentional creation
- Order (laws of nature) → suggests planning

Conclusion

Since the world shows clear signs of design and purpose, it must have been created by an intelligent designer, which Paley identifies as God.

Task 4: Short answer questions

1. What key question does the Teleological Argument ask?

2. Who developed the version of the argument using the watch analogy?

3. In Paley's analogy, what object is found on the ground?

4. What features of the watch suggest it was designed?

5. What conclusion do we reach about the watch?

6. What does the watchmaker represent in Paley's argument?

7. What example from the human body does Paley use?

8. Why does Paley reject the idea that the world came about by chance?

Back to the contents

3. Ontological Argument – a priori and deductive

- Based on logic and definition
- Asks: Can we prove God exists through reasoning alone?

Anselm's Ontological Argument

St Anselm (1033–1109) argued for the existence of God using reason alone, rather than observation of the world. His argument focuses on the concept of God itself.

Core Idea

God must exist because existence is part of the definition of God.

Key Argument (Step-by-Step)

1. Definition of God o God is defined as "that than which nothing greater can be conceived" (the greatest possible being).
2. Existence in the Mind vs Reality o We can imagine this greatest possible being in our minds.
   - But something that exists in reality is greater than something that exists only in the mind.
3. Logical Conclusion o If God existed only in the mind, then it would be possible to imagine something greater (a God that exists in reality).
   - This would contradict the idea of God as the greatest possible being.
4. Therefore o God must exist not just in the mind but also in reality.

Conclusion

Because God is defined as the greatest possible being, and real existence is greater than imagined existence, God must exist in reality.

Task 5: Multiple Choice Questions

1. What is the Ontological Argument based on?
   A) Observation of nature
   B) Scientific evidence
   C) Logic and definition
   D) Religious experience

2. Anselm's definition of God implies which of the following?
   A) God is the most powerful known being

Back to the contents

B) God is greater than anything that exists in reality
C) God is the greatest conceivable being
D) God exists only in the human mind

3. Why does Anselm distinguish between existence in the mind and existence in reality?
   A) To show that ideas are more important than objects
   B) To argue that imagined things are better than real things
   C) To demonstrate that existence in reality adds greatness
   D) To reject the existence of God

4. Which assumption is necessary for Anselm's argument to succeed?
   A) Everything must have a cause
   B) Existence is a perfection or great-making property
   C) The universe is designed
   D) God created the world

5. What role does the concept of "greatness" play in Anselm's reasoning?
   A) It measures physical size
   B) It refers to moral goodness only
   C) It determines logical superiority, including existence
   D) It describes human imagination

6. Which of the following would most weaken Anselm's argument?
   A) Denying that God is powerful
   B) Denying that existence makes something greater
   C) Denying that the universe exists
   D) Denying that humans can think

☑ Section 5: Key Vocabulary

Write the correct term next to each definition.

1. Knowledge based on experience and observation
2. A being that must exist and cannot not exist
3. An endless chain with no starting point
4. The study of purpose or design in nature
5. Something that depends on something else for its existence
6. A logical inconsistency
7. Reasoning that does not rely on sense experience
8. The cause that brings something into existence

Word bank:

Back to the contents

A posteriori | Contingent being | Infinite regress | Teleology | Necessary being | Contradiction | A priori | Efficient cause

Section C: Fill in the Blanks

1. A _____ argument guarantees its conclusion if the premises are true.
2. A _____ argument makes the conclusion likely, but not certain.
3. Anselm defines God as "that than which nothing _____ can be conceived."
4. The _____ argument is based on observation of the world.
5. The _____ argument is based purely on logic.

☑ Section 6: Challenge Task

Research:

David Hume 

Gaunilo of Marmoutiers 

Write:

- What were their religious beliefs
- Which arguments for God did they engage with?
- Did they support or criticise the arguments?
- What were their key points?

Back to the contents

Why are is the teleological argument a posteriori and inductive?

Why is the ontological argument a priori and deductive?

Back to the contents

A Level Religious Studies (Eduqas)

Christianity Theme 1: Religious Figures and Sacred Texts Topic: Jesus – His Birth

Student Name: _____ **Date:** _____

Learning Goals

By completing this workbook, you will:

- Understand the birth narratives in Matthew and Luke
- Develop textual analysis skills
- Explore key theological ideas
- Practice evaluation (AO2)

Part 1: Reading the Nativity Accounts **Read:** Matthew 1:18 – 2:23, Luke 1:26 – 2:40

Make Notes for each account

Key events:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Main characters:

_____
_____
_____
_____
_____

Back to the contents

References to prophecy:

How is Jesus described?

