



Co-op Academy  
Stoke-on-Trent

# Year 9 Option Workbook 2026

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Booklet:

**A**

9X1 & 9Y1

**Headteacher** Mr S. Richardson

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Stoke-on-Trent  
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ST6 4LD



Co-op Academy  
Stoke-on-Trent

Dear Students and Parents/Carers,

This booklet has been designed to support Year 9 students and their families as you begin the important process of choosing GCSE options. The decisions made at this stage will shape the subjects studied over the next two years and play a key role in each student's learning experience and future opportunities.

Inside this booklet you will find an overview of the subjects available at GCSE, along with examples of students' work. These examples are included to give a realistic picture of what GCSE study looks like in each subject – the level of challenge, the types of skills developed, and the standard of work students will be working towards. Our aim is to help students make informed choices by clearly showing what can be expected beyond Key Stage 3.

Choosing the right options is important. Students are more likely to succeed and enjoy their studies when they select subjects that match their interests, strengths, and future aspirations. While some subjects may be required or strongly recommended, Options are an opportunity for students to personalise and take ownership of their learning.

We encourage students and parents to read this booklet carefully, discuss the subjects together, and consider not only current enjoyment but also long-term goals. Teachers are available to offer guidance and answer any questions, and we strongly recommend making use of this support before final decisions are made.

We look forward to supporting students as they take this exciting next step in their education.

Yours sincerely,

Miss Evans  
*Head of Year 9*

# Subjects

Art & Design

Business Studies

Computer Science

Design & Technology

Engineering

Food and Cookery

Geography

Health & Social Care

History

IT

Music

Performing Arts

RE

Spanish

Sport

Triple Science

# Art & Design

## GCSE Art and Design FINE ART

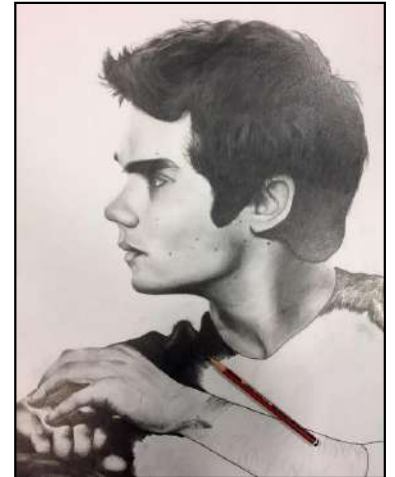
Art & Design is suitable for a wide variety of students. Including gifted artists who wish to pursue a career in creative industries, those wishing to balance academic and practical subjects and those who simply enjoy Art & Design and are willing to work hard.

**Unit 1:** Portfolio of work. Personal themed project set by student - 60% of total mark.

**Unit 2:** Externally set brief – project set by AQA - 40% of total mark.  
10 hours of sustained focused study (exam).

This is a broad-based course exploring practical, critical and contextual work through a range of 2D and/or 3D processes and media.

GCSE Art and Design (Fine Art) gives you the skills and knowledge to create personal and imaginative work. You can choose to focus on a specialist area of study from a variety of exciting processes and media to suit your individual interests and abilities. This can result in A-level/degree opportunities and careers ranging from painting portraits to producing exotic fashion costumes or designing futuristic architecture. If you have an adventurous, creative and enquiring mind and are excited by shaping and determining the visual world around us, there is a career opportunity waiting for you.



Drawing produced by Year 10 student.

### Further study and career opportunities:

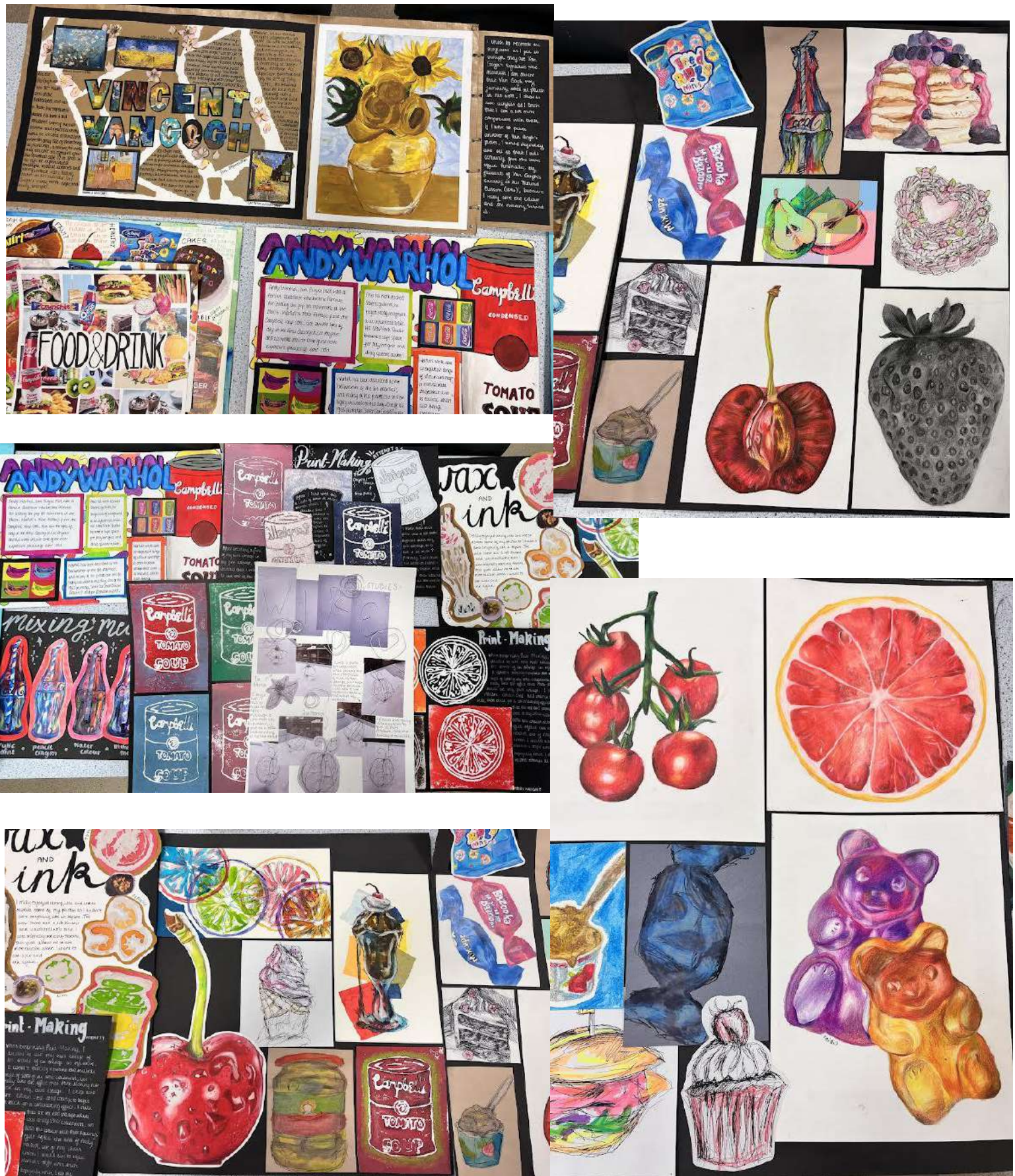
Art & Design GCSE provides the perfect springboard for students to progress to A-Level and University.

