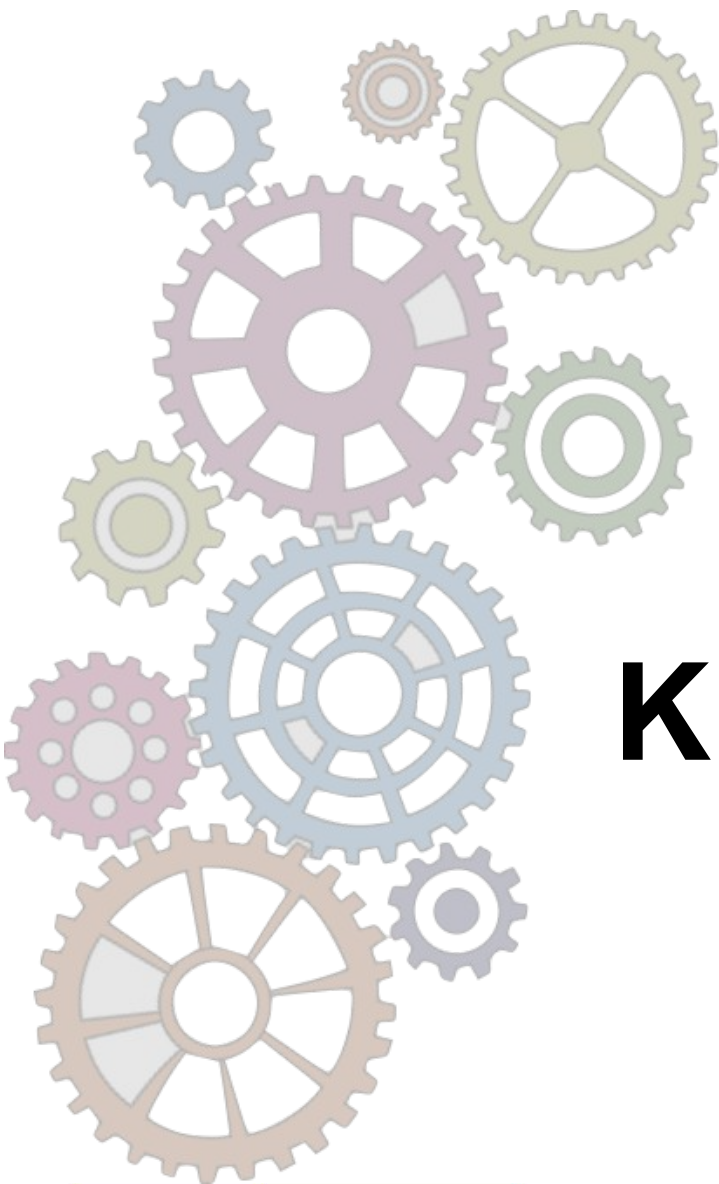




Name: \_\_\_\_\_

Tutor Group: \_\_\_\_\_

# Year 10

# Knowledge Organisers

## Module 1 2022/23

ENCOURAGED  
TO → **THINK**

EMPOWERED  
TO → **ACT**

EXPECTED  
TO → **PERFORM**



Make sure this knowledge organiser is brought into school every day!

# How to use your knowledge organisers

Knowledge organisers contain the most fundamental knowledge for the topics you are studying. You are required to study and quiz yourself on a section of your knowledge organiser for **at least 20 minutes each evening** to make sure you have the knowledge ready to use in lessons and for assessments.

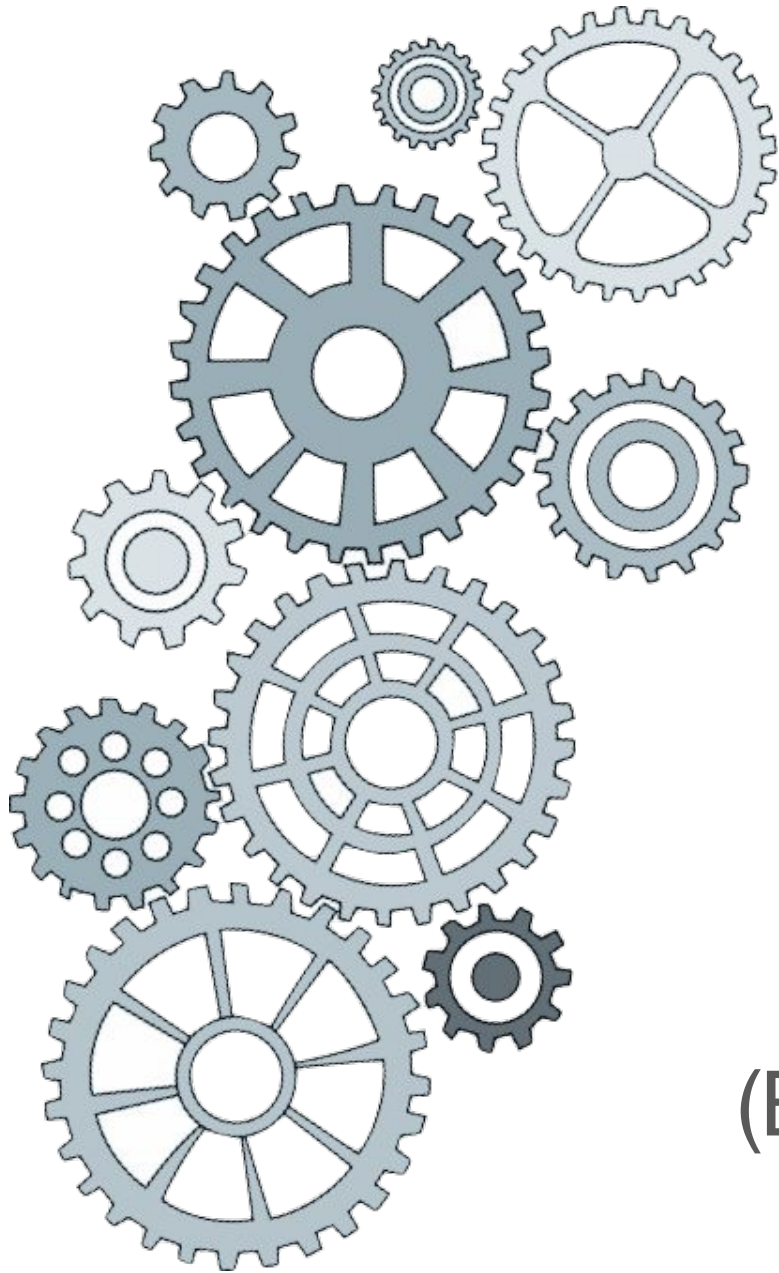
Many knowledge organisers contain lots of information and therefore you may need to start by mastering a small section first before moving on to another. It's important that you revisit sections you have already studied again to make sure you can still remember it - this is called 'spaced practice' and enhances your knowledge retention.

## How to 'quiz' using the knowledge organiser

There are lots of different ways that you can go about learning the knowledge on the knowledge organisers. The key thing is that you quiz (keep testing yourself) instead of continuously re-reading them. The very act of quizzing will help you remember the knowledge. Scan the QR codes below to learn how to use the following techniques:

|  <b>Brain Dump</b>                                                               |  <b>Cover and Check</b>                                           |  <b>Retrieval Questions</b>                                                     |  <b>Flash Cards</b>                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|  This technique is quick and easy and can be used with any knowledge organiser. |  This technique is for knowledge organisers presented as tables. |  This technique is for those knowledge organisers presented as blocks of text. |  This video shows you how to quiz effectively using flash cards. |

**Remember to bring your knowledge organisers to school every day!** Your teachers may get you to use them in lessons to support with your learning and they will also point out which sections to focus on when using them at home.



# Business

(BTEC Tech Award in Enterprise)



## COMPONENT 1 - Exploring Enterprises

- Learning Aim A Examine the characteristics of enterprises

## WHAT IS ENTERPRISE?

# A

**What is an enterprise?** Enterprise is the term used to describe a business or company.

For an enterprise to be successful the entrepreneur must spot a **gap in the market**.

### How do enterprises compete?

Enterprises face competition if their products are **not** unique.

If another enterprise sells the **same or similar** products; there are called your competition or competitors.

#### Every enterprise needs to:

- Decide on the features or characteristics that make its goods and services different from other enterprises.
- Ensure that customers are aware of what makes it different.

Goods are sold physically.  
For example: an enterprise may sell trainers or books.

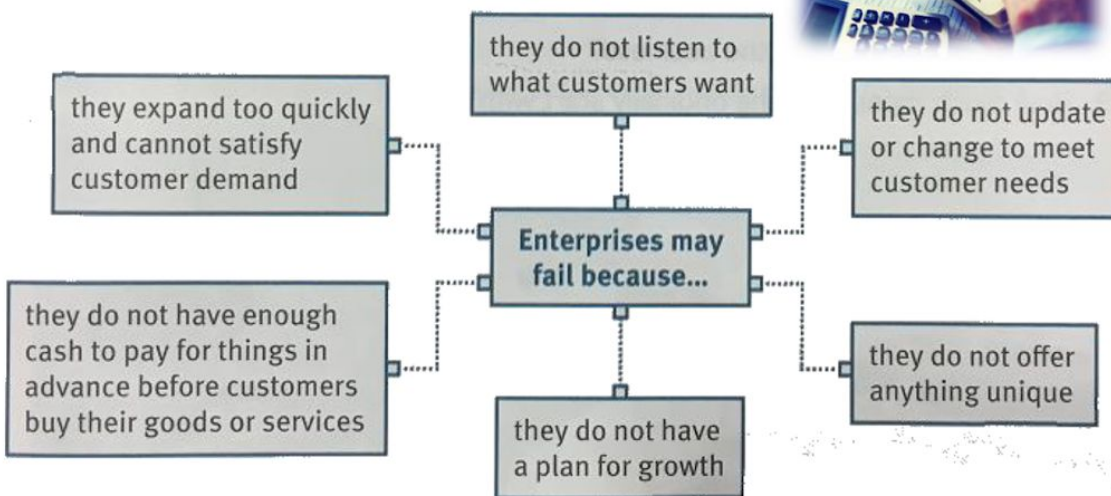
Services are offered to anyone who needs them - for example a barber or a cleaner provide a service.

### How do enterprises attract & keep customers

- Firstly:** Customers must be kept happy!
- Good customer service: attracting new customers, encourages repeat purchasing, supports loyalty and customers will freely promote your business.



### Why might an enterprise fail?



**New** enterprise find it hard to attract customers because:

- Customers aren't always aware of new enterprises
- The reputation hasn't been built up
- Loyalty and trust hasn't been established.

**Smaller** enterprise find it hard to attract new customers because:

- They don't have much money to advertise like bigger enterprises do
- Their goods/services may be more expensive as it costs them more to produce a smaller number of products.

**Customer service can really support an enterprise, the business must:**

- Identify customer needs
- Identify the expectation of the customer
- Offer good value products and service
- Respond to enquiries by customers
- Provide clear and honest information
- Offer after sales service



## COMPONENT 1 - Exploring Enterprises

- Learning Aim A Examine the characteristics of enterprises

## WHAT IS ENTERPRISE?

A

### How does good customer service help a business?

It attracts new customers to try the goods and services which the enterprise offers.

It encourages customers to come back and buy again (repeat purchase). It encourages customers to be loyal to the brand/enterprise which means they don't shop elsewhere.

It makes sure customers are happy, they are more likely to share positive stories/reviews about your enterprise (verbally and written) with others. This enhances the reputation of your enterprise and possibly encourages others to try out your business.

### How do enterprises keep customers loyal?

Good customer service can attract new customers because they hear about the wonderful things the new business are doing; this helps an entrepreneur to gain a good reputation and loyal customers.

Loyalty can be kept by offering incentives to keep customers interested; these also help the enterprise with competing with other enterprises.

#### Examples:

- Social media promotions (e.g. 'Like & Share')
- Newsletters
- Online comments and feedback
- Loyalty cards (e.g. Points cards / stamp card)



**CUSTOMER  
FRIENDLY  
SUPPORT  
INNOVATIVE  
COMMUNICATIVE  
EFFECTIVE  
CREATIVE**



### How can an enterprise be creative and show they're innovative?

SMEs must be flexible and be willing to adapt to make sure customers are happy.