Theme	Matthew	Luke
Audience		
Focus (e.g. kingship, humility)		
Key visitors		
Role of Mary/Joseph		

Back to the contents

Supernatural elements		

Part 2: Comparing the Gospels

🧠 Part 3: Key Concepts

1. The Incarnation

What does this mean?

_____
_____
_____
_____

Why is it important?

_____
_____
_____
_____
_____
_____
_____
_____

2. The Virgin Birth

What is meant by this?

_____
_____
_____
_____

Why is it important?

_____
_____
_____
_____
_____
_____

3. Messiah

What did Jews expect from a Messiah?

_____
_____
_____
_____
_____

Back to the contents

How do the birth stories present Jesus as Messiah?

□ Part 4: Scholarly Issues

Are the birth narratives historical or theological?

Notes:

Evidence they are historical:

Evidence they are theological/symbolic:

Back to the contents

💬 Part 5: Evaluation Essay

Question:

"The birth narratives of Jesus are more about theology than history." Evaluate this view.

Plan your answer:

Arguments FOR:

Arguments AGAINST:

✍️ Your Essay (400–500 words):

Back to the contents

🎓 Extension Task

Research one scholar (e.g. Raymond Brown or N.T. Wright)

Name of scholar: ______________________________

Summary of their view:

Back to the contents

☑ Checklist

☐ Completed notes on readings
☐ Completed comparison table
☐ Explained key concepts
☐ Attempted evaluation essay
☐ Completed extension task (optional)

★ Teacher Feedback

☑ Well done – this is excellent preparation for A Level Religious Studies

Back to the contents

A Level Spanish Summer Work

TASK1: CULTURAL RESEARCH

A/ Aspects of Hispanic society

1. Modern and traditional values (Los valores tradicionales y modernos)

a. What is the current rate of marriage in Spain? Choose two further Hispanic countries. Do the results differ? If so, why do you think that is?

b. How have Hispanic families changed over the last few decades?

c. What is the view of the Catholic Church towards the new types of families in the Hispanic world?

2. Cyberspace (El ciberespacio)

a. What are some of the main advantages and disadvantages of using the Internet? Make a list of five for each aspect.

b. What percentage of homes in Spain have access to the Internet? Choose two further Hispanic countries. Do the results differ? If so, why do you think that is?

c. What do you know about nomophobia?

3. Equal rights (la igualdad de los sexos)

a. What is the situation of the woman in the Hispanic world of work? Are they equal to men?

b. What do you know about "machismo" in the Hispanic world?

c. How has the Hispanic legal system towards homosexuality changed since the 60s?

B/ Artistic cultura in the Hispanic world

1. Modern day idols (La influencia de los ídolos)

a. Make a list of 5 Hispanic singers that are a good role model and why.

b. Search some information about Rafael Nadal and explain why he is such a good player inside and outside the tennis court.

c. Why do you think some Hispanic people want to be famous?

2. Spanish regional identity (La identidad regional en España)

a. Name 5 Hispanic festivals and provide a brief description for each of them.

Back to the contents

b. Watch a short clip of a bullfight and write a paragraph describing it and giving your opinion about it.

c. Do some research about the languages spoken in Spain. Please state where each of them is spoken and find the areas in a map of Spain. What do you think of speaking different languages in the same country?

3. Cultural heritage (El patrimonio cultural)

a. What do you know about the discovery of America by Columbus.

b. Look up Frida Kahlo and write a paragraph about her life and art.

c. Find 5 monuments listed in the UNESCO that belong to the Hispanic World and write about why they are listed on this list.

TASK 2: LANGUAGE

1. GRAMMAR: Fill in the gap with the relevant form of the verb or adjective between brackets

(a) El verano que viene, nosotros _____ menos televisión porque estaremos de vacaciones en Calatayud. **(ver)**

(1)

(b) Los anuncios que me _____ menos son los que hablan de la comida basura. **(gustar)**

(1)

(c) Pasamos un _____ fin de semana en Valencia. **(bueno)**

(1)

(d) Mi ordenador se _____ la semana pasada. **(romper)**

(1)

(e) Necesito los subtítulos cuando veo una película porque la pronunciación de muchos actores es tan _____ . **(malo)**

(1)

(f) Para ella, aprender a tocar el piano fue una tarea muy _____ . **(fácil)**

(1)

(g) Llamé a un especialista pero él _____ que no podría repararlo. **(decir)**

(1)

(h) No me gustan nada estas camisetas _____ .**(marrón)**

Back to the contents

TASK 3: SKILLS PRACTICE

1. LISTENING:

El impacto de Internet y de la tecnología en las relaciones personales en España

Escucha a estas personas dando su opinión sobre el impacto de Internet y de la tecnología en las relaciones personales en el país.