### Future Prospects/Career Options:

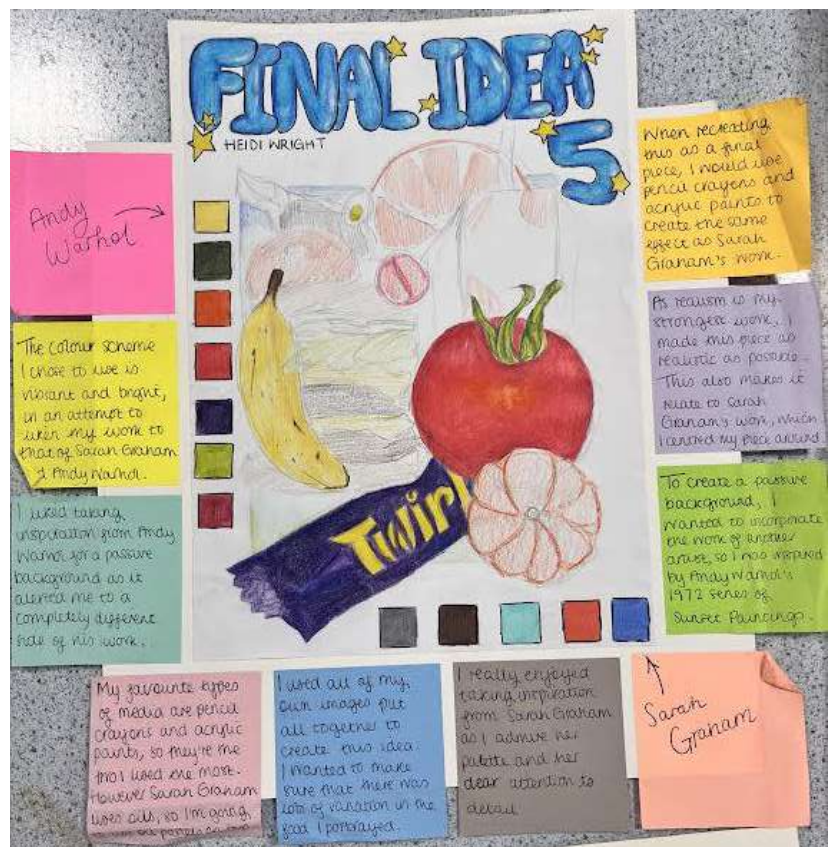
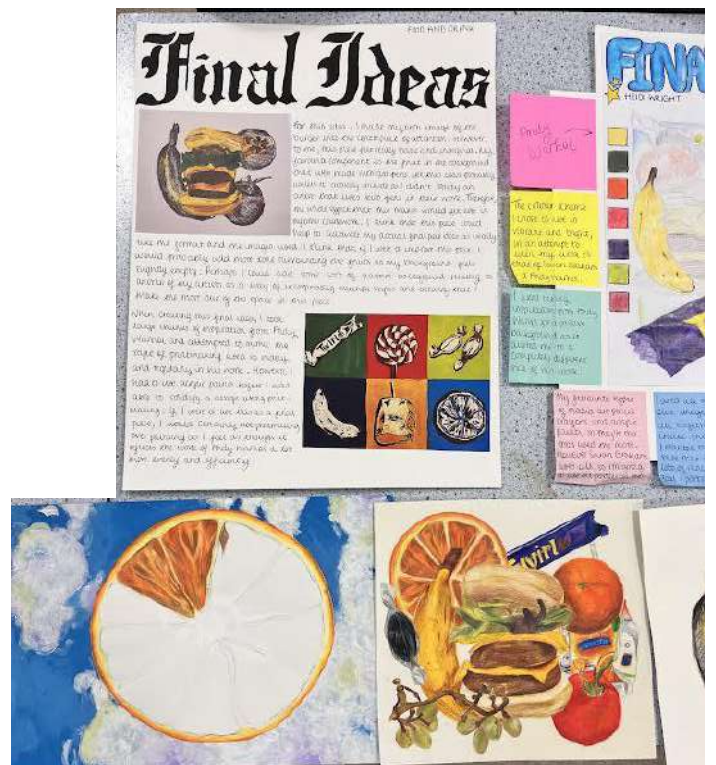
The creative industries in the U.K are rapidly growing. They contribute £92 billion to the economy and employ over 3 million people. People with creative skills are highly valued in a rapidly changing world of work. There are hundreds of special-isms but it is competitive and you need to work hard.

- Animator
- Architect
- Art Therapist
- Blacksmith
- Ceramics
- Cartoon/Comic art
- Community arts
- Costume design
- Exhibition design
- Fashion design
- Film director
- Fine artist
- Furniture design
- Game design
- Graphic design
- Illustrator
- Interior design
- Jewellery design
- Make up/Hair design
- Medical illustrator
- Photographer
- Product design
- Sculptor
- Set designer
- Tattoo artist
- Teacher
- Theatre design
- Web design

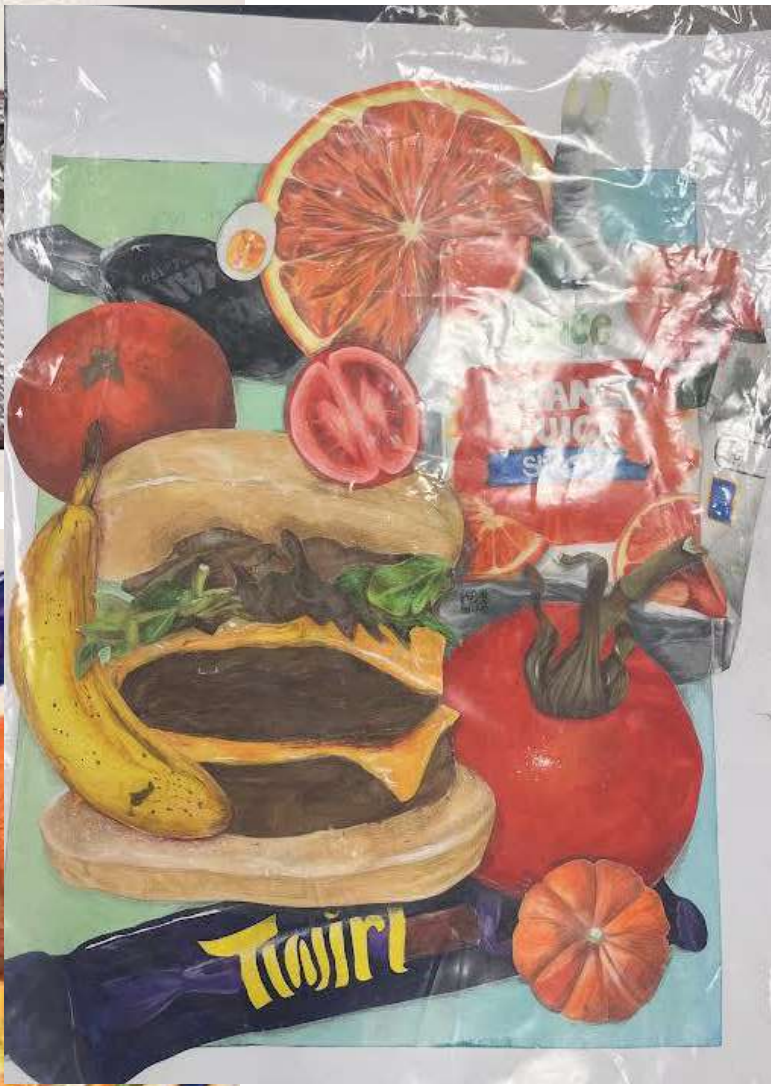
# Art & Design - Grade 9



# Art & Design - Grade 9



# Art & Design - Grade 9



# Business Studies - 9/9 marks

17.2 - Negative of price

In order to increase the number of new members at PFC, the owner is considering two options:

**Option 1:** reducing the price of membership

**Option 2:** providing an individual fitness plan for all new members.

(d) Justify which **one** of these two options would have the bigger impact on new membership at PFC.

① more potential customers  
② less revenue to pay for equipment  
③ attract more members (50-100)  
④ equipment is not updating

PFC needs to decide how to increase new membership. I think they should provide an individual fitness plan for all new members.

Providing individual fitness plans for all members will attract more customers as it is a USP that the other gym doesn't provide. This will lead to more customers being willing to pay the £39 a month as they are given a personalised service which will make their fitness journey more effective. Therefore PFC will see an increase in new members and revenue.

However, providing individual plans will be very costly for PFC as it requires staff to have extra training and potentially work more hours. This means that PFC may have less to spend on other aspects of their service.

Such as the gym equipment itself, therefore customers may be dissatisfied and cancel their membership, leading to PFC getting a bad reputation <sup>potential</sup> deterring new members.

Overall, I think that providing an individual fitness plan for members is the best choice for PFC, as it will earn them a good reputation of caring about their customers, which may lead to even more people buying a membership. Moreover, lowering the cost of membership may not be the right choice as the rival gym could easily lower its costs as it is a <sup>major</sup> member of a large chain and can afford to do so. However, it depends on whether PFC can afford the training required to provide each member with an individual fitness plan. The most important factor is whether customers actually want this fitness plan or if they would rather have the <sup>potential</sup> cost of membership to be lowered.

# Computer Science

16

(f) An algorithm works out which team has won (has the highest score).

Write an algorithm to:

- prompt the user to enter a team name and score, or to enter "stop" to stop entering new teams
- repeatedly take team names and scores as input until the user enters "stop"
- calculate which team has the highest score
- output the team name and score of the winning team in an appropriate message.

You must use either:

- OCR Exam Reference Language, or
- A high-level programming language that you have studied

```

while teamName != ("stop"):
    teamName = input("Enter the name of the team:")
    teamScore = int(input("Enter the team's score:"))
    if teamScore > highScore:
        teamName = highTeam
        teamScore = highScore
    else:
        continue
print("The winning team is " + highTeam + " with " + str(highScore) + " points.")
print("The winning team is " + highTeam + " with " + str(highScore) + " points.")
    
```

[6]

END OF QUESTION PAPER

8

4\* A computer programmer has developed a computer game that they want to release for users to download over the internet. The programmer needs to decide whether to release the game as open source or proprietary software.

Discuss the features, benefits and drawbacks of each type of licence for this program and make a recommendation to the programmer.

You should include the following in your answer:

- features of each licence
- legal and ethical issues of each licence
- benefits and drawbacks of each licence.

[8]

If the developer chooses to release the game as open source software, it means anyone will be able to access the game's source code, likely for free. This can be beneficial. One potential benefit of this is that if the game ends up being a community of dedicated programmers, being able to see the source code means they can help to improve and polish the game's code, improving the game and potentially increasing its quality. However, one potential issue is that the licence means that while the creator still maintains their copyright, having everyone having access to the source code means that different versions of the game may release, and some may heavily change the scope of the game. Furthermore, having free access to the source code means that the programmer will not make a lot of revenue from the game.