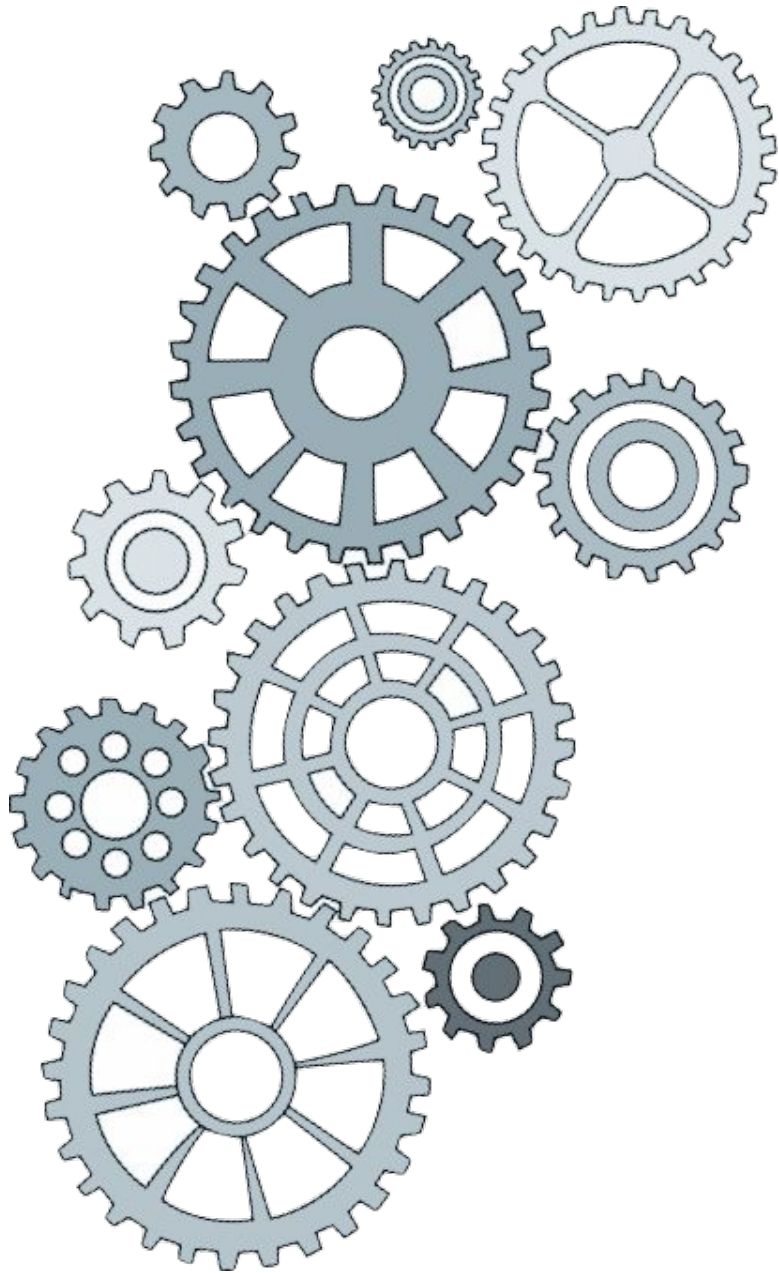
Innovation / Innovative means coming up with new ideas.

#### How can an enterprise be innovative?

- Fill gaps in the market
- Develop new ideas that other enterprises aren't yet offering

#### How can an enterprise be creative?

- Get feedback from customers
- Listen to and act on what customers want.



**OCR**  
Oxford Cambridge and RSA

# Computer Science

| Key vocabulary        |                                                                                                                                                           | Question                                                                                     | Answer                                                                                                                                                 |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Variable</b>       | A value stored in a memory location that can change within a program                                                                                      | What are the three basic programming constructs?                                             | The basic programming constructs are sequence, selection and iteration.                                                                                |
| <b>Constant</b>       | A value stored in a memory location that never changes within a program                                                                                   | Which form of condition-controlled iteration tests the condition at the end of the loop?     | 'repeat until' is a form of condition-controlled iteration that tests the condition at the end of the loop.                                            |
| <b>Syntax Error</b>   | An error in the rules/grammar of the language Eg missing colon / spelling mistake                                                                         | What is the term given to the process of including one programming construct within another? | Nesting is the term given to the process of including one programming construct within another. Looping means to repeatedly execute a section of code. |
| <b>Logic Error</b>    | The program is written to do something other than what the programmer intended<br>Eg Resetting only the first 9 elements in an array instead of all 10.   | What is an infinite loop?                                                                    | An infinite loop is a condition-controlled iteration that loops forever.                                                                               |
| <b>Run Time Error</b> | More difficult to spot as it can run a program without reporting an error. E.g. runs but Doesn't give an output. Or the program hangs or Becomes inactive | What is meant by the term data type?                                                         | Data is classified into types, such as a set of whole numbers (also known as integers) or a set of printing characters.                                |
| <b>Comments</b>       | Use these to add comments in to your code to explain what you have done                                                                                   | In computing terms, what is the difference between the data values 2 and "2"?                | 2 is an integer, "2" is a character.                                                                                                                   |



# Data types

Data is classified into types, such as a set of whole numbers (also known as integers) or a set of printing characters.

Different types of data are represented in different ways inside a computer and need varying amounts of memory to store them.

They also have different operations that can be performed upon them. All values that belong to the same data type will be represented in the same way.

| Data type                       | Example           |
|---------------------------------|-------------------|
| Integer (whole number)          | 4, 27, 65535      |
| Floating point (decimal number) | 4.2, 27.4, 5.63   |
| Character                       | a, F, 3, \$, £, # |
| String                          | abc, hello world  |
| Boolean                         | true or false     |

■ **Integers** are **whole numbers** represented as binary values.

Most programming languages provide a data type called 'integer', often called 'int' for short.

## Constants

Data values that stay the same every time a program is **executed** are known as constants. Constants are not expected to change.

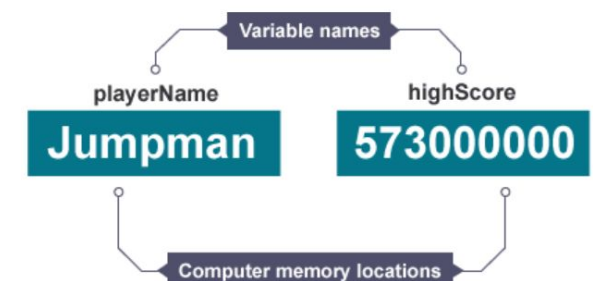
Examples of a constant within a game might be:

- the unit of gravity
- the number of lives available for the player
- the amount of time allowed for a level in a game

## Understanding Variables

Variables are data values that can change when the user is asked a question, for example, their age. Variables may change during program execution.

For example 'highScore' would need to be variable to change throughout a game.





# Programming - Sequence, Selection and Iteration

## Sequence

**Sequence** is the first programming construct. In programming, statements are executed one after another. Sequence is the order in which the statements are executed.

```
total = 0
average = number1/number2
number1 = int(input("Enter the first number: "))
number2 = int(input("Enter the second number: "))
print("The average is ", average)
```

## Selection

**Selection** is the second programming construct. In programming, there are occasions when a decision needs to be made. Selection is the process of making a decision. The result of the decision decides which path the program will take next.

```
age = int(input("How old are you? "))
if age > 16 then
    print("You are old enough to drive a car!")
else
    print("Come back when you are older!")
endif
```

## Count - controlled iteration

**Iteration** is the third programming construct. There are times when a program needs to repeat certain steps until told otherwise, or until a condition has been met. This process is known as iteration.

```
for count = 1 to 6
    print("Coding is cool")
next count
```

## Condition - controlled iteration

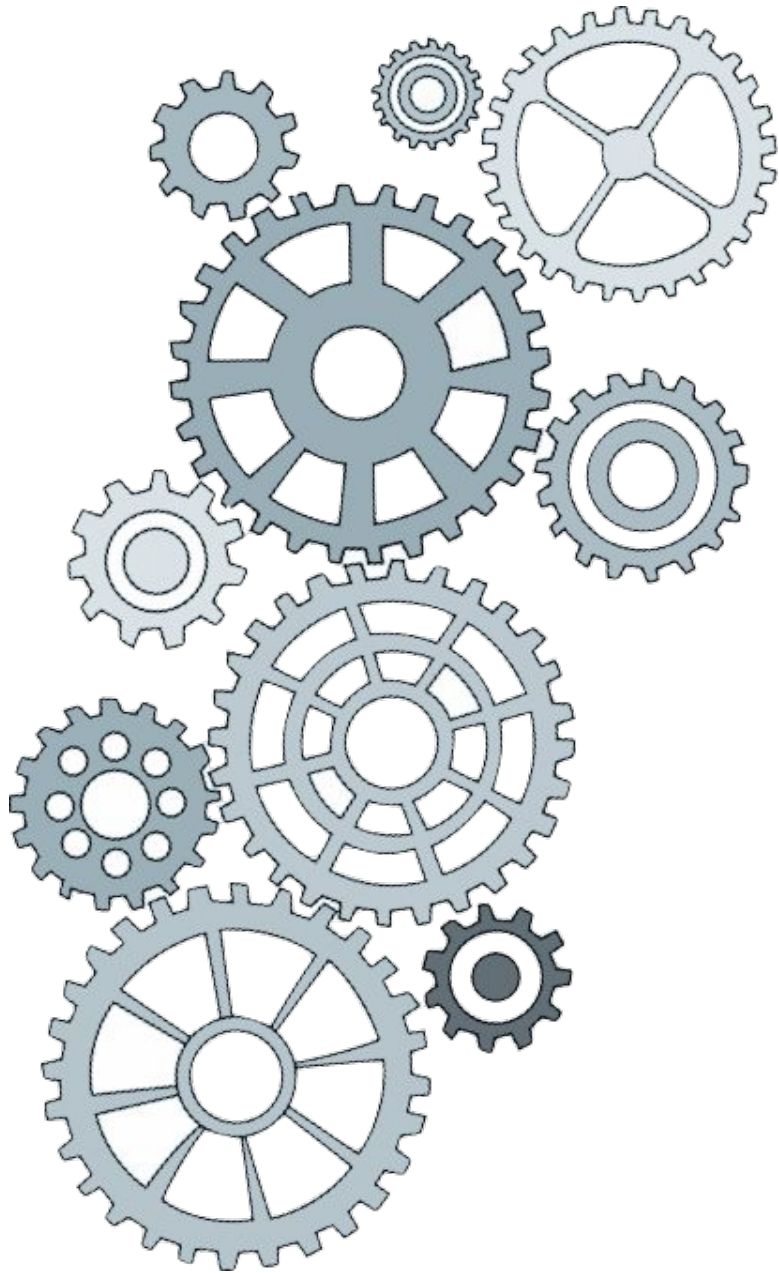
### While Loops

While loops test the condition at the beginning of the loop.

If the condition is met, the code within the loop is executed before the program loops back to test the condition again.