Escribe **P** si la opinión es **positiva**.
Escribe **N** si la opinión es **negativa**.
Escribe **P + N** si la opinión es **positiva y negativa.**

Audio track
https://IUFEPII.exampro.net

Escribe **la(s) letra(s)** correcta(s) en las casillas.

1 Nerea ☐ (1)

2 Alejandro ☐ (1)

3 Cristina ☐ (1)

4 Sergio ☐ (1)

5 Gabriela ☐ (1)

6 Amir ☐ (1)

7 Sonia ☐ (1)

Back to the contents

8 Raúl ☐

(1)

(Total 8 marks)

2. READING: Unos consejos importantes para aprender catalán

Lee los consejos (1 – 7) y luego decide si las siete frases (a – g) son verdaderas (V), falsas (F) o no mencionadas (N).

Escribe la letra V, F o N en las casillas.

Unos consejos importantes para aprender catalán:

1. Primero, pregúntate: ¿Por qué no quieres aprender catalán? ¿No tienes tiempo? ¿Te falta la motivación? ¿Te parece muy costoso ir a un cursillo?

2. Para mantener la motivación, es muy importante probar distintos tipos de actividades, incluso ver una película en catalán que nunca has visto.

3. Tu casa no es el único lugar donde puedes practicar el idioma. También puedes ir a clases de conversación, o hablar con amigos catalanes. A lo mejor harás nuevos amigos.

4. Si un día no puedes entender lo que dicen, no hay razón para deprimirte. Lo importante es perseverar.

5. Puedes aprovechar cada momento del día para aprender más: escuchar las noticias en catalán en vez de escucharlas en castellano, pedir tu comida en el restaurante en catalán en lugar de pedir el menú castellano y hasta dedicarte a leer una novela.

6. Hay que ser paciente. Los resultados en tu fluidez no se ven de un día para otro.

7. Si el problema es económico, recuerda que el cursillo no es la única alternativa. Puedes seguir un video en casa.

		V, F, N
(a)	Se recomienda considerar las excusas que las personas usan para no aprender catalán.	

(1)

(b)	Es aconsejable hacer actividades similares para no perder el entusiasmo.	

(1)

(c)	Las clases de conversación son buenos lugares para	

Back to the contents

conocer a gente nueva.	

(1)

(d)	Es esencial entender todo lo que oyes para ver los resultados.	

(1)

(e)	Ir a cine puede ser bueno como actividad didáctica.	

(1)

(f)	Verás cambios en tu fluidez desde el primer día que aprendes nuevas palabras.	

(1)

(g)	Hay que pagar el coste del cursillo al principio de cada mes.	

(1)

(Total 7 marks)

3. TRANSLATION: Las fiestas

Translate the following passage about the Basque figure, *El Celedón*, into **English**.

Los españoles disfrutan muchísimo de sus fiestas, pero es posible que una en el País Vasco sea la más extraña. Una figura, hecha de madera, con un paraguas en la mano, vuela sobre la cabeza de los que llenan la plaza. Al llegar a un balcón, desaparece un momento. Luego sale un hombre de verdad, vestido igual, para entretener a todos. El año próximo habrá más turistas allí porque también se celebrará una degustación de vinos.