On the other hand, releasing the game as proprietary software means that the only the creator has access to its source code and others have to buy the licence to use the game. This means that the creator will be able to use the game as a source of revenue. However,

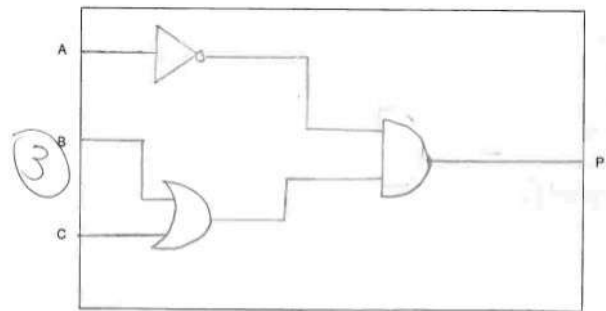
5

(a) Complete the truth table for  $P = (A \text{ AND } B) \text{ OR } C$

A	B	C	P
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	1

[4]

(b) Draw a logic circuit for  $P = \text{NOT } A \text{ AND } (B \text{ OR } C)$



[3]

9

releasing the game as proprietary software means that since no-one else has access to the source code, the developer can improve the game's code. This can be difficult if the programmer is not very skilled when it comes to debug, debugging, lowering the quality of the game and making people less likely to buy it.

In conclusion, I believe that the programmer should choose to release their game as proprietary software as this means that they can still license to for others to use the game, which will allow them to earn an income. While this means that the creator is solely responsible for the quality of the game's program, this will allow them to





# Design & Technology - Grade 7

## Initial Ideas & Analysis + analysis summary

1. aesthetically pleasing and curved edges to make it safer - syringe connected with tubes to allow water to flow through - plastic covers with small air vents and on the top as well

2. heart shape - LED lights for the plants - small drawer with water - multiple level tubes to make sure all the water goes before needing a refill - little heart handle - aesthetically pleasing and fits many different household aesthetic.

3. rectangular box - fits into corners easily - cylinder - connected with tubes to let the water flow out into the box with a slit to refill with water.

4. 2 rectangle boxes - inner one - where the plant will be - outer one - where the damaged leaves and parts fall - the outer vessels can fall so they can be easily taken out and cleaned every now and then.

5. Birdhouse inspired design - outdoors - has the hanging aspect for more surface area on the floor and a higher and deeper cube for the plant.

6. UFO inspired - childish

## Initial Ideas & Analysis + analysis summary

7. circular aspect - good aesthetic and a common grey colour to fit with many different house aesthetics - chain - strong and can hold for a long period of time - hook - can be easily taken off and on - higher walls so it is more difficult for the plants dying and falling off leaves don't fall into the surroundings

8. Rectangular shape - helps it fit in corners easily - thread - upholds the formation and aesthetically pleasing - fits with cosy and warmer home aesthetic - thread falls off overtime so it can look unappealing in the long

10. Plastic cylinder formation - 2 - outer one is clear where the water goes in connected to a tube on the outer one to let the water flow beneath them directly at the bottom of the inner circle - inner circle is opaque (white) and where the plant will be held.

11.2 pieces which connect together - conjoint parts that can easily be separated - top half is where the plant will go and the bottom half is where the water will be - tube follows the same function as before to allow water to flow through from the bottom of the top half.

12. rectangular form - fits in corners easily - smoothen out the corner during the manufacturing so it's safer for the client - small drawer - has 3 connected tubes from the middle to transport the water to the upper base of the cube.

## Initial Idea Prototype

Evaluation of Page : the use of further annotating my designs helped me depict the strengths and weaknesses of each design so I could see what components I want to use for my final design by finding a combination of multiple of the best designs I drew to find something that could be fully adapted to my primary user needs.

Ideas	Descriptions explanation :	Advantages :	Disadvantages :	Suitability :	?/10
1.	Trapezoidal prism shape with curved edges with a plastic covering on each side to see through where the plant would be with air vents on each side. It has an injection tube connected with a side piece that is filled with water.	An advantage is that it is safe as it's curved and can easily be easily put into corners so it can save space. The plastic covering allows little room for water/soil to escape whilst also being able to witness the plants growth.	It can be complicated for some customers as the tube can be hard to comprehend of it's injection tube and the refill container might be too small which means it might constant refilling after a few days.	This would be good for my customer because it is safe and it benefits the consumers needs but not the flexibility of time since it needs constant refills and can be confusing.	7.5/10
2.	A heart shape with a clean and smooth finish and an LED light at the top just above the heart with a small drawer at the bottom to leave room for the water connected with tubes to go into the plant	The advantages are that it follows and can fit with many aesthetics and appease many customers. The light helps encourage plants growth inside the plant and also provides the plant water.	The costs of the lights plus manufacturing would be too much for mass production. It can also take up too much space because of the heart shape and not enough for the water supply.	This would be good overall for the plants growth but the cost could go over the budget of my client and a little bit more costly as well as needing constant refills.	9/10
3.	A cuboid shape with a cylinder inside all the way through with multiple tubes coming off of it with a handle to easily let out the slot inside for easy refilling and access to it.	The advantages are that it's easy to use with lots of space for the plant to grow around it and can easily fit into corners due to it's rectangular shape and the cylindrical shape allows a lot of water to go into it so leaves little need to constant refilling.	The disadvantages of this design is that it can look rather unappealing for the client and it has sharp corners and the handle which can be a safety issue for the customer especially if they do have children.	This would be good for my customer because it doesn't cause unnecessary confusion and functional with less room for error and low cost to align with their budgets.	6.5/10
4.	A design that consists of two cubes - one that's smaller and inside the other cube being able to let the walls of it fall and be put back up with the handles.	The advantages are that it can easily be pressed into corners because of it's sharp squared frame but also can be cleaned easily when the front walls are fallen to get rid of the dirt collected in there and doesn't go off to it's surroundings.	The disadvantages of this design is that it can take up too much area on the surface for the space the outer walls need. It also doesn't take into consideration for the safety of the child since the corners may be too sharp.	This would be good for my customer because it means the client needs to clean it out often so it doesn't overgrow.	8.3/10
5.	A large cuboid with a big surface area but not high walls that is attached to another cube on top where the plant will be and the bottom is where all the wastage of the plant goes and follows a birdhouse aesthetic (outdoors).	The advantages are that the larger cuboid can take a lot of the wastage from the plant and be able to keep it within the walls while the upper one still has a lot of space for the plant to grow and hangs so it doesn't take up too much space below.	The disadvantages of this design is that it is typically made for outdoors but people of lower class don't have a back garden and this would be good for it and it would overcrowd in a house.		
6.	This design is UFO inspired with LED lights to encourage the plants growth and circular air vents at the top of the plastic covering and an injection tube connected to it where the water goes and a chain to hang	The advantages of this is that it's good for children as the hanging aspect can make it look like a flying UFO. The injection tube allows it to easily be refilled directly to where the soil and the roots of the plant would be.	The disadvantages is that it only will be interested by a minority of the lower income classes and also not the aesthetic most want in their homes as well as being one of the most expensive as it would fit into corners as easily. product has a lot of features attached increasing the manufacturing costs.		

## Initial idea prototype

Evaluation of page : despite finding the strengths and weaknesses of each design but it could've been more simply written rather than an overload of information to comprehend and just used simple short sentences or phrases to bring the point across which would've made it quicker to finish off.

Ideas	Description explanations :	Advantages :	Disadvantages :	Sustainability :	?/10
7.	2 Circular shaped cylinders connecting one another by a chain attached with a hook on top to be hung on a ceiling or window frame or even outdoors easily with high walls.	The advantages of this design is that the metal chain can be sustainable for a long period of time and can hold up both cylinders without falling or damaging. The hook can be taken off and on with ease.	The disadvantages of this design is that it can take up too much space and the metal eventually rusts when it isn't constantly cleaned which my client can't continuously do so it can be aesthetically pleasing in the long run.	I think this would be good for my client because the high walls prevent the wastage of the plant to fall out in greater volumes letting the surroundings be cleaner and safer for the client because of the curved edges. I think this wouldn't be as well for my client because even though it is aesthetic it doesn't provide the plant with any features to help the growth and in the long term either.	5.5/10
8.	Rectangular shape held by thread to keep the foundation and make it hand with a metal hook at the top and a light knot to hold it all in place and follows a cosy home aesthetic.	The advantages are it gives a soft appearance and has 2 rectangular prism to put the plants in whilst having a lot of space to grow as well as being able to maintain space in the house as it fits into corners easily.	The disadvantages are that the thread will begin to fall and break off over time which will make it unattractively pleasing and the fibre from it will fall to the surroundings as well as not leaving much room for natural light.	I think this wouldn't be as well for my client because it doesn't provide the plant with any features to help the growth and in the long term either.	6/10
9.	A rectangular plant pot - outdoors based with a fence like aesthetic with a circular board and a large tube connected to it pointed towards where the plant would go with a small flap for where you would put the water.	The advantages are that the flap in the tube allows water to be easily refilled and it releases small droplets of water so the plant doesn't overflow and has a lot of space for it as well as the circular board for stability.	The disadvantages are it can be displeasing because of the tube and overall look for the client and deter them but also the fact it would take up a lot more room than regular plant pots especially if the client has a small garden.	I think this will be good for my client because it sell waters and the tube is quite large so it will take some time before it needs refill so it will sustain for a longer period of time.	6/10
10.	2 plastic cylinder formations which the outer sphere is clear while the inner one is opaque (most likely white) with a tube which connects them both so water can flow between them so the plant receives it in the inner one.	The advantages of this is that it aesthetically pleasing and can fit many home aesthetics and the process is simple and less confusion for the customer as the outer sphere holds the water and the inner holds the plant.	The disadvantages are that it wouldn't fit into corners easily and it wouldn't be large either which would be a deterrent to the target audience since it will need to be larger area for the plants growth.	I think this is good for my client as it is seemingly easy to use and refills are less constant as well as covering the roots of the plant which some find displeasing.	7/10
11.	2 circular pieces which can separate and conjoint easily and the top half holds the plants whilst the bottom half is where the water is connected with a tube that can go into the top half and let the water flow between them.	The advantages of this is that it is aesthetically pleasing and more modern shape. It is also much more simpler for people to understand how it functions and leaves a lot more space for the water and doesn't need as many refills.	The disadvantages of this product is that it can be space consuming because it is a bigger product although it serves it's function and might be hard to maintain and clean it and it might be hard overall for my client having to frequently clean it.	I think this product would be good for my customer because it doesn't need as much attention as the client will be working much but it can be difficult to clean.	8/10
12.	Has a long rectangular form with a small drawer near the bottom which contains water with 3 tubes to let it flow between to let it flow to the upper base of the product.	The advantages of this product is that it easily fits into corners and the small drawer can contain water so less need for frequent refills whilst being aesthetically pleasing and maintaining a modern aesthetic.	The disadvantages of this product is that the sharp corners are a safety hazard to younger children as well as the client so during manufacturing it would need to be smoothened or sanded down.	I think this product would be good for my customer because it has a lot of room for the plant and can save space within the house.	7.5/10