This program would print out a message six times:

```
count = 0
while count < 6
    print("Coding is cool")
    count = count + 1
endwhile
```



# Electronics

# C1 KO - Input, Process and Output systems

Systems can be broken down into three different types of system blocks regardless of how many blocks in the system

## INPUTS

System blocks which sense changes in the environment

*Temperature sensing unit  
Light Sensing Unit  
Pressure pad  
Sound sensing Unit  
Push Switch  
Moisture sensor*

## PROCESS/CONTROL

System blocks which control or change what happens in a system

*Delay Unit  
Latch Unit or Thyristor  
AND, OR, NAND, NOR,  
NOT gates  
Pulse generator  
Transducer Driver or  
Transistor  
Power Transducer or  
MOSFET*

## OUTPUTS

System blocks which create changes in the environment.  
EG Do something

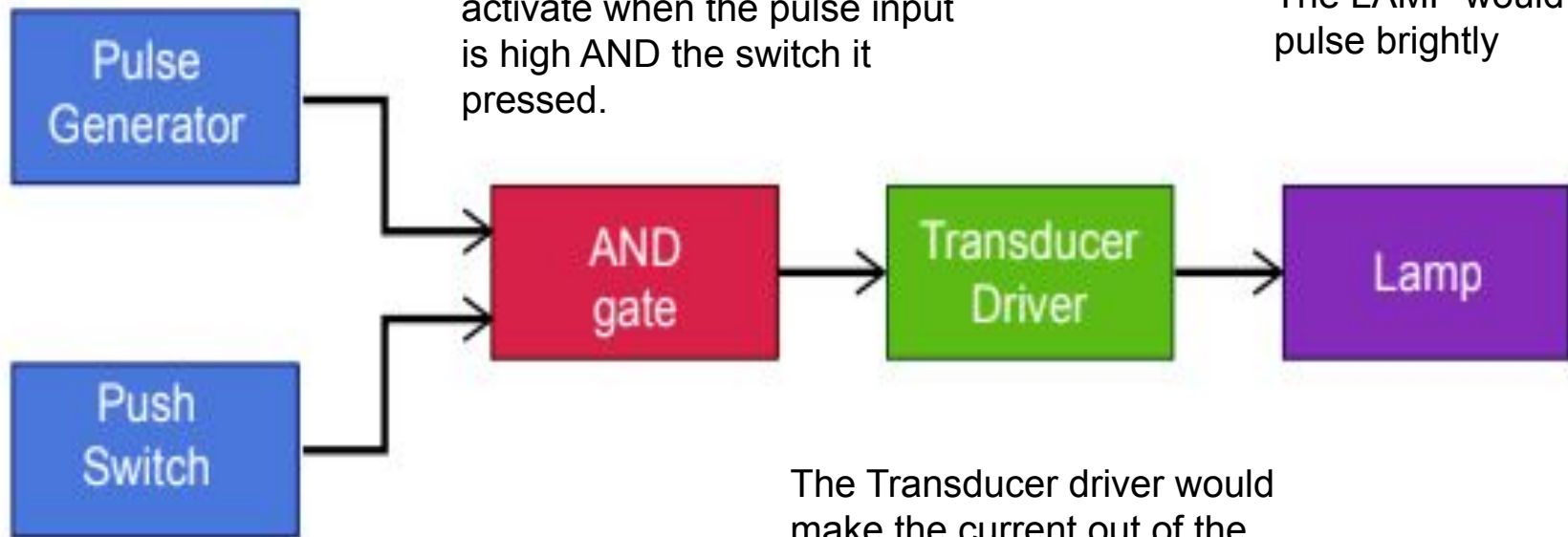
*Lamp unit  
Buzzer  
Motor  
Solenoid  
LED  
Servo Motor*



# C1 KO - Systems Diagrams

Circuits can be designed prior to drawing up the circuits and making final decision. Below is an example

This block would provide pulses so the output could flash.



The AND gate would mean that the output would only activate when the pulse input is high AND the switch is pressed.

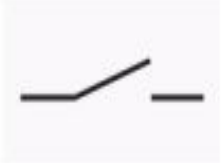
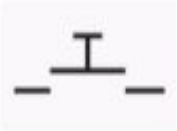
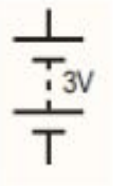
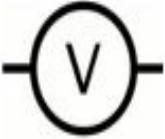
The LAMP would pulse brightly

The Push Switch would allow a user to manually activate a circuit

The Transducer driver would make the current out of the AND gate large enough for the Lamp to be bright

So this system would make a perfect HAZARD light that can be switched on by a workman pressing a button to warn other workers that there is a hazard.

# Revision card - Component Symbols

|                                                                                    |                                                                                    |                                                                                     |                                                                                      |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Switch (latching)                                                                  | Switch (non-latching)                                                              | Resistor                                                                            | Signal lamp                                                                          |
|   |   |   |   |
| Cell                                                                               | Battery                                                                            | Light dependent resistor                                                            | Thermistor                                                                           |
|   |   |   |   |
| Voltmeter                                                                          | Ammeter                                                                            | Variable resistor                                                                   | Light emitting diode                                                                 |
|  |  |  |  |

Buzzer



Diode



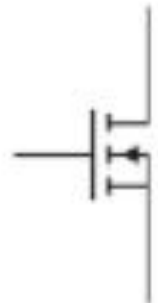
Transistor



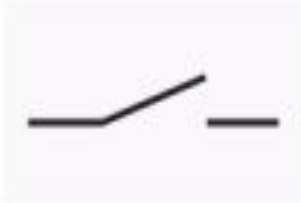
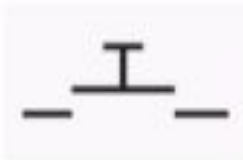
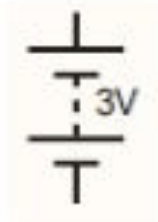
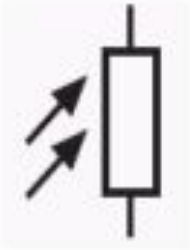
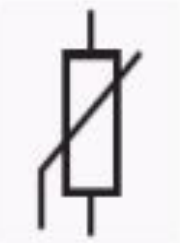
Thyristor



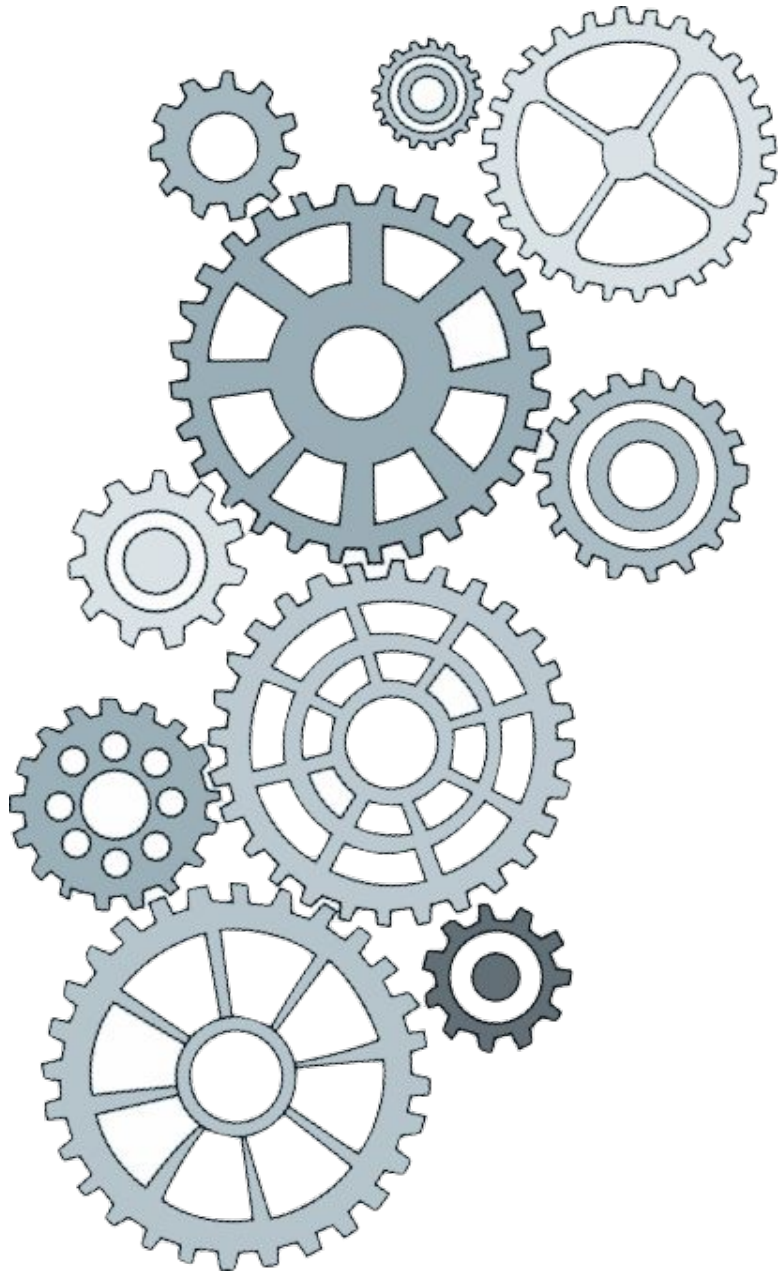
Mosfet



## C2 KO - Component Symbols

|                                                                                                        |                                                                                                            |                                                                                                                 |                                                                                                               |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Switch (latching)<br> | Switch (non-latching)<br> | Resistor<br>                 | Signal lamp<br>            |
| Cell<br>              | Battery<br>               | Light dependent resistor<br> | Thermistor<br>             |
| Voltmeter<br>       | Ammeter<br>             | Variable resistor<br>      | Light emitting diode<br> |





Pearson | BTEC

# Engineering

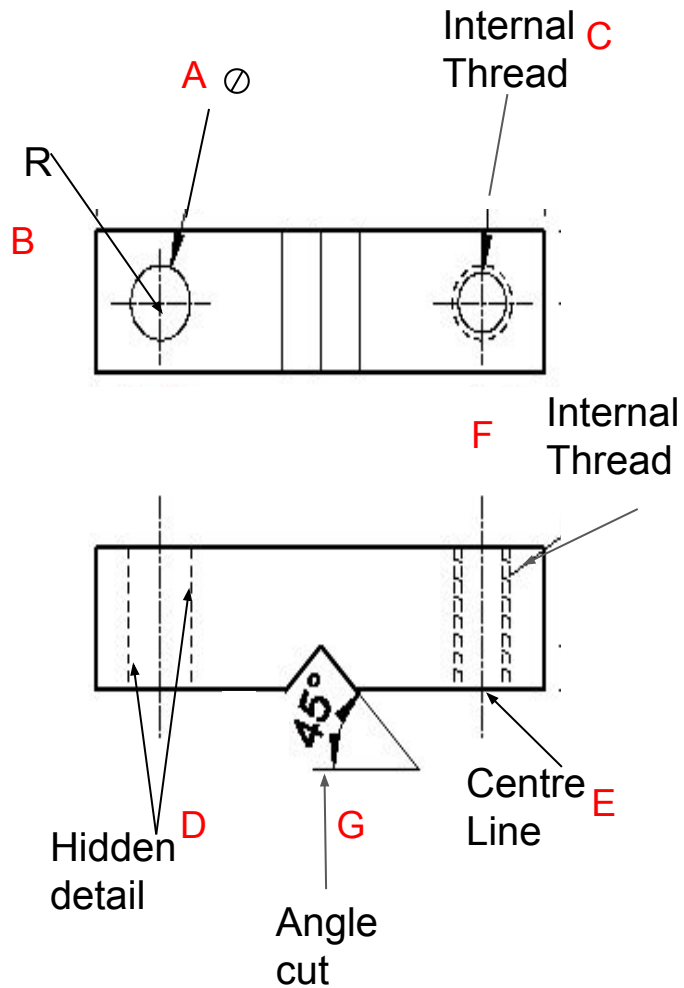


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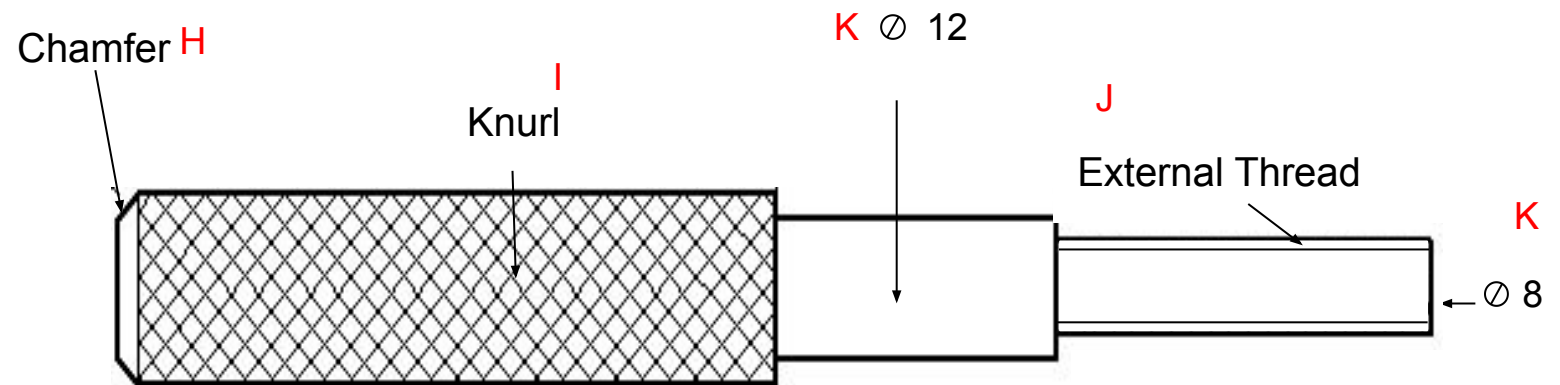
## Engineering: Tap Wrench