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Back to the contents

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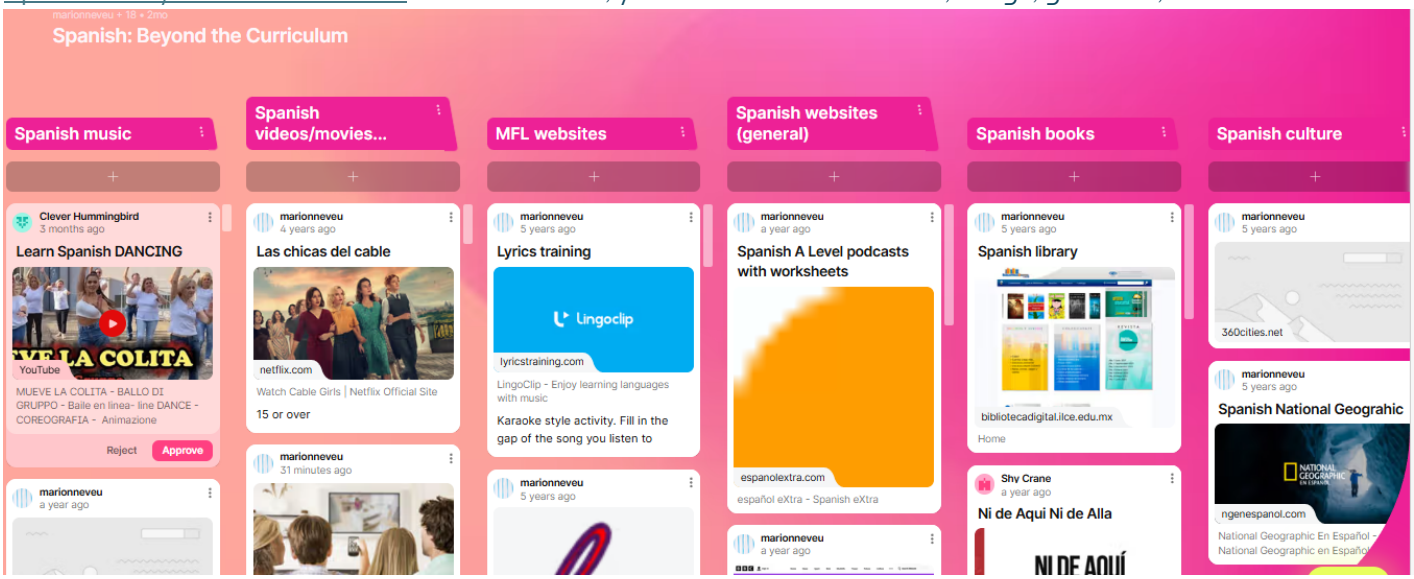
(Total 10 marks)

USEFUL LINKS

Spanish: Beyond the Curriculum On this website, you will find links to videos, songs, grammar, news articles...



Back to the contents

AQA A Level Drama & Theatre Summer Work

Task 1:
Aim: For your Component 2 examination you will need to have knowledge of the practitioner Alecky Blythe and understand Verbatim Theatre. Please complete the following task to develop your knowledge of this practitioner and style of work.

- Research Alecky Blythe identifying the methods, process and key techniques used in her work
- Research verbatim theatre and the recorded-delivery technique identifying what are the main elements of this style and technique.
- Watch clips/interviews about *London Road and Our Generation* (YouTube, NT resources)
- Complete a 1–2 page written summary including:
    - What verbatim theatre is
    - What makes Blythe's method unique
    - Why recorded delivery matters

(500-700 words)

Task 2
Aim: For component 1 which is the written examination you will be studying the play Hedda Gabler by Henrik Ibsen. Please complete the following task to develop your knowledge and understanding of the text, style and context

- Research Henrik Ibsen
- Research the SHC context of *Hedda Gabler*
- Read a detailed plot summary (not the full text)
- Begin your PowerPoint- Slides 1–5 (Ibsen's life, Norway in the 19th century, role of women, realism)
- Research:
    - Naturalism
    - Middle-class etiquette in the 1890s
    - Gender expectations
- Add to your PowerPoint- Slides 6–10 (marriage, Hedda's psychology, staging implications)
- Write a short director's note (300–400 words) explaining how you would design the stage for Hedda Gabler.

Tasks 3- For component 1 which is the written examination you will be studying a second play, Our Country's Good by Timberlake Wertenbaker. Please complete the following task to develop your knowledge and understanding of the text, style and context

- Research the context of *Our Country's Good*
- Create a one-page summary covering:
    - The First Fleet
    - Georgian justice system
    - Class and punishment
    - The real convicts
- Write a short comparison (300–400 words):
    - How the SHC context of *Hedda Gabler* differs from *Our Country's Good*

Back to the contents

Tasks 4

- Write a comparative analysis (600–800 words):
  - How context shapes character behaviour in both plays
  - **How a modern director might reinterpret each play**
- Create a short concept sketch (written description) for:
  - A modern staging of *Hedda Gabler*
  - A modern staging of *Our Country's Good*
- Review all work and prepare it for submission in September.

Comparative essay + two director's concepts.

This must be completed independently and submitted at the start of Year 12.

Back to the contents