# Design & Technology - Grade 7

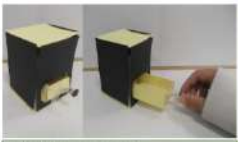
## Initial Idea Improvements



**2 Heart Shaped plant pots -**  
**Aesthetic** - cozier and warmer size of the aesthetic scale through it's heart shape although the shape was hard to achieve using the paper.  
**Cost** - due to the manufacturing process of it with all the excess pieces such as the light, the slot with water and tools needed for the shape it would increase the price of the product which doesn't align with my primary user needs since it needs to be cheaper for them.  
**Customer** - my customer has remained the same, targeting lower income families, specifically mothers or adults who don't have time to look after their plants but they need to grow their own to save money.  
**Environment** - this is would give a good environment for my customer as it would relieve their stress since it wouldn't mean they would have to continuously look after the plant but rather occasionally refill the water.  
**Size** - I'm planning to make it approximately around 20 cm in height but not fully sure about the width of it because I want the plant to have as much space as possible to support it's growth.  
**Safety** - the curves of the heart reduces the safety hazard but it overall could be heavy so it could be a danger if it would fall and the curved edges could also be a disadvantage because it wouldn't fit into corners.  
**Function** - provides the light and tubes with a slot of water to support the plants growth so the user doesn't have to continuously worry about it.  
**Material** - plastic because wood wouldn't correspond well with the moisture of the plant.  
**PUN** - [does it meet my primary user needs list?] - 2/4 - not low cost, not adjustable to fit into corners, good plant growth, good aesthetic.



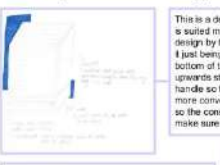
**11. Cylinder plant pots -**  
**Aesthetic** - rounded and more sophisticated and cleaner simpler look rather than a warmer aesthetic.  
**Cost** - low cost for my customer because it doesn't involve complex shapes or excess features.  
**Customer** - my customer has remained the same, targeting lower income families, specifically mothers or adults who don't have time to look after their plants but they need to grow their own to save money.  
**Environment** - good for the customer's environment because it can easily fit with any aesthetic and because of the large area for the water to go into the soil above it through the tubes so it will need a lot less occasional refills so the customer doesn't need to continuously care for it when they are already far to busy.  
**Size** - I haven't worked out the exact height and width of this product but I think it's going to vary around a similar height of the heart plant pot and around 20cm.  
**Safety** - the product has a circular structure so it shouldn't harm anyone in terms of sharpness but it would be heavy so it shouldn't be put in a zone where it could fall.  
**Function** - provide good plant growth using tubes from the bottom half of the cylinder filled with water that leads to the top half where the plant would be to feed it water.  
**Material** - I'm also planning to make this out of plastic because that is what will best uphold the needs of the product without damaging itself in the process.  
**PUN** - 3/4 - doesn't fit well into corners, would be decently low cost or just about in that range, good aesthetic, good plant growth.



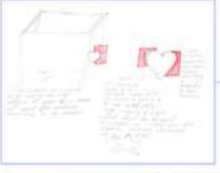
**11. Box plant pot -**  
**Aesthetic** - covers a simpler aesthetic with just a rectangular structure with a draw out than the others because it doesn't involve any specialised details and has it would fit with their budget.  
**Customer** - my customer has remained the same, targeting lower income families, specifically mothers or adults who don't have time to look after their plants but they need to grow their own to save money.  
**Environment** - good for the customer's environment because it can easily fit with any aesthetic and because above it through the tubes so it will need a lot less occasional refills so the customer they are already far to busy.  
**Size** - I'm making this approximately 15-20 cm just like the space for the plant and I'm not sure about the width.  
**Safety** - the corners may be a concern but I don't have anything to restrict the slot falling out if it's slanted and would be above it through the tubes so it will need a lot less occasional refills so the customer they are already far to busy.  
**Material** - I'm also using plastic for this either white or black because wood wouldn't support moisture of the plant and the water.  
**PUN** - 3/4 - does and have the adjustability to fit into corners well, would be low cost for customer, the aesthetic is basic so it doesn't stand out, it's functional and provides but not an extensive amount or any additional features to support it's growth.

**PUN** - [primary user needs]  
 - low cost  
 - decent aesthetic  
 - appropriate size/adjustability to fit  
 - provide good plant growth with minimal support

## Developed Idea & Prototype



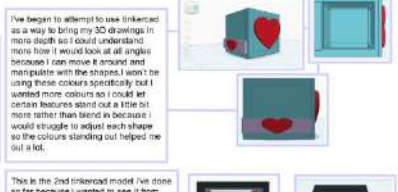
This is a developed design of the 'box plant pot' based on how well it suited my primary user needs and how I can improve on this design by the slot for the water being larger because rather than it just being a small drawer it covers almost the entirety of the bottom of the cube so there can be more water that can move upwards straight towards the roots of the plant inside with a large handle so there's more surface area to pull it from so it makes it more convenient. The walls of the plants pot are majority transparent so the consumer can track the plants growth and occasionally to make sure everything is in order and the plant isn't dying.



This revision of the original 'box plant pot' which have additional features now based on the primary user feedback which that is wasn't the most appealing and for that reason I have added the hearts onto both the sides of the rectangular prism for small storage compartment but as I drew and modelled it on Inkscape it wasn't as big as I had hoped it would be therefore wouldn't be able to hold as much so I'll choose to go through with this design then I want to adjust that first. The heart shape isn't fully solidified yet either. I have also have thought about using a star since they are a common solid shape with aesthetic and childish associations as my primary user does have children. The handle also I feel like would be uncomfortable to pull on unless I made it as curved as possible.



This is a mashup of both the 'two-part cylinder plant pot' and the 'box plant pot' because an issue I faced with the cylinder one was that it wouldn't be able to fit into corners and therefore take up more room. The box plant pot had an issue with having a small water compartment so this easily enlarges it by giving it a lot more space. The adjustments in this is that the water compartment is transparent and has measurements going up the side so the user can easily identify when the plant needs to be refilled approximately how long it will be until the next time. It's so because my primary user is busy they can't refill it and because of the simplicity of the shape I chose.



I've begun to attempt to use Inkscape as a way to bring my 3D drawings in more depth so I could understand more how it would look at all angles because I can move it around and manipulate with the shapes, I won't be using these colours specifically but I wanted more colours so I could let certain features stand out a bit more rather than being because I would struggle to adjust each shape so the colours standing out helped me out a lot.

This is the 2nd inkerscape model I've done so far because I wanted to see if from mostly angles rather than just one angle I drew and a cardboard prototype would be a bit more difficult to do. The colours, again, aren't centered but I want more earthy or nature colours to fit with various aesthetics and because it is meant to be for plants so a more earthy palette would be suitable. The contribution of it made me notice a lot of what I need to focus on, on the tube which will allow the water to flow from the bottom to the roots of the plant, how the consumer will be able to take out the slot for the water without the plant falling? What will be through the slot to keep the formation rigid whilst it's being removed?

This product development doesn't have many new features only the light that was inspired by the heart shape, prototype regular adding a better handle to include the wide majority of people and make it easily accessible to open and close. The aesthetic is quite simplistic and doesn't really have anything outstanding about it so it doesn't really align with my primary user needs because it's still quite boring.

**Evaluation of Page**  
 This was a further evaluation of my last few sketches which mainly built up the foundation of my final idea with multiple components to it which I didn't use due to possible difficulties to manufacture it but I still wanted to ensure my primary user needs were met to the best of my ability. The CAD model helped me further see a 3D model which could highlight all the different parts in different angles, which is faster to achieve using drawings. This also helped me to improve on my CAD models throughout the NEA.

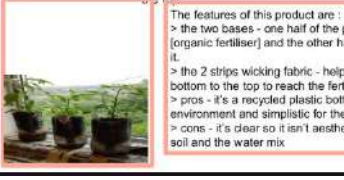
## Development ideas research / system :

**Research :**  
<https://easyplant.com/blog/how-to-self-watering-pots-work>  
 - self watering plants work because there is a water reservoir which allows the soil to absorb water through the capillary action (the wicking system - moisture being drawn upwards due to tension)  
 - the basic elements :  
 > growing bed  
 > potting soils  
 > water reservoir  
 > wicking system  
 - Eco - friendly - reduces the amount of water that gets wasted because if you regulate how much water is needed for the capillary action.  
 - convenient for the customer ;  
 > growing plants can be stressful and time consuming.  
 > lessens the amount of time the consumer needs to pay attention to it.