### 1 Reading an Orthographic Drawing



|   |                 |
|---|-----------------|
| A | Diameter symbol |
| B | Radius symbol   |
| C | Internal Thread |
| D | Hidden detail   |
| E | Centre line     |
| F | Internal Thread |

|   |                          |
|---|--------------------------|
| G | Angle cut                |
| H | Chamfer                  |
| I | Knurl                    |
| J | External Thread          |
| K | Diameter of 12mm and 8mm |



# Knowledge organiser

## 2 Turning (center lathe)

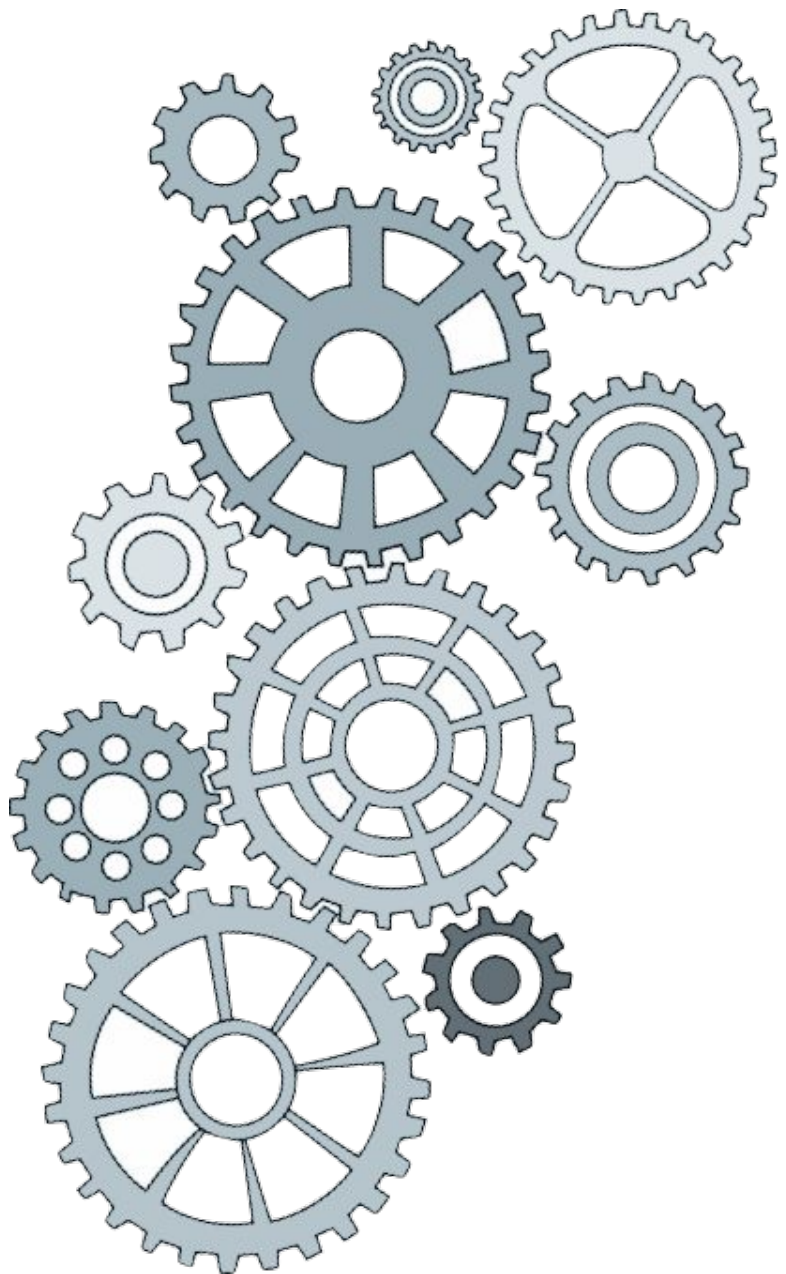
|                                |                                                                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Facing off</b>              | Removing a small amount of material from the end of a workpiece to create a flat surface or datum                                               |
| <b>Knurling</b>                | Creating a diamond shaped pattern on the surface of a material (often used for grip)                                                            |
| <b>Turning</b>                 | General term used for work done on a lathe. This can include a number of processes                                                              |
| <b>Parting off</b>             | The process of cutting off (or parting) material from a work piece. This is often done at the end.                                              |
| <b>Chamfer</b>                 | An angle (normally 45 degrees) cut on the edge of a workpiece                                                                                   |
| <b>Revolving Centre</b>        | A lathe tool held in the tailstock of the lathe. It is used to support the other end of a workpiece and can rotate with the work                |
| <b>Digital Vernier caliper</b> | A measuring device with a digital screen used to accurately measure parts                                                                       |
| <b>Coolant</b>                 | A mixture of oil and water used on machines such as the lathe or milling machine to keep tools and work pieces cool whilst in use               |
| <b>Three Jaw Chuck</b>         | A workholding device used on a center lathe. It has three jaws which move together to clamp onto a workpiece when performing turning operations |
| <b>Axis</b>                    | The three dimensional axis of a machine. On a lathe the two axis are Z and X                                                                    |

## 3 Marking out

|                                  |                                                                                                       |
|----------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Deburring</b>                 | The process of removing sharp edges (left from cutting or machining) from a workpiece                 |
| <b>Datum</b>                     | A set point on your work where all measurements are taken from. Essential for accurate working        |
| <b>File</b>                      | A hand tool used to remove small amounts of material. It can be used for smoothing or shaping         |
| <b>Sciber</b>                    | A tool used for marking out on the surface of metals such as steel or aluminium.                      |
| <b>Steel Rule</b>                | Basic measuring tool used for marking out or measuring straight lines                                 |
| <b>Center punch</b>              | A tool used for marking out the location of holes to be drilled by creating a small indentation       |
| <b>Engineers square</b>          | A marking out tool used to mark right angle (90 degree) straight lines and checking right angles      |
| <b>5 Drilling (Pillar drill)</b> |                                                                                                       |
| <b>Twist drill</b>               | A tool used in machinery in order to create holes                                                     |
| <b>Hand vice</b>                 | A smaller vice which can be operated by hand. This is often used with machines such as a pillar drill |
| <b>Center drill</b>              | A short “stubby” drill used for drilling the start of holes                                           |

## 4 Milling (Milling machine)

|                                  |                                                                                                                      |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Machine vice</b>              | This vice is often fixed to the bed of the machine. It is used for holding workpieces still whilst machining         |
| <b>End mill</b>                  | This is a type of cutter for a milling machine. It can be used for making shapes such as slots in materials          |
| <b>VDU - Visual display unit</b> | The visual display unit shows how far you have moved on the X, Y or Z axis in mm on a screen attached to the machine |
| <b>Machine bed</b>               | This is a flat part of the machine where work/ vices can be held flat whilst machining                               |
| <b>6 Threading</b>               |                                                                                                                      |
| <b>Tap</b>                       | This is the tool used to “cut” a screw thread inside a hole (internal screw thread)                                  |
| <b>Die</b>                       | This is the tool used to “cut” a screw thread onto the outside of a bar (external screw thread)                      |
| <b>Thread</b>                    | A spiral shaped feature used for “screwing” objects together                                                         |
| <b>Screw</b>                     | A component which can be rotated into a screw thread                                                                 |
| <b>Cutting compound</b>          | The “jelly like” substance used to help create good quality screw threads                                            |



# English Language



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# Language Knowledge Organiser: *Y10 Language Extended Writing*



## What and Why?

GC: Understanding and developing viewpoints, empathy and opinions for self and others

SOI: How to craft an engaging, well organised and original piece of creative and transactional writing.

Assessment Criteria: **AO5 Content and Organisation (24 marks)** **AO6 Technical Accuracy (16 marks)**

## Vocabulary

## Task - worth 45 marks (50%) of each paper

Paper 1  
Using language imaginatively and creatively - a choice of writing a narrative (short story) or a descriptive piece using an image provided

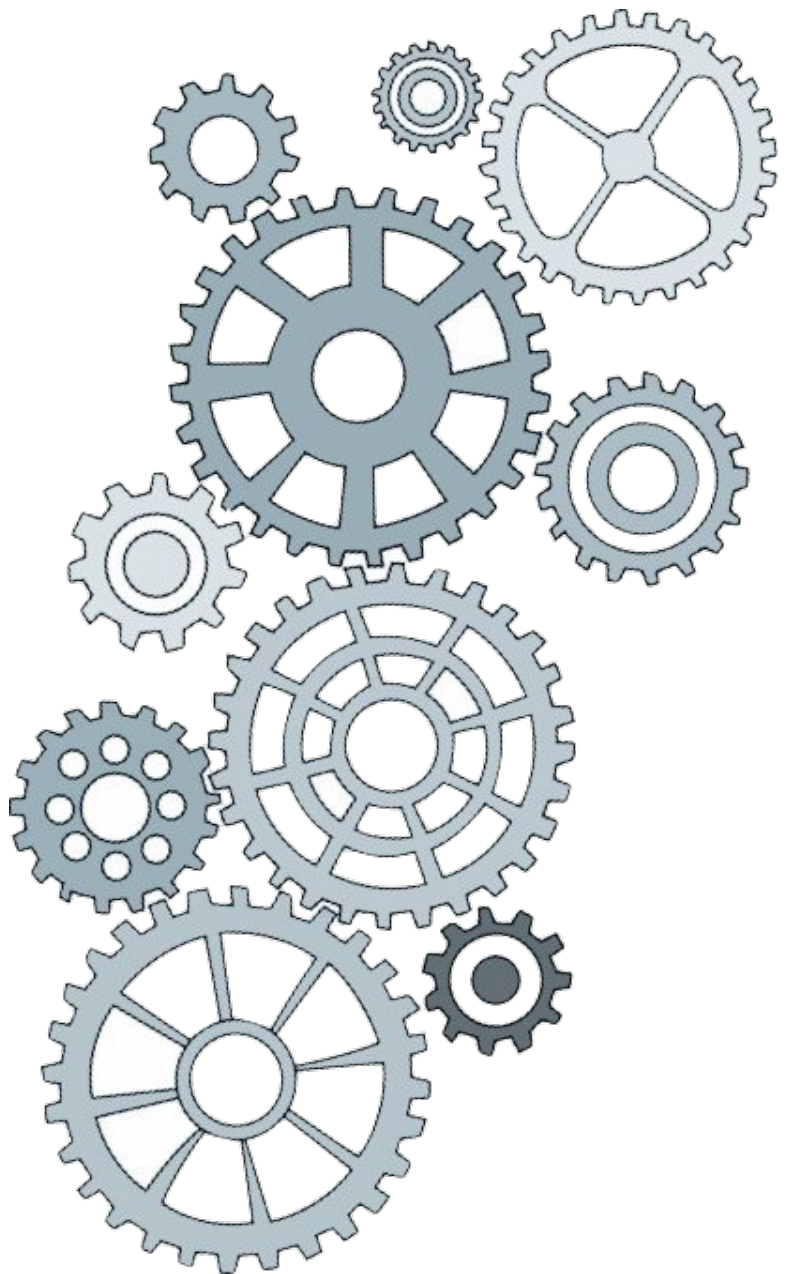
Paper 2  
Using language for impact in writing a transactional piece to share an opinion or idea in response to a statement

## Top Tips to include... think PAF!

**AO5 Content and Organisation** = understanding the PAF (Purpose, Audience, Form); using appropriate tone, style and register for the task and purpose, engage your audience (reader) throughout; use paragraphs, sentences and grammatical features to link ideas and create effects for your audience

**AO6 Technical Accuracy** = vary your vocabulary choices; use appropriate and varied sentence structures for effect; use a variety of punctuation accurately and for effect; check and ensure accuracy.