**Research :**  
<https://greeneryunlimited.co/blogs/plant-care/what-are-self-watering-planters#:~:text=5,if%20watering%20planters%20use%20sub%20water%20with%20an%20empty%20brass%20vat>  
 - regular household plant pots can prove difficult because plants rely on humans but it can be inconsistent and time consuming so self - irrigated or self - watering plant pot eliminate those issues.  
 - what is sub - irrigation ?  
 applies water below the soil surface to raise the water table into or near the plant root zone.  
 Allows soil to maintain moisture levels at the base of the pot.



**How can I incorporate this information into my plant pot?**  
 I am going to use the wicking system to transport the water from one base to another because there is a lot of information about that and a lot of self watering plant pots so it is a working system.  
 21 do want to use plastic for my product but I want the wicking system to be majority opaque, specifically for the construction of the slot/drawer for the water and have only one side that needs a refill because pressing but there plant to measure

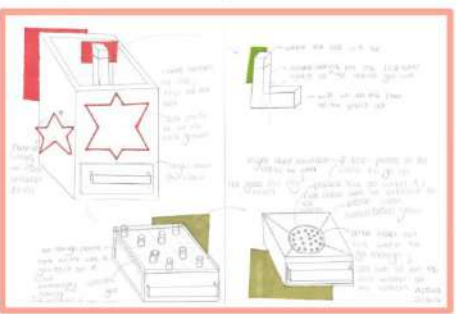


**Features of this product are :**  
 > the two bases - one half of the plastic bottle is filled with soil (organic fertiliser) and the other has around a quarter of water in it.  
 > the 2 strips wicking fabric - helps the water move from the bottom to the top to reach the fertiliser.  
 > pros - it's a recycled plastic bottle so it's good for the environment and simplistic for the primary user.  
 > cons - it's clear so it isn't aesthetically pleasing because the soil and the water mix



**Evaluation of page**  
 Did more research what I want to do systems and do larger understand product to enable using already e

## Development ideas : drawings



**Overview :**  
 The design is a cube which is hollow in the middle and has a light, it's aesthetic mainly consists of a star because it is a solid, popular shape. It has a drawer which the water will go in to move upwards to where the soil and roots will be which, for now, consists of 2 designs to choose from. On the side of this design there is a small star - shaped fabric bag to hold small packages and objects. There is a larger, plastic transparent star in the middle of the design.

**1st water transfer** - This is a grid that follows a similar pattern to the wicking system so through the plastic tubes the water can go from the drawer to the soil/roots, the grid can be removed easily for cleaning. On the side there is a small bit of transparent plastic material so you can see the water levels.  
**Cons** - not fully sure of how it's going to function/made or used because the grid is on top of the drawer almost so it might work better with the grid being lower but other than that I need to construct it to work better.

The transparent star - this is for both, aesthetic purpose to make the design look less boring and more playful for the primary user since they have children it also will help the client see the plants growth over time as they can easily look through the plastic and enables them to know if it's growing properly.

**2nd water transfer** - this is a pressure based system as the transfer for the water to the soil. The shape of this goes down so when the drawer is full it goes to the top where the holes are. The holes are small to reduce the amount of soil that goes into the water so that the water can stay clean longer.  
**Cons** - this design possibly only works whilst the container in the drawer is full meaning that the client might have to frequently refill it so it can be time consuming which isn't good as my primary user is aimed at busier people.

The fabric bag - to hold small, thin packages such as seed bags or small plant food bags or small objects. This will either be held up using a hook or velcro.

**LED** - The light will be to support the plants growth. It will be placed in the center of the plant pot to emit as much light as it can all over the plant pot. It will be encased within plastic - opaque plastic for the casing of the wires and circuit and for where the light will be the plastic will be transparent, this ensures that the LED doesn't get wet and malfunction.

**Estimated measurements for the plant pot :**  
 30cm height - 300 mm  
 25cm width - 250 mm  
 10 cm - 100 mm

# Design & Technology - Grade 7

## Final Idea

This is the star pocket that will be on the side of the product - this will be to hold small sheets/packaging or small seed bags as well as small, heavier objects and will have a larger width for more space and have a hook to hold it up.

The inside of the drawer will be where the water will be inside will be multiple plastic tubes that will transport the water upwards to the roots of the plant in multiple areas so the water can get up in each area of the drawer that is flexible so when the drawer is taken out it can easily slide out and slide back into the holes at the top so refills are easy to do.

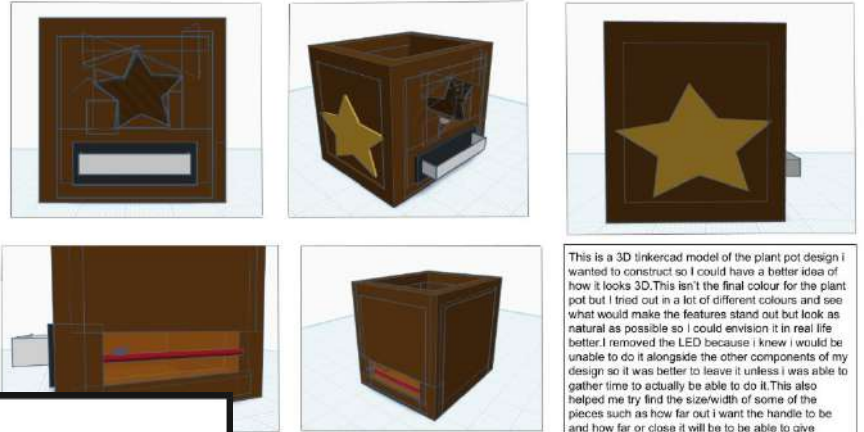
This is each side broken down version of the product so it is easier to understand and craft each side.

LED light - presents both an aerial view of the product as well as how it will look inside the plant pot. The LED consists of an opaque material for the overall casing of where the wires and circuit board would be because otherwise it could get damp from the product and malfunction. The top has a cube of transparent material so the light is visible without getting wet. The shape is so it goes upwards and in the middle so majority of the plant can have light and the bottom goes straight down in a line to lead to the outside of the product where the switch would be to turn it off and on.

Refill line - this is meant to easily see how long it will take until the drawer needs a refill for the client so they can schedule when to refill the water as my client is busy and it is also on the side of the plant pot so because it's not aesthetically pleasing at the front so all the client needs to do is turn it and see the water levels.

Evaluation through design still look didn't get many so get this design for star, fast had to

## Final Idea 3D CAD Model



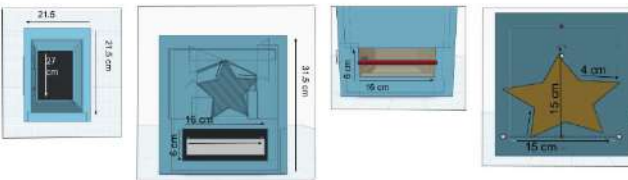
This is a 3D tinkercad model of the plant pot design I wanted to construct so I could have a better idea of how it looks 3D. This isn't the final colour for the plant pot but I tried out in a lot of different colours and see what would make the features stand out but look as natural as possible so I could envision it in real life better. I removed the LED because I knew I would be unable to do it alongside the other components of my design so it was better to leave it unless I was able to gather time to actually be able to do it. This also helped me try find the size/width of some of the pieces such as how far out I want the handle to be and how far or close it will be to be able to give access to everyone who could use the product.

Evaluation of Page - This helped me use a 3D modelled structure of my design and see it from all angles so I could understand my plant pot better in terms of size and proportions.

## Technical Specification

Feature :	Materials	Process :	Time :	Height :	Width :
Base	MDF	Laser cutter	2 minutes	27cm	27 cm
Body [basic structure]	MDF	Laser cutter	5 minutes	30.5 cm	21.5
Star cutout		Scroll saw	1 hour [lesson] because of it's difficult shape	11 cm [total]	10 cm
Draw cutout		Scroll Saw	10 minutes [simple]	6 cm	16 cm
Star window	Acrylic	Laser cutter	5 minutes	11 cm	10 cm
Draw	MDF	Laser cutter	5 minutes	6 cm	10 cm

Feature :	Material :	Process :	Time :	Length :	Width :
Star bag	Fabric	Sewing + cutting	5-10 minutes	15 cm	
Hook	MDF			4 cm	
LED	Circuits		1 hour	24 cm	
Handle	MDF	Laser cutter	5 minutes		