| Form             | Detailed or developed indicators of transactional form                                                                                                                                                                |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Letter</b>    | the use of addresses; a date; a formal mode of address if required e.g. Dear Sir/Madam or a named recipient; effectively/fluent sequenced paragraphs; an appropriate mode of signing off: Yours sincerely/faithfully. |
| <b>Article</b>   | a clear/apt/original title; a strapline; subheadings; an introductory (overview) paragraph; effectively/fluent sequenced paragraphs.                                                                                  |
| <b>Leaflet</b>   | a clear/apt/original title; organisational devices such as inventive subheadings or boxes; bullet points; effectively/fluent sequenced paragraphs.                                                                    |
| <b>Speech</b>    | a clear address to an audience; effective/fluent linked sections to indicate sequence; rhetorical indicators that an audience is being addressed throughout; a clear sign off e.g. 'Thank you for listening'.         |
| <b>Narrative</b> | an effective exposition and resolution; effectively/fluent linked paragraphs to sequence ideas; appropriate use of methods in writing.                                                                                |



# English Literature



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| Main Idea                                                                                               | Being from high socioeconomic status does not guarantee happiness or belonging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | The environment in which a person grows up shapes their personality, beliefs and decisions.                                                                                                                                                                                                                                                                                                                                                                                                                         | Superstition and the belief in the supernatural shape interpretations of events: fate is revered by Mrs. Johnstone.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>(AO2)</b><br><b>Concepts Linking to the Main Idea that create this impression upon the audience.</b> | <p>The narratives of the twins demonstrate the dominance in the impact of socioeconomic status upon the outcomes of childhood: Mickey's narrative deteriorates into crime and addiction but Edward gains power through socioeconomic advantage. Mrs Lyons and Mrs Johnstone symbolise that although defining, socioeconomic status is not always indicative of happiness: this is represented by their relationships with their children. Russell raises the power and social responsibility placed on those of high socioeconomic status and warns that the outcome for abusing privilege is tragic.</p>                                                                                                                                                                                                                                                                                           | <p>Russell shows the core similarities of the boys from a young age and sustains it by crafting their romantic jostle for Linda, who represents their core emotional similarities. Edward's privileged lifestyle is evident in his gullibility and willingness to share his economic wealth; whereas, Mickey's criminal tendencies and attempts at escapism hint at the desperation a life in low socioeconomic Liverpool has entrenched in him.</p>                                                                | <p>Russell is proposing, that humans essentially make our own fate by believing in fate—that through our fear of the future and our irrational beliefs, we make our worst nightmares come to pass. The false superstition invented by Mrs Lyons is believed by the gullible Mrs Johnstone. She therefore ploughs her efforts into taking care of the twins by keeping their brotherhood secret. Mrs Lyons eventually believes her own invention, which drives her mad.</p>                                                                                                                                                                                                                                                                                                                                                            |
| <b>(AO1)</b><br><b>Key Quotations for the Main Idea</b>                                                 | <p>Only mine until The time comes round To pay the bill. Then, I'm afraid, What can't be paid Must be returned. You never, ever learn, That nothing's yours, On easy terms.</p> <p>You learn filth from them and behave like this like a, like a horrible little boy, like them. But you are not like them. You are my son, mine, and you won't.</p> <p>I wish that I could be like Just a little less like me Like the sort of guy I see, like That guy</p> <p>It used to be just sweets an' ciggies he gave me, because I had none of me own. Now it's a job and a house. I'm not stupid, Linda. You sorted it out. You an' Councilor Eddie Lyons.</p>                                                                                                                                                                                                                                            | <p>I don't blame y' for it Eddie. In your shoes I'd be the same, I'd still be able to be a kid. But I'm not in your shoes, I'm in these, lookin' at you. An' you make me sick, right?</p> <p>And do we blame superstition for what came to pass? Or could it be what we, the English, have come to know as class?</p> <p>MRS. LYONS: No. I took him. But I never made him mine. Does he know? Have you told...</p> <p>MICKEY: You. You! Why didn't you give me away? I could have been...I could have been him!</p> | <p>MRS. JOHNSTONE: Oh God, Mrs. Lyons, never put new shoes on a table...You never know what'll happen.</p> <p>MRS. LYONS: Oh...you mean you're superstitious?</p> <p>MRS. JOHNSTONE: No, but you never put new shoes on a table.</p> <p>EDWARD: I thought, I thought we always stuck together. I thought we were...blood brothers.</p> <p>MICKEY: That was kids' stuff, Eddie. Didn't anyone tell y'?</p> <p>MRS. JOHNSTONE: Go. Just go!</p> <p>MRS. LYONS: Witch. I curse you. Witch!</p> <p>MRS. LYONS: They say...they say that if either twin learns that he once was a pair, that they shall both immediately die. You're always gonna know what was done Even when you shut your eyes you still see That you sold a son And you can't tell anyone.</p> <p>But y'know the devil's got your number, Y'know he's gonna find y</p> |
| <b>(AO3)</b><br><b>Contextual links to Main Idea</b>                                                    | <p>A socially-conscious and relevant work about class, social stratification, and poverty, <i>Blood Brothers</i> was written in 1983, four years after Prime Minister Margaret Thatcher came into power in the UK. A notoriously hardline conservative, Thatcher took office during a time of economic stagnation and high unemployment. Her solution to these problems often came at the expense of working-class citizens, particularly who those who worked in industries such as mining and industrial labor (like Eddie). The Winter of Discontent of 1979, during which labor unions led strikes against pay caps meant to stimulate economic recovery, would certainly have been on Russell's mind as he wrote his musical. Indeed, during the period from 1980 to 1984, British industrial production fell by a full twenty-five percent, leaving over three million people unemployed.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

# Literature Knowledge Organiser

## Y10 Blood Brothers

### Dramatic Methods

Prologue

Exposition

Foreshadowing

Monologue

Dialogue

Motif

Juxtaposition

Stage directions

Phonetical/  
Standard  
English

Cyclical  
structure

#### Point

Should contain an adjective to describe your opinion of the character or mention the device the writer uses and its effect.

**Should refer to the key words of the question.**

The writer uses a (method) to (describe/ emphasise/ persuade/ instruct) in critique of (specific social injustice).

#### Evidence

A **short** quotation from the text, with quotation marks to match **both** your point and the question.

#### Analysis

Key word(s) of the quotation and their connotations.  
(Think/ Feel/ Imagine)

**Challenge: select more than one interpretation/ key word**

*This forces the reader to...*  
*This makes the reader think...*  
*The use of the word "... " causes...*  
*The reader imagines...*

#### Context

What happened in the history of the place that is used by the writer?

How does what we know about the history or social hierarchy help in forming your response to the question?

**Typically, the writer experienced social injustice (or commonly held religious belief) in\_\_\_\_\_.**

#### Opinion

What does this make the reader think, feel or remember?

From a **social constructivist perspective**, the writer could intend the contemporary reader to **stop/start/ question** \_\_\_\_\_.

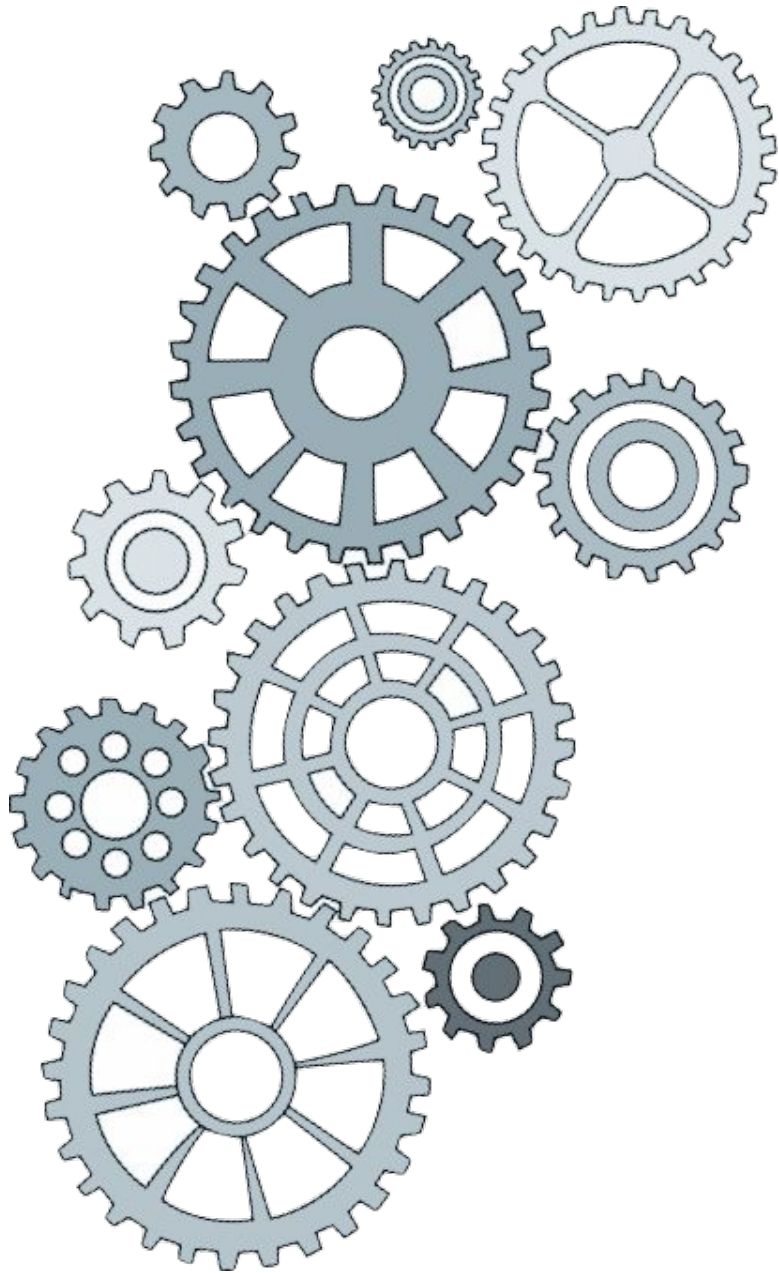
#### Knowledge of the rest of the text

What do you know about what has happened in the story already that adds to your answer to the question.

**This theme is developed across the play, when the audience' sympathy is invoked by\_\_\_\_\_.**



| Main Idea                                                                                 | The social hierarchy places demands of class performance on adolescents, which dictates their social decisions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | The power of the the past and our previous actions can have a negative impact upon our future.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Key symbols                                                                                                                                 |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| (AO2)<br>Concepts Linking to the Main Idea that create this impression upon the audience. | As Edward and Mickey grow through their age milestones, Russell shows their individual struggles and their friendship as supportive. Childhood demonstrates their socioeconomic divide, adolescence depicts their lack of confidence and adulthood shows the rigidity of societal constraints which breaks their emotional ties.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Mrs Lyons and Mrs Johnstone both demonstrate deluded behaviours through trying to eradicate the past. Mrs Lyons slips into madness, because she is not Edward's biological mother and Mrs Johnstone envisions an unattainable future without crime for her entire family.</p> <p>The boys and Linda have close bonds, because of their shared childhood. The twins cannot stay away from each other, despite their mothers' efforts to separate them.</p> <p>In the finale, both the boys and Linda pay the price of Mrs Lyons and Mrs Johnstone's actions.</p> | <p>Marilyn Monroe</p> <p>Guns</p> <p>Shoes on the table</p> <p>Edward's locket</p> <p>Mickey's antidepressants</p> <p>Devil at the door</p> |
| (AO1)<br>Key Quotations for the Main Idea                                                 | <p>MICKEY: Ey, we were born on the same day...that means we can be blood brothers. Do you wanna be my blood brother, Eddie?</p> <p>EDWARD: Yes, please.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | How swiftly those who've made a pact, Can come to overlook the fact. Or wish the reckoning to be delayed But a debt is a debt, and must be paid.                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                             |
|                                                                                           | <p>There's a man gone mad in the town tonight, He's gonna shoot somebody down, There's a man gone mad, lost his mind tonight</p> <p>Now you know the devil's got your number. He's runnin' right beside you, He's screamin' deep inside you,</p> <p>And someone said he's callin' your number up today.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Happy, are y'. Content at last? Wiped out what happened, forgotten the past?</p> <p>But you've got to have an endin', if a start's been made. No one gets off without the price bein' paid.</p>                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                             |
|                                                                                           | <p>EDWARD: I know, but I still can't tell you. It's not important, I'm going up to my room. It's just a secret, everybody has secrets, don't you have secrets?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | That was all just kids' stuff, Eddie, an' I don't want to be reminded of it. Right? So just, just take yourself away. Go an' see your friends an' celebrate with them.                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                             |
| (AO3)<br>Contextual links to Main Idea                                                    | A socially-conscious and relevant work about class, social stratification, and poverty, <i>Blood Brothers</i> was written in 1983, four years after Prime Minister Margaret Thatcher came into power in the UK. A notoriously hardline conservative, Thatcher took office during a time of economic stagnation and high unemployment. Her solution to these problems often came at the expense of working-class citizens, particularly who those who worked in industries such as mining and industrial labor (like Eddie). The Winter of Discontent of 1979, during which labor unions led strikes against pay caps meant to stimulate economic recovery, would certainly have been on Russell's mind as he wrote his musical. Indeed, during the period from 1980 to 1984, British industrial production fell by a full twenty-five percent, leaving over three million people unemployed. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                             |



# Digital IT

### Key Concepts:

#### User Interface:

A user interface is the means by which a person is able to interact with a computer system.

#### Human-Device Interaction:

How do software features facilitate human-device interaction?

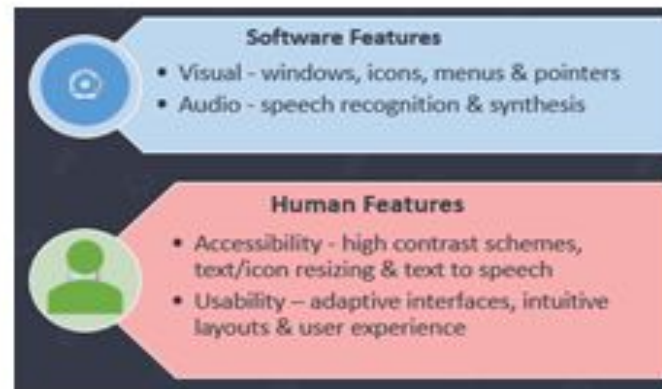
#### Text-Based Interface:

Simple text on a plain background. |  
Commands typed in via keyboard.

#### Menu-Based Interface

Presents the user with a list of options. | User navigates sub-menus by choosing relevant options.

#### User Interface:



#### Human-Device Interaction:

Intuitiveness – prompts for input and clear output improves ease-of-use.

Error Reduction – identifies what you can/can't do to prevent mistakes.

Productivity – simpler interaction makes tasks quicker to perform.

#### Text-Based Interface:

| Pros                                                                                                                                              | Cons                                                                                                   | Uses                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Requires little processing power.</li><li>• If you know the commands, quick to perform actions.</li></ul> | <ul style="list-style-type: none"><li>• Not very intuitive as you need to know the commands.</li></ul> | <ul style="list-style-type: none"><li>• Technical users for performing tasks like network admin.</li></ul> |

#### Menu-Based Interface:

| Pros                                                                                                                             | Cons                                                                                                                                              | Uses                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Easy to use due to simplicity.</li><li>• Easily adaptable to individual needs.</li></ul> | <ul style="list-style-type: none"><li>• Can be very tedious to perform actions.</li><li>• Limited options – not all tasks are possible.</li></ul> | <ul style="list-style-type: none"><li>• Self-service kiosks, such as ATMs or self-service tills.</li></ul> |

### Key Vocabulary

|                         |                                                                                                                               |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Cloud Storage</b>    | An alternative to storing your files and folders on your PC or device. You can store                                          |
| <b>Server</b>           | A computer that manages a lots of processing requests, delivering data between machines that are connected in a local network |
| <b>Virtual Machines</b> | Software applications that are designed to behave as if they are a whole computer.                                            |
| <b>URL</b>              | Uniform Resource Locator is the address of a page on the World Wide Web                                                       |

### Cloud Storage

- ❖ The files are stored on servers so that they can be accessed via the internet.
- ❖ When you want to access the media, the data is downloaded.
- ❖ Data on your device can also be uploaded to the cloud.

### Features and usage of cloud storage

- ❖ Users can choose to pay for more storage (or less if their needs change). This is an example of scalability.
- ❖ The alternative to using an online service from your phone provider is to use other services provided by third parties. Setting up this service with a provider is as simple as registering an account and providing the relevant details.
- ❖ Cloud storage is useful for storing backups of your files. Copies of the files are made on different servers so that they are protected if attacked.

### The impact of cloud technologies on data security

Most cloud computing solution providers such as Google and Amazon will have several strategies in place to protect security.

- ❖ Keeping digital systems protected
- ❖ Controlling and encrypting whoever has access to data and information
- ❖ Broken or outdated digital systems will be appropriately disposed of

### Benefits & drawbacks of Cloud Storage

#### Benefit

#### Drawbacks

You can access data from any device that has internet connection

You cannot access your data without internet connection

Cost effective

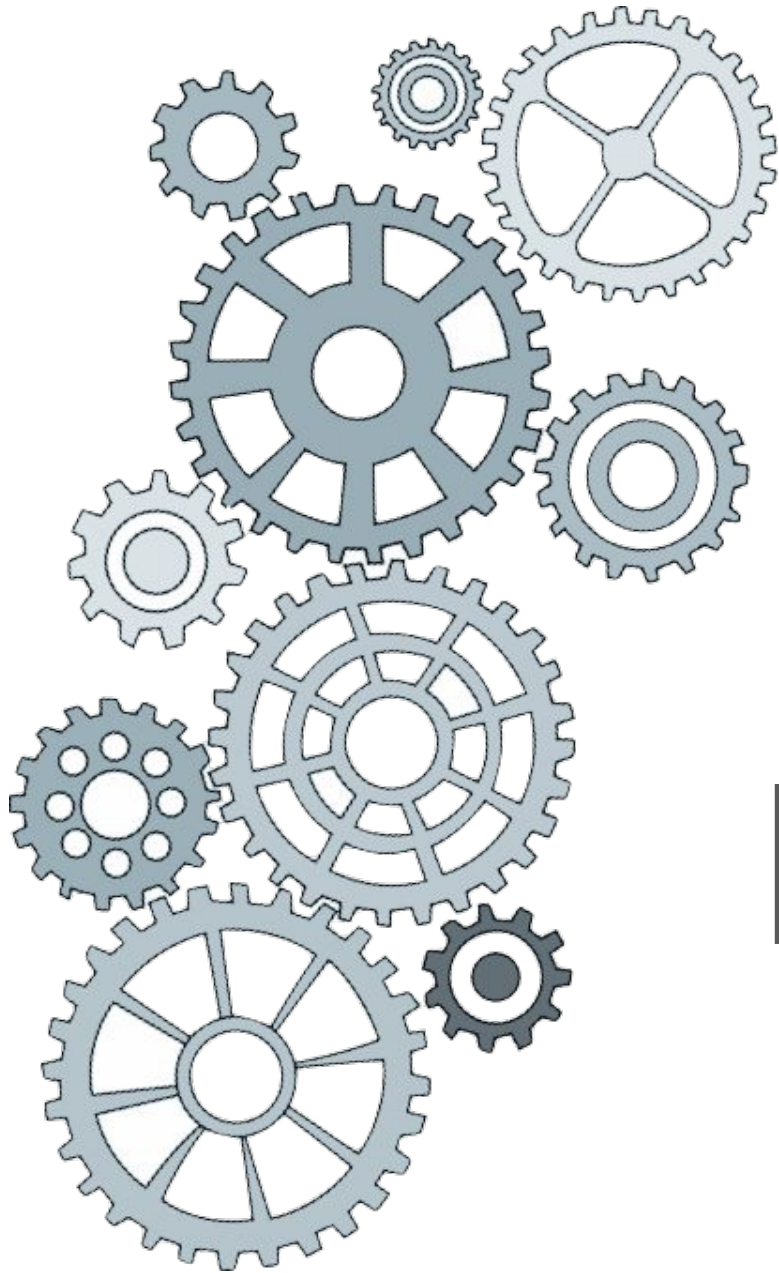
Limited amount of storage for some cloud companies

The data and security are managed by cloud provider.

You have no control where or how your data is stored. You must trust that the provider is keeping your data safe and confidential.



| How organisations use technology to communicate with their stakeholders? |                                                                                                                                                                 | Recall Questions                                                                      |                                                                                                                                                                                |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Websites                                                                 | Provide a range of content, including information on products or services, prices, stock information and special offers so that customers can buy items online. | What is downloading?                                                                  | Downloading a document or file to your computer or device means it can be used when you are not connected to the internet                                                      |
|                                                                          |                                                                                                                                                                 | What does the term uploading means in Cloud Computing?                                | Uploading a document or file to the server means it can be accessed by you (and others with access), although your device will need to be connected to the internet.           |
| Social media                                                             | Organisations can communicate in a much more relaxed way, for example, customers can ask for advice on product.                                                 | What is synchronising?                                                                | Synchronising is when files held on two devices are updated to make sure that both devices have the same content.                                                              |
|                                                                          |                                                                                                                                                                 | How does cloud storage help users to complete tasks?                                  | Cloud Storage can be accessed from anywhere hence, it only requires internet connection.                                                                                       |
| Email                                                                    | More formal method of communication that has largely taken over from letters as the email is received almost instantly                                          |                                                                                       |                                                                                                                                                                                |
| Cloud Storage                                                            | Cloud storage is where files created and stored remotely.                                                                                                       | Which preventative measure probes for weaknesses in a network?                        | Penetration testing probes for weaknesses in a network. Network policies determine what a user should and should not do on a network.                                          |
|                                                                          |                                                                                                                                                                 | Why are cloud computing services more vulnerable to hacking than internal IT systems? | Anything that is connected via the internet can be hacked into. Internal IT systems can also be held on more than one server but they are normally isolated from the internet. |
| Cloud Computing                                                          | This is a way of accessing online application. These applications run together with cloud-based services to provide storage.                                    |                                                                                       |                                                                                                                                                                                |



# Mathematics



**THE LEIGH  
UTC**

a University Technical College  
for 14–19 year olds

# Year 10 Module 1

## FRACTIONS, DECIMALS AND PERCENTAGES

### Key Concepts

A **fraction** is a numerical quantity that is not a whole number.

A **decimal** is a number written using a system of counting based on the number 10.

|           |          |      |      |   |        |            |             |
|-----------|----------|------|------|---|--------|------------|-------------|
| Thousands | Hundreds | Tens | Ones | . | Tenths | Hundredths | Thousandths |
| 8         | 7        | 6    | 5    | . | 4      | 3          | 2           |

A **percentage** is an amount out of 100.