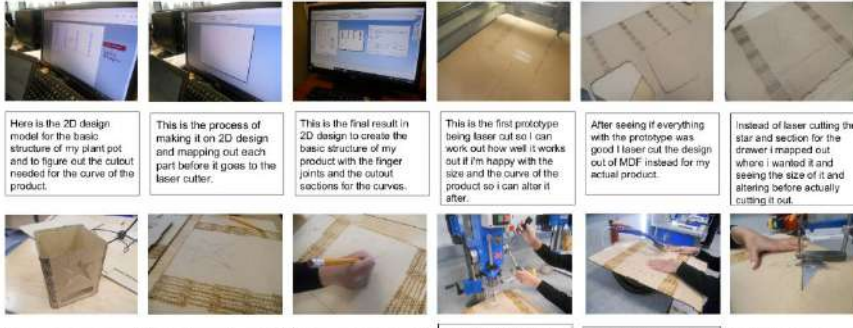
## Final Prototype Manufacturing Plan

	Process	Equipment	Time	Notes
Main body	Create a 2d design template for the basic structure of the design	Computer	1 hour [first time doing it was the key part of my project so it had to be done properly]	Use cardboard prototype to determine the height & size of the real product.
	Laser cut the design from the 2d template out of plywood.	Laser cutter	7 minutes	
Cutouts	Drilling out the plywood	drill	5 minutes	Draw points on the star & draw for where to drill each part.
	Create the cutouts for the star	Scroll saw	1 hour - 30 minutes	Hand shape so use the points from the drill to cut out the shape.
	Create the cutouts for the draw	Scroll saw	10 minutes	Use the drilling points as lines to follow the pencil sketch for the draw.
Basic finishes	Putting all the component together	Wood glue	30 minutes [gluing] 1 hour roughly [drying]	Use a mini ramps around the sides to keep it tightly closed.
	Sanding down the edges of the star and draw	Sanding paper	5 minutes	Get smoother edges so the draw fits in better.
Draw	2d design template of the draw and laser cut it	Computer Laser cutter	5 minutes for both	Take measurement for the draw to make them accurate as possible and keep the joints the same.
	Draw structure	Sanding machine	40 minutes	Sanding down all the sides of the draw before wood gluing - sanded down slowly so I don't sand off too much.
	Draw structure	Wood glue	5 [applying] 1 hour [drying]	Put it on the inside and don't do any excess glue on the side or it won't fit.
Additional features	Handle	2d design template ; laser cutter & wood glue	2d design template [5 minutes] laser cutter [5 minutes] Wood glue [applying - 5 minutes] [drying - 30 minutes]	Take measurements to get it to the right size.
	Acrylic star			
	Stand inside	Laser cutter		
	Star bag			
	Colour	Spray paint	2 hours [2 coats]	Make sure to wear a mask and also paint the draw as well so it fits well.

Evaluation of Page  
The star shape was hard to cut out when using the scroll saw so I learnt to start in the middle and create a square then work diagonally around the sharper edges. Should've spent less time making it perfect and gone over it in the finishes.

# Design & Technology - Grade 7

## Making Diary



Here is the 2D design model for the basic structure of my plant pot and to figure out the cutout needed for the curve of the product.

This is the process of making it on 2D design and mapping out each part before it goes to the laser cutter.

This is the final result in 2D design to create the basic structure of my product with the finger joints and the cutout sections for the curves.

This is the first prototype being laser cut so I can work out how well it works out if I'm happy with the size and the curve of the product so I can alter it after.

After seeing if everything with the prototype was good I laser cut the design out of MDF instead for my actual product.

Instead of laser cutting the star and section for the drawer I mapped out where I wanted it and seeing the size of it and altering before actually cutting it out.

This is my first prototype made from cardboard of my plant pot and has the star + draw cutouts on a smaller scale to use as an experiment of what I like

This is the mapping out for my actual plant pot on MDF which I scaled up because the MDF is larger than the cardboard and did it carefully so it wouldn't be too unequal

After mapping it out I made circles on both the draw + star to map out the sections where I'm going to put the drill.

Once I mapped out the positions I put it under the drill and lowered it so it would drill through the MDF. There is a piece of plastic in front of the drill for safety.

Once the product was done in each step under the can make of the star

After using the scroll saw I used sandpaper to sand down the edges to create a smoother finish and make it easier for the draw to fit in..

Here I'm putting the glue down around the joints of the base to stick the sides up by each half of the project and then held it tightly and then put the other half using the same process.

Evaluate A lot of how ever I need there an emphasis was so

Here the primer has been left to dry which can take up to an hour or so until I can continue and paint over it.

This is the board that separated the draw and the top of the base so I can put things inside without it falling. It's split in 2 to make it easier to fit and glue inside.

Here is the two components being spray painted with the first coat of white paint because that will suit my other features better than brown or black spray paint here some of the gray from the primer is still visible which will majority be covered with the second coat of white spray paint before making the star.

This is where I put the plastic transparent star onto in the front of the star cutout and sanded it down slightly so it would fit the cutout better before putting the superglue on some of the edges to quickly set it on top.

## Making Diary



This is the ramps around the product so it can hold what the glue dries so when it finished drying it won't fall apart and keeps it secure.

This is this is when I began to work on the draw and managed to get all the parts laser cutted it and used wood glue to make the sides and handle stick together.

Here the draw has been laser cut and using the laser and sanding down the sides I glow down each of the edges and put ramps around to keep it secure.

Here I am using primer onto the both components of the product so it can sit and make a smoother finish before putting the spray paint.

After putting down the primer I quickly and roughly sanded down the all the sides of the draw to get rid of any

Here the primer has been left to dry which can take up to an hour or so until I can continue and paint over it.

This is the board that separated the draw and the top of the base so I can put things inside without it falling. It's split in 2 to make it easier to fit and glue inside.

Here is the two components being spray painted with the first coat of white paint because that will suit my other features better than brown or black spray paint here some of the gray from the primer is still visible which will majority be covered with the second coat of white spray paint before making the star.

This is where I put the plastic transparent star onto in the front of the star cutout and sanded it down slightly so it would fit the cutout better before putting the superglue on some of the edges to quickly set it on top.

Where my mum would put it in the house:

## Final Prototype Photos



## Primary User Testing of Final Prototype

Primary user interview for the final result:

1. What did you like most about the plant pot?

My primary users favourite part about the plant pot was how well it was curved and the smooth surface of it because she liked how clean it made the product look as she doesn't like objects with sharp or rigid edges especially as a mother because that can be a safety concern for having children around the home so it would constantly have to be somewhere out of reach which also could make it less convenient for her.

2. What do you dislike about the product?

As much as my primary user liked the end result she could tell there there may be some rougher edge from dried glue or not fully executed areas around the product but overall she was happy with the end result because majority of it was a smooth base. She also wished the draw was made a bit more curved around the edges because the rest of the product was also curved so the edges stand out but it didn't bother her too much.

3. Does it match your expectations aesthetically?

Because I stuck with tones rather than having an overload of bright colours it easily does stick with her aesthetic in particular rooms as it easily fits with whites and blacks around the house that it can blend it amongst them.

4. If you were to change anything about my product what would it be?

As she mentioned before she would've preferred the draw to be more curved along with the handle because it would suit the other aspects of the product because it mainly curved but also the star she wished was a bit more well executed so it should've been sanded down better to create that smoother finish in the edges of it after I used the scroll saw.

5. Was the size to your liking or would you adjust that?

Even though I thought the size was too big she liked the size of it because a lot of her own decor it quite large so it would fit in but also because it means she has a lot more space for what she wants inside of the plant pot or she could use it for storage so the size for her uses is a reasonable size to her.

6. Is it safe for the people who surround you live with you?

Yes, the product isn't overly heavy to life or cause too much damage if it falls but it's also curved around the edges and has a smooth finish which means the corners won't be a hazard for children or people in general. The draw it quite secure as well inside the plant pot so it means that it won't fall off easily either and the overall build of it is tightly secure so nothing would fall off or small pieces that could break off and become a consumption problem for children.

Does it fulfil your desired purpose for it?

I didn't get onto doing the main part of the plant pot design which was the component inside the draw which would've bring the water up to the top. Although, due to the large amount of space in the product flowers or plants could still be placed in there and the draw can be where the soil is and you could open the draw to refill the water so in that aspect it can still be used for it's original purpose. However due to the shape of the plant pot it could also be used as a storage compartment for the home which was another one of my primary user problems so this plant pot can be used for multiple purposes.



Evaluation of Page The client interview was a good opportunity to hear about the changes or adjustments I could've made along the way for future reference if I were to rebuild and create another version of the product to fit my primary user needs better.



# Engineering - Distinction \*

## Project Brief

You are an industrial designer who works for a household furniture company. The company supplies office and home accessories.

The company has asked you to design and then produce a working scale model (1:1) of a tablet holder to attach to a desk or table.

The main purpose of the working scale model is for you to demonstrate how an actual tablet holder will work. Some measurements have not been specified. These are for you to determine based on how your tablet holder needs to function.

Your working scale model must show that the actual tablet holder will:

- be universally compatible with devices that have a screen size between 4.5 inches (114 mm) and 12.9 inches (328 mm), not including the bezel or surrounding border
- have pivot points which allow the tablet holder to move as needed to reach the most comfortable viewing position
- be capable of attaching to any horizontal surface, like a desk or table, that is up to 52 mm thick.

The company has supplied you with additional drawings.

Figure 1 and Figure 2 show examples of the main moving parts of a tablet holder.

Figure 3 is a sketch and is to help in the construction of your working scale model.

## Project instructions:

The company have asked you to present a full portfolio of evidence which is to include:

1. Materials research and materials selected
2. Hand-drafted engineering drawings
3. Engineering drawings using computer-aided design (CAD) software
4. Production plan
5. Manufacture of the working scale model
6. Evaluation of your final product.

Figure 1: pivot point and tablet clamp examples

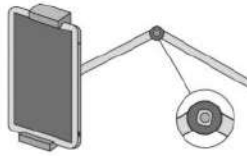
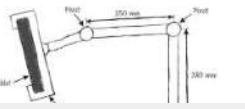


Figure 3: Internal sketch of a tablet holder



## Task 1: Research and selection of materials and tools / machinery

### General overview:

According to the provided brief and the free sketch provided, I can see that the proposed tablet holder is made up of multiple arms that can be adjusted at 2 pivot points to provide the best viewing angle for the user. It would be secured to the table with a clamp that would be lighter according to the thickness of the surface it would be attached to. At the other end, I would have to produce an adjustable holder for the phone that would securely hold the weight of the tablet or mobile device. The materials that I would consider using for this project would be metals, wood, or plastics (polymers). See below for details.

### 1. Metals:

In general, metals are good conductors of heat and electricity, and are malleable (they can be hammered into sheets) and ductile (they can be drawn into wire). As a material, the strength and toughness of metals make it a versatile and widely used material. Metals can be sorted into 2 main categories:

#### Ferrous Metals/Alloys

A ferrous alloy is a mixture of metals and will always contain iron, this usually gives the alloy magnetic properties. Ferrous metals are known for their high strength and durability. However, they are prone to rust if not properly treated and maintained. Ferrous metals are most often found as alloys because iron on its own has many negative properties, such as being brittle and vulnerable to corrosion when it is a pure metal. When combined with another metal to form an alloy, we can create a metal that overcomes the negative aspects of pure iron, whilst still retaining its good material properties.

- Ferrous metals tend to be quite dense and therefore heavier due to the presence of iron. This means that metal may not be suitable for large parts of the project such as the arms of the tablet holder due to the excessive weight that it would add, making it harder to adjust or manoeuvre. However, it could provide a solid, stable base through the clamp due to its high tensile strength and toughness. Therefore, I have decided to use a galvanized steel for the main component of the clamp that would be used to secure the stand to the table. Galvanizing is the process of applying a coating of zinc to steel to give it high corrosion resistance, producing a more long-lasting material. Galvanized steel is cheaper and easier to work with than other alternatives, making it a great choice for this project, retaining many of the positive properties of ferrous metals, without the issue of corrosion or having to apply a separate finish.

- Examples of other ferrous metals would be stainless steel, made up of iron, nickel, and chromium, creating a tough metal that is resistant to rust and corrosion. Stainless steel is incredibly versatile, meaning that it has applications that range from being used for cutlery to aircraft construction.

#### Sources (last accessed 15/10/2024):

- Metals and alloys - Material categories and properties - AQA - GCSE Design and Technology Revision - AQA - BBC Bitesize
- What Metals are Ferrous? (A Complete Guide) - TW
- Properties of Stainless Steel & Applications - thyssewup Materials (UK)
- What is the Difference Between Ferrous & Non-Ferrous Metals? SL Recycling
- What is Non-Ferrous Metal?

### 4. Tools and equipment

For this project, a range of tools would need to be considered and used for the different materials that I may use. Here are all of the tools that I propose to use during the manufacturing process:

#### Marking out tools:

**Scriber** - The sharp ends of this tool allow us to mark off materials such as metal or wood. This is particularly useful in cutting planning. This would make it useful in our project.

**Steel rule** - Used for measuring dimensions. They are important for ensuring that our finished documents match the measurements of the engineering drawings.

**Engineers square** - Used to check accuracy for 90-degree angles. This is particularly useful for ensuring that corner angles are accurate.

**Centre punch** - A tool that is used alongside a hammer to mark out the centre for drilling accurate holes. This was important to ensure that the holes drilled for the wing nuts in the joints between the arms were drilled properly.

**Marking gauge** - A tool used to accurately mark out clear lines on wood. Ensures that any mark lines are parallel to the surface that it is measured from.

#### Modifying tools:

**Files/Cutters** - Files and cutters are useful for trimming and adjusting metal. They may be useful to keep on hand.

**Coping saw** - Small saw that is used for cutting wood. Its lightweight and thin blade means that it is not suitable for cutting large pieces of wood. However, it is good for making precise cuts on smaller pieces of wood.

**Hammers** - Has a weighted end that can be used to drive down fasteners into materials; for example, driving nails into 2 pieces of wood.

**Hacksaw and Junior hacksaw** - These saws are used for cutting metals or plastics. The standard hacksaw may be too large for the proposed project. A junior hacksaw is much better for cutting in smaller or restricted areas.

**Ball sander** - Used for smoothing out rough surfaces, providing a smooth and level surface. Particularly useful as it can be used on both wood and metal.

**Cordless drill** - Battery-powered rather than being connected to the mains. Useful for drilling holes whilst not being restricted by a cable or anything that might get in the way of drilling out a hole.

**Pinch Drill** - Utilises a high powered motor to drill precise holes in a wide range of materials. It is a freestanding drill, that utilises a machine vice to secure the item I am working on.

**Latex cutter** - A tool that uses a high-power laser to etch and cut into flat surfaces. These are incredibly accurate and can be used on a range of materials.

### 1. Metals:

#### Non-Ferrous Metals/Alloys

Non-ferrous metals or alloys are metals that are not iron-based like their ferrous counterparts. Common non-ferrous metals include copper, aluminium and lead. They are less dense and therefore lighter than their ferrous counterparts due to their lack of iron. This also makes them softer and more malleable which can be good or bad depending on the context. They are highly resistant to corrosion and also have the same electrical and thermal conductivity properties as ferrous metals or alloys.

- Due to the fact that they are not magnetic, this makes non-ferrous metals particularly useful for a project involving electronics. Therefore, a non-ferrous metal would be suitable for our project. Although they tend to be more expensive than ferrous metals, they are much lighter and easy to work with, making them a good option for the project.

- A good example of a material that I would use in this project would be copper. Copper is a light and easy to work with material due to its malleability and ductility, which is particularly useful in the joining of components. As it is a non-ferrous metal, it has high corrosion resistance and is also strong and incredibly tough, with copper often being used for things like plumbing where failure could be catastrophic. For the proposed project, I would use copper pipe for the arms as it would be much lighter, allowing for better maneuverability which is important for the moving elements of the tablet holder.

#### Sources (last accessed 17/10/2024):

- What Metals are Non-Ferrous? (A Complete Guide) - TW
- What is the Difference Between Ferrous & Non-Ferrous Metals? SL Recycling
- What is Non-Ferrous Metal?
- Non-Ferrous Metals: History, Types, Properties, Applications and Environmental Impact
- Ferrous and Non-Ferrous Metals | Examples & List of Metals | Fractory
- https://www.copper.org/resources/properties/144\_8/
- https://www.norecambmetals.co.uk/what-are-the-properties-of-copper/
- https://www.esc.com/materials/copper-metal/

### 2. Wood:

Wood has many highly desirable properties such as great tensile strength that make it ideal for this project as it can support large loads. It is a good insulator of heat, sound and electricity. Timbers are relatively easily sourced. As a material, the properties of timbers make it a versatile and widely used material as it can be easily cut and drilled into. Timbers can be sorted into 3 main categories:

#### Hardwood

Hardwood comes from deciduous trees that lose their leaves annually, meaning these trees grow much slower, therefore making hardwood far more expensive. They tend to be incredibly durable because of their slower growth, increasing the density of the wood, it also gives better aesthetic qualities due to the unique colours and grains. Because hardwoods will last longer than softwoods, they're suitable for a large range of applications.

- For our project, hardwoods would be a good option for the arms or base of the tablet holder, due to their durability and ability to support large loads. Although hardwoods tend to be more expensive, a more affordable option such as beech would provide the desirable properties of a hardwood at a more affordable price. Beech has high resistance to compression and tends to be easy to work with. However, it does have a tendency to warp in humid conditions but this can be prevented using the correct finishes. I have decided not to use hardwoods for this project because they tend to be more difficult to work with and the high cost of hardwood.

#### Sources (last accessed 17/10/2024):

- The Advantages of Wood in a Building Material | Wagner Metals
- https://www.wagnermetals.com/wood-as-a-building-material-what-the-difference.html
- Woods - Practical guide: Materials - National 5 Design and manufacture Revision - BBC Bitesize
- A benefits of hardwood | International Timber
- Hardwood vs Softwood: What's The Difference? | Modesty
- Beech - English Timber
- Beech Wood: Properties, Characteristics and Uses

## Task 1: Research and selection of materials and tools / machinery

### 2. Wood:

#### Softwood

Softwood comes from conifers which usually remain evergreen, meaning they grow faster. This makes the wood much cheaper. Its growth speed means the wood is less dense, meaning softwoods are much lighter than hardwoods and easier to work with. Additionally, softwood has a higher resin content, which gives it a natural resistance to rot and decay. The easy availability of softwoods means that they tend to be used to make less expensive projects which may be helpful for this task.

- For this project, the use of softwood would be preferable due to its more affordable price point as well as its ease of working with. For example, pine would make a good material for this project due to its affordability and stiffness. Unlike hardwood, it does not warp due to humidity, meaning it does not require expensive finishes. Therefore, I have decided to use pine as part of this project for the base part of the stand.

#### Sources (last accessed 17/10/2024):

- Pine vs Oak as Joinery - What's Worth It Better? | LegoArt & Engine
- Advantages and Disadvantages of Fine Wood for Conservatories - Changanex Ltd
- Hardwood vs Softwood: What's the Difference? | Modesty
- Woods - Practical guide: Materials - National 5 Design and manufacture Revision - BBC Bitesize
- Hardwood vs Softwood: What's the Difference? | Modesty
- Properties of softwood - Swedish Wood
- Hardwood vs Softwood - how to choose the right timber - Accoya Blog
- What is Softwood? Characteristics and Examples - Civil Engineering

#### Manufactured board:

Manufactured board: Manufactured boards or woods are made by binding together boards, strands or particles of wood using adhesives. Manufactured boards often use waste materials and turn them into usable materials. They can be stronger than normal wood but are lighter and cheaper. They are a more sustainable material than normal wood. However, many manufactured boards are often less durable, with their often weakening over time. They are made as a composite material, manufactured boards tend to be more vulnerable to wear and tear such as chipping or scratching. Therefore it should not be considered for this project.