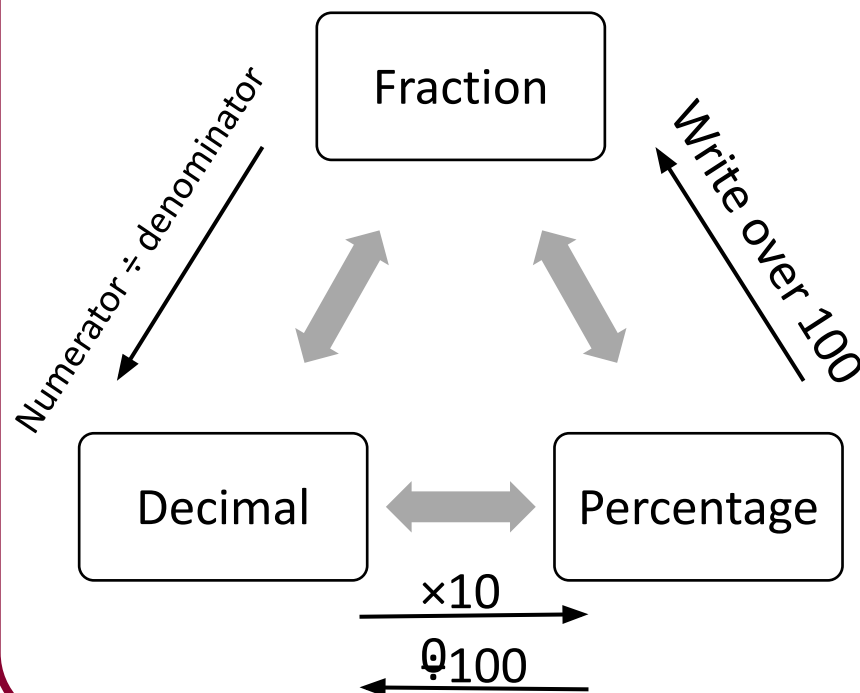
## Sparx Maths

Topic Codes

U550, U888

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### Examples



Order the following in ascending order:

|                        |              |                         |                        |                         |
|------------------------|--------------|-------------------------|------------------------|-------------------------|
| $\frac{3}{5}$          | 62%          | 0.67                    | $\frac{7}{10}$         | 0.665                   |
| $\times 20 \downarrow$ | $\downarrow$ | $\times 100 \downarrow$ | $\times 10 \downarrow$ | $\times 100 \downarrow$ |
| $\frac{60}{100}$       |              |                         | $\frac{70}{100}$       |                         |
| $\downarrow$           | $\downarrow$ | $\downarrow$            | $\downarrow$           | $\downarrow$            |
| 60%                    | 62%          | 67%                     | 70%                    |                         |
| 66.5%                  |              |                         |                        |                         |
| $\frac{3}{5}$          | 62%          | 0.665                   | 0.67                   | $\frac{7}{10}$          |

### Key Words

**Fraction:** How many parts within a whole amount something is broken into

**Decimal:** Part of a whole number

**Percentage:** Parts of a whole, assuming the whole is always 100

**Division:** Splitting something into smaller groups (factors)

**Multiply:** Repeated addition

# Year 10 Module 1

## EXPAND AND SIMPLIFY BRACKETS

### Key Concepts

#### Expanding brackets

Single: Where each term inside the bracket is multiplied by the term on the outside of the bracket.

Double: Where each term in the first bracket is multiplied by all terms in the second bracket.

#### Factorising expressions

Putting an expression back into brackets. To "factorise fully" means take out the HCF.

#### Difference of two squares

When two brackets are repeated with the exception of a sign change. All numbers in the original expression will be square numbers.

### Examples

#### Linear expressions

Expand and simplify where appropriate

$$1) \quad 7(3 + a) = 21 + 7a$$

$$2) \quad 2(5 + a) + 3(2 + a) = 10 + 2a + 6 + 3a = 5a + 16$$

$$3) \text{ Factorise } 9x + 18 = 9(x + 2)$$

$$4) \text{ Factorise } 6e^2 - 3e = 3e(2e - 1)$$

#### Quadratic expressions

Expand and simplify:

$$1) \quad (p + 2)(2p - 1) \\ = 2p^2 + 4p - p - 2 \\ = 2p^2 + 3p - 2$$

$$2) \quad (p + 2)^2 \\ (p + 2)(p + 2) \\ = p^2 + 2p + 2p + 4 \\ = p^2 + 4p + 4$$

Factorise:

$$3) \quad x^2 - 2x - 3 \\ = (x - 3)(x + 1)$$

Factorise and solve:

$$4) \quad x^2 + 4x - 5 = 0 \\ (x - 1)(x + 5) = 0$$

Therefore the solutions are:

$$\text{Either } x - 1 = 0$$

$$x = 1$$

$$\text{Or } x + 5 = 0$$

$$x = -5$$

## Sparx Maths

Topic Codes

U179, U768

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### Key Words

**Expand:** Multiply terms to remove brackets

**Factorise:** Find divisors to remove common values (put back into brackets)

**Simplify:** Reduce the complexity

**Product:** Multiply

**Solve:** Find the solution (usually a number)



# Year 10 Module 1

## 4 OPERATIONS WITH FRACTIONS

### Key Concepts

An **improper fraction** is when the numerator is larger than the denominator e.g.  $\frac{20}{12}$

Converting from a mixed number into an improper fraction:

$$2\frac{3}{5} = \frac{(2 \times 5) + 3}{5} = \frac{13}{5}$$

A **reciprocal** is the value that when multiplied by another gives the answer of 1.

Eg.  $\frac{1}{8}$  is the reciprocal of 8.  
 $\frac{2}{5}$  is the reciprocal of  $\frac{5}{2}$

$$1\frac{2}{3} + 2\frac{1}{4}$$

$$= \frac{5}{3} + \frac{9}{4}$$

$$= \frac{20}{12} + \frac{27}{12}$$

$$= \frac{47}{12}$$

$$= 3\frac{11}{12}$$

Convert into an improper fraction

Find a common denominator

Convert back into a mixed number

$$2\frac{2}{3} - 1\frac{1}{4}$$

$$= \frac{8}{3} - \frac{5}{4}$$

$$= \frac{32}{12} - \frac{15}{12}$$

$$= \frac{17}{12}$$

$$= 1\frac{5}{12}$$

$$1\frac{1}{3} \times 2\frac{3}{4}$$

$$= \frac{4}{3} \times \frac{11}{4}$$

$$= \frac{44}{12}$$

$$= 3\frac{8}{12}$$

$$2\frac{1}{3} \div 1\frac{3}{5}$$

$$= \frac{7}{3} \div \frac{8}{5}$$

$$= \frac{7}{3} \times \frac{5}{8}$$

$$= \frac{35}{24}$$

$$= 1\frac{11}{24}$$

Find the reciprocal of the second fraction....

...and multiply

### Examples

## Sparx Maths

Topic Codes

**M110, M157,  
M931**

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### Key Words

**Fraction:** How many parts within a whole amount something is broken into

**Equivalent:** Of equal value

**Reciprocal:** inverse of a fraction, i.e. flip the numerator and denominator

**Numerator:** top number of a fraction

**Denominator:** bottom number of a fraction (the total parts)

**Improper/Top heavy:** When the numerator is larger than the denominator

**Mixed number:** A combination of an integer and a fraction due to the fraction being larger than 1

# Year 10 Module 1

## PLOTTING AND INTERPRETTING GRAPHS

### Key Concept

**Substitution** – This is where you replace a number with a letter

If  $a = 5$  and  $b = 2$

|           |                   |
|-----------|-------------------|
| $a + b =$ | $5 + 2 = 7$       |
| $a - b =$ | $5 - 2 = 3$       |
| $3a =$    | $3 \times 5 = 15$ |
| $ab =$    | $5 \times 2 = 10$ |
| $a^2 =$   | $5^2 = 25$        |

**Sparx Maths**

Topic Codes

**M440, M843**

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### Key Words

**Intercept:** Where two graphs cross.

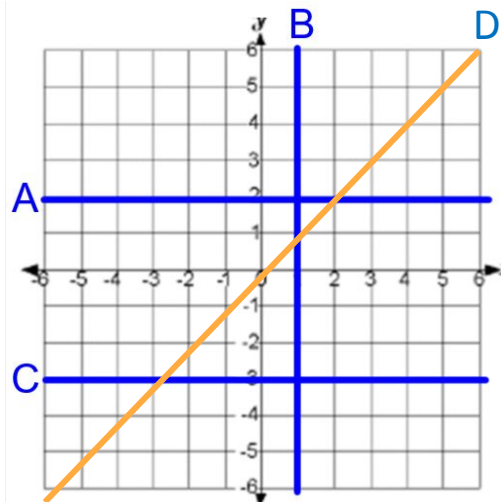
**Gradient:** This describes the steepness of the line.

**y-intercept:** Where the graph crosses the y-axis.

**Linear:** A linear graph is a straight line.

**Quadratic:** A quadratic graph is curved, u or n shape.

### Examples

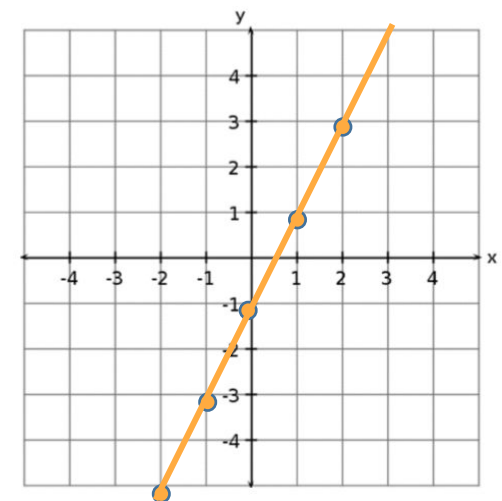


A:  $y = 2$  B:  $x = 1$

C:  $y = -3$  D:  $y = x$

Draw the graph of  $y = 2x - 1$

| X | -2 | -1 | 0  | 1 | 2 |
|---|----|----|----|---|---|
| Y | -5 | -3 | -1 | 1 | 3 |



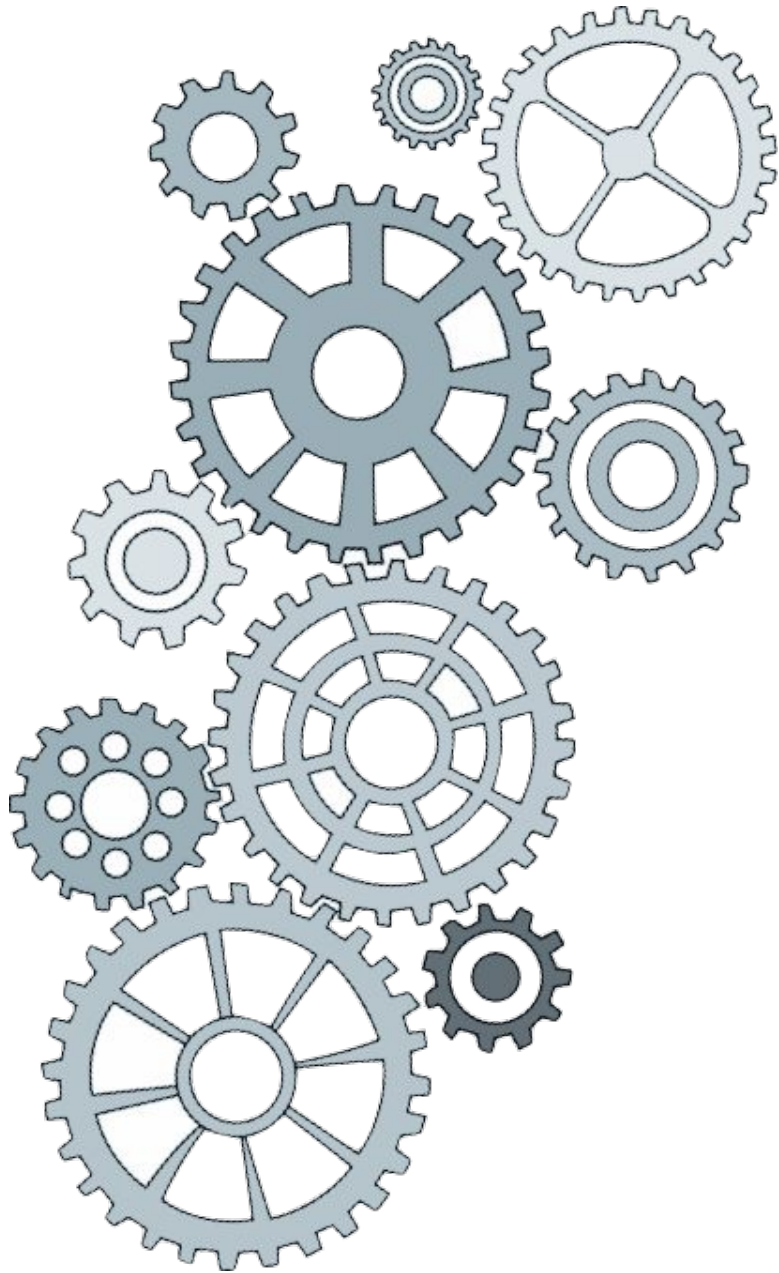
Notice this graph has a gradient of 2 and a y-intercept of -1.

### Formula

$$\text{Gradient} = \frac{\text{difference in } y\text{'s}}{\text{difference in } x\text{'s}}$$

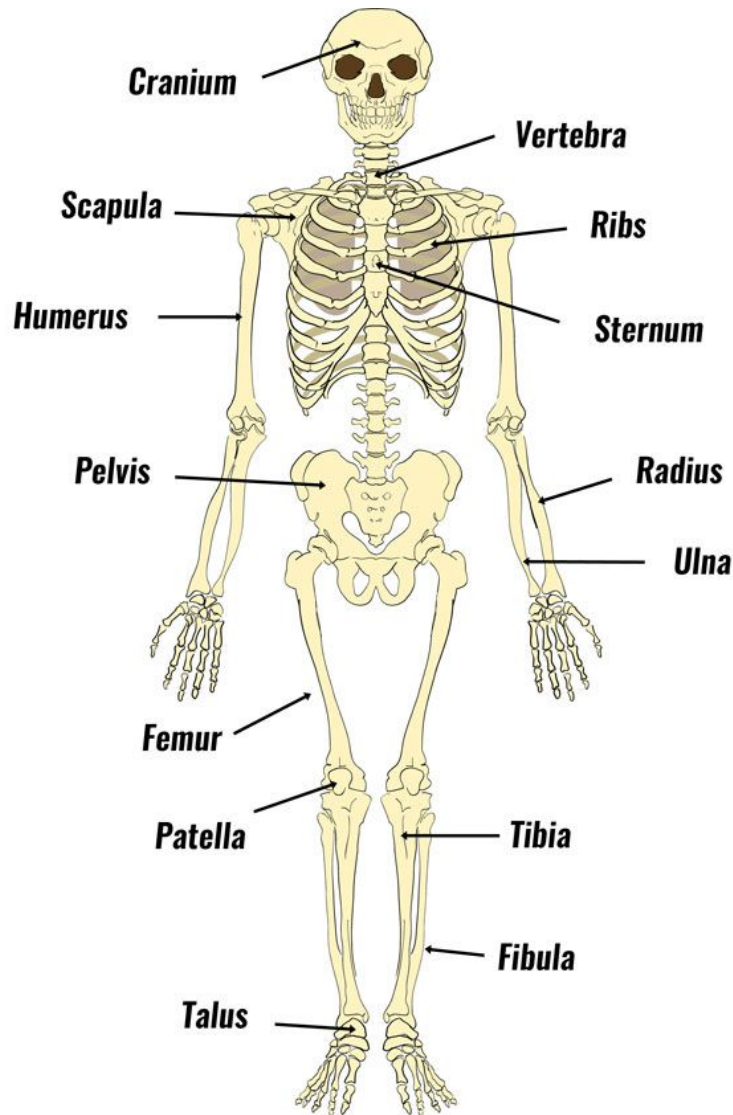
### Tip

Parallel lines have the same gradient.



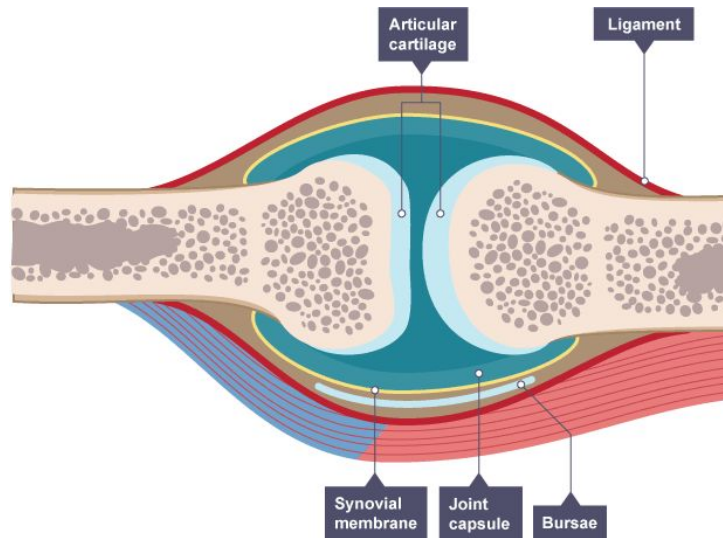
# Physical Education

## Unit 1: Applied anatomy and physiology



### Functions of a Skeleton

- Support
- Protection of vital organs by flat bones
- Movement
- Structural shape and points for attachment
- Mineral storage
- Blood cell production



### Joints- A joint is a place where two or more bones meet.

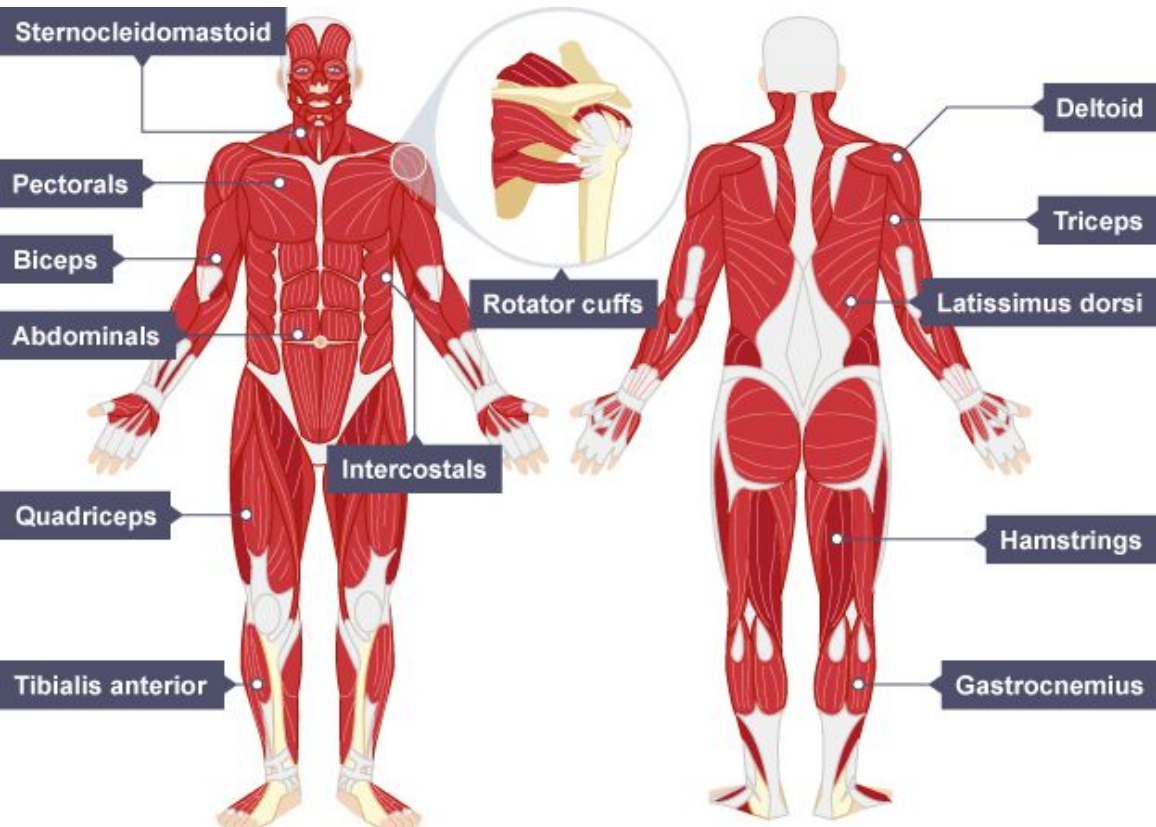
#### Hinge

These can be found in the elbow, knee and ankle. Hinge joints are like the hinges on a door, and allow you to move the elbow and knee in only one direction. They allow flexion and extension of a joint.

#### Ball & Socket

These types of joint can be found at the shoulder and hip and allow movement in almost every direction.





### Antagonistic muscle pairs

In an antagonistic muscle pair as one muscle contracts the other muscle relaxes or lengthens. The muscle that is contracting is called the **agonist** and the muscle that is relaxing or lengthening is called the **antagonist**.

## Muscle Contractions

**Isotonic**- these occur when a muscle contracts and changes length. There are two types:

**Isotonic concentric contraction** – this involves the muscle shortening.

**Isotonic eccentric contraction** – this involves the muscle lengthening whilst it is under tension.

**Isometric contraction** – this involves a muscle producing tension but staying the same length. This occurs when the body is fixed in one position.

### Types of Movement

- Flexion
- Extension
- Abduction
- Adduction
- Circumduction
- Rotation
- Dorsiflexion
- Plantar Flexion

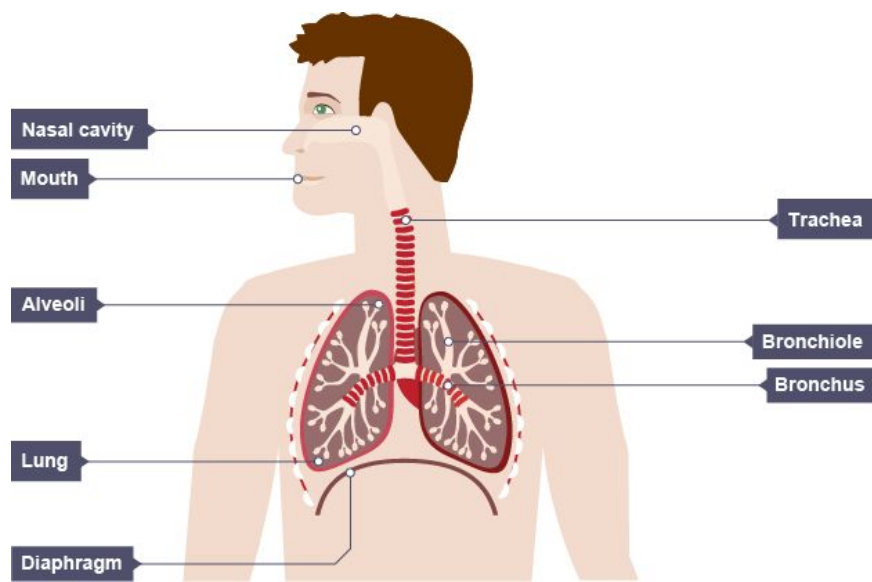
**Ligaments**- attach bone to bone.

Ligaments are a type of connective tissue and are tough, fibrous and slightly elastic

**Tendons**- attach muscle to bone.

Tendons are very strong, inelastic connective tissues that allow a muscle to pull on a bone to move it.





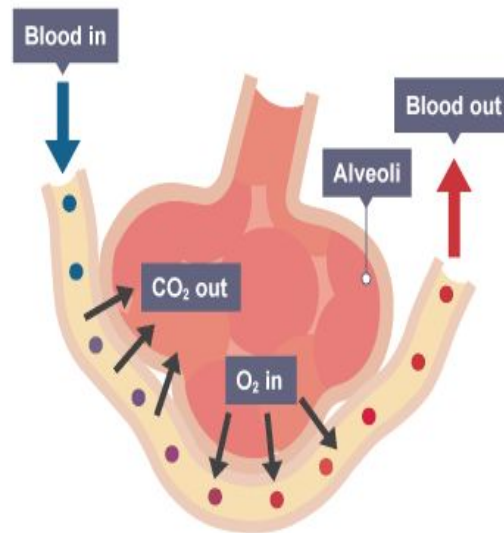
### Pathway of Air

1. Air enters the body and is warmed as it travels through the **mouth** and **nose**.
2. It then enters the **trachea**.
3. The **trachea** divides into two bronchi. One bronchus enters each lung.
4. Each **bronchus** branches out into smaller tubes called **bronchioles**. Air travels through these **bronchioles**.
5. At the end of the **bronchioles**, the air enters one of the many millions of **alveoli** where **gaseous exchange** takes place.

### Gaseous Exchange

Gaseous exchange occurs at the alveoli in the lungs and takes place by diffusion. The alveoli are surrounded by capillaries so oxygen and carbon dioxide diffuse between the air in the alveoli and the blood in the capillaries.

**Diffusion** is the movement of gas from an area of high concentration to an area of low concentration.



### Lung Volumes

**Tidal volume** is the amount of air breathed in with each normal breath.

**Inspiratory reserve volume** is the maximum amount of additional air that can be taken into the lungs after a normal breath.

**Expiratory reserve volume** is the maximum amount of additional air that can be forced out of the lungs after a normal breath.

**Residual volume** is the amount of air left in the lungs after a maximal out breath.