#### Sources (last accessed 17/10/2024):

- Manufactured Board - DT Online
- Engineered Wood Products (factsheet)
- Woods - Practical guide: Materials - National 5 Design and manufacture Revision - BBC Bitesize
- Stage 6 Timber - 6. Manufactured boards, their manufacture, properties and use

### 3. Polymers / Plastics:

Polymers (better known as plastics) is an oil-based synthetic material. Plastics are often used as they are lightweight, cheap, water resistant and thermally and electrically insulating. Plastics are available in many different colours and are easy to work with, making them a viable option for parts of this project. However, polymers are often not biodegradable, meaning they hurt the environment.

- For this project, I will be using acrylic for the tablet/phone holder component of the project. Acrylic is strong, stiff, resistant to wear and tear whilst being a lightweight material. It is easy to work with, being easily thermoformed and cut into many different shapes. Acrylic is also cheap and widely available, making it suitable for our project.

#### Sources:

- The Properties of Plastic - Osborne Industries
- Polymers: A Look at Its Structure, Uses, Properties, Types, & Uses
- How is Plastic Made? A Simple, Step-by-Step Explanation
- Acrylic: A Classic & Common Plastic & How Acrylic Material Properties
- The Most Common Uses of Acrylic Plastic | Milliprint Alliance
- Expert Guide: How to Cut Acrylic Properly | CutPlasticShedding
- Acrylic advantages and disadvantages that you need to know

## Task 1: Research and selection of materials and tools / machinery

### 4. Tools and equipment

#### Fixing tools/components:

**Screwdriver** - A tool that is used to secure screws. There are 4 main types of screwdrivers and screws: slotted, Phillips, Pozidriv and TORX.

**Spanner** - A tool used to tighten or loosen nuts and bolts. These come in a range of sizes, it is important to select the correct size for it to be able to bite the nut or bolt.

**Nails** - Nails are used to fasten pieces of wood together. A nail is usually driven into the surface by using a hammer.

**Nuts and bolts** - Nuts and bolts are used to fasten multiple parts together. They are kept together by their threads.

**Screws** - Screws help to hold things together, such as pieces of wood or metal. Compared to ordinary nails, screws provide more strength due to their thread. They can be secured using a cordless drill or screwdriver.

### Final Thoughts and Evaluation:

Overall, important factors to consider throughout the manufacturing process would be properties that benefit the overall function of the tablet holder. Things I would prioritise would be: maneuverability of the arms of the holder, a strong stable base, a light and adjustable component for holding the electronic device.

- From my selections in materials, I believe that I have created a product that satisfies these requirements. Although this should be a working scale model, I believe that better materials could have been picked for certain components. For example, the pine block that would be used to join the copper pipe with the clamp is not the best way that I could join these components together. Perhaps the copper pipe could be substituted for steel, allowing us the week the clamp to the arms. However, being restricted to the resources I have available, my selections in materials are likely best as I am restricted in both time, equipment and resources.

### Phone and Tablet Dimensions:

From the provided project brief, the tablet holder must be universally compatible with devices that have a screen size between 4.5 inches (114 mm) and 12.9 inches (328 mm), not including the bezel or surrounding border".

- Apple and Samsung are the leading producers of tablets and smartphones, so it would be sensible to base the dimensions of our tablet holders on their devices.
- The largest device available on the market at the moment is the iPad Pro, with a 13-inch screen size.
- It has a width of 8.48 inches, meaning that our tablet holder must accommodate this 8.48 inches as a maximum to hold this device landscape.
- The average smartphone has a height of 6.3 to 6.5 inches, meaning that it should be used portrait in this tablet holder.

#### Sources (last accessed 07/10/2024):

- https://www.apple.com/uk/learn/size/specs/
- What size smartphone do I need? - GoodieLife
- Top 10 phone manufacturers

# Engineering - Distinction \*

## Task 2: Hand-Drafted engineering drawings

### BS 8888:

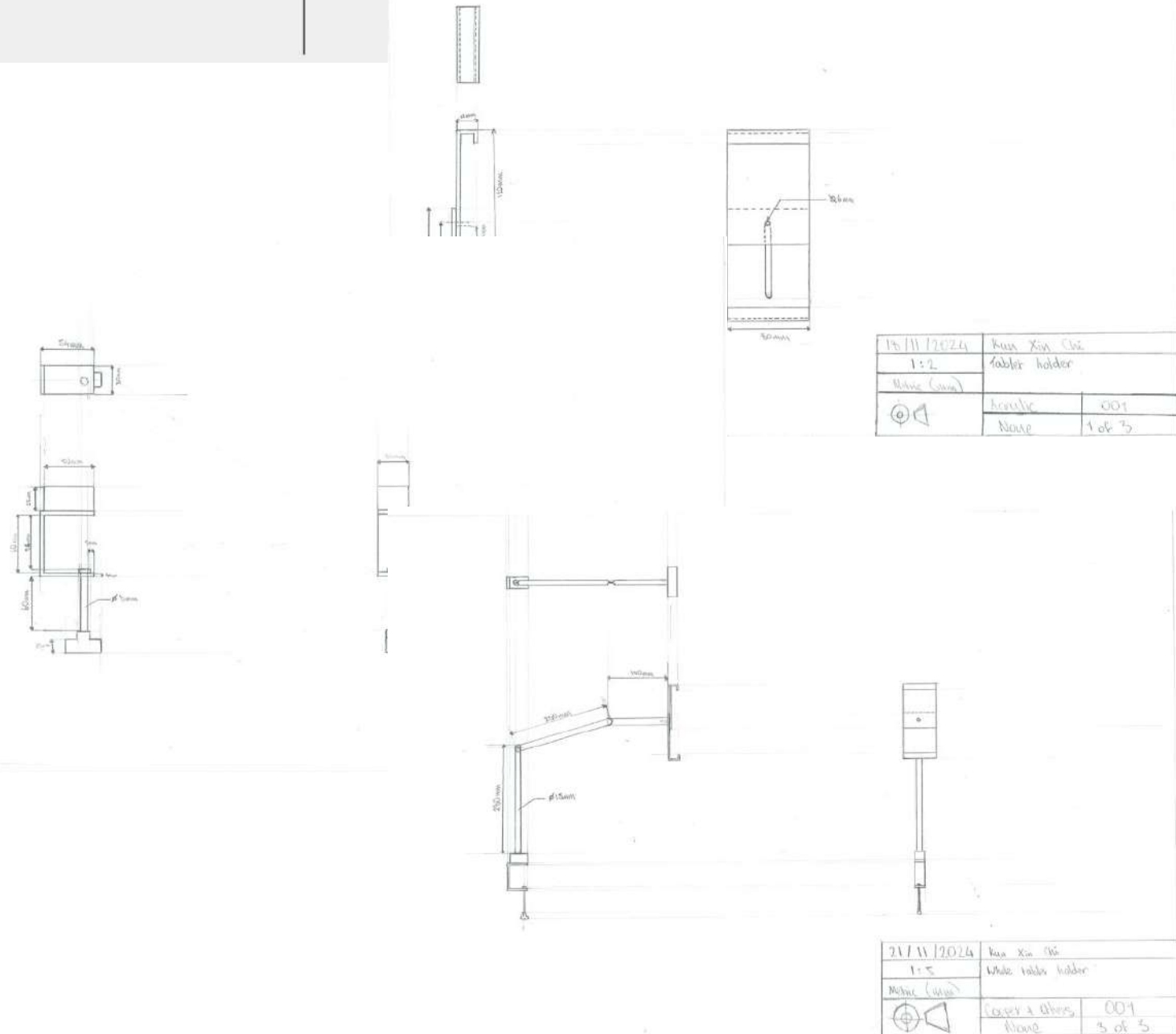
BS 8888 is employed by the British Standards Institute which standardised the framework and components of engineering drawings that engineers should follow in the UK. BS 8888 covers all aspects of technical product documentation and drawings including. Some of the key components of any BS 8888 compliant drawings are:

- **Title block:** The title block should include essential information such as the creator's name, document number and revision, scale and projection and date. They should also always be in the bottom right corner.
- **Scale:** Every technical drawing is drawn in an accurate proportion to how it would appear in real life. This is known as scale and will always be given in a ratio format of drawing size to actual size. For example, a ratio of 1:2 would mean that the drawing is at half the scale that it would be in reality.
- **Line types:** The varying types of lines in all technical drawings are standardised under BS 8888, allowing for continuity between those who are required to interpret and understand these drawings. For example, there are different types of lines when it comes to visible and hidden lines.
- **Tolerances:** A tolerance provides the allowed amount of variation in the dimensions of the finished product. This ensures that parts fit accurately together once manufactured.
- **Projection:** All BS 8888 drawings use both the third angle and first angle orthographic projectors as well as isometric drawings.

The use of BS 8888 is essential in industry as it provides a clear standard for all to follow, allowing for clarity and consistency for engineers and manufacturers. This makes it the generally accepted standard across the industry, with all those who work in the engineering sector following this standard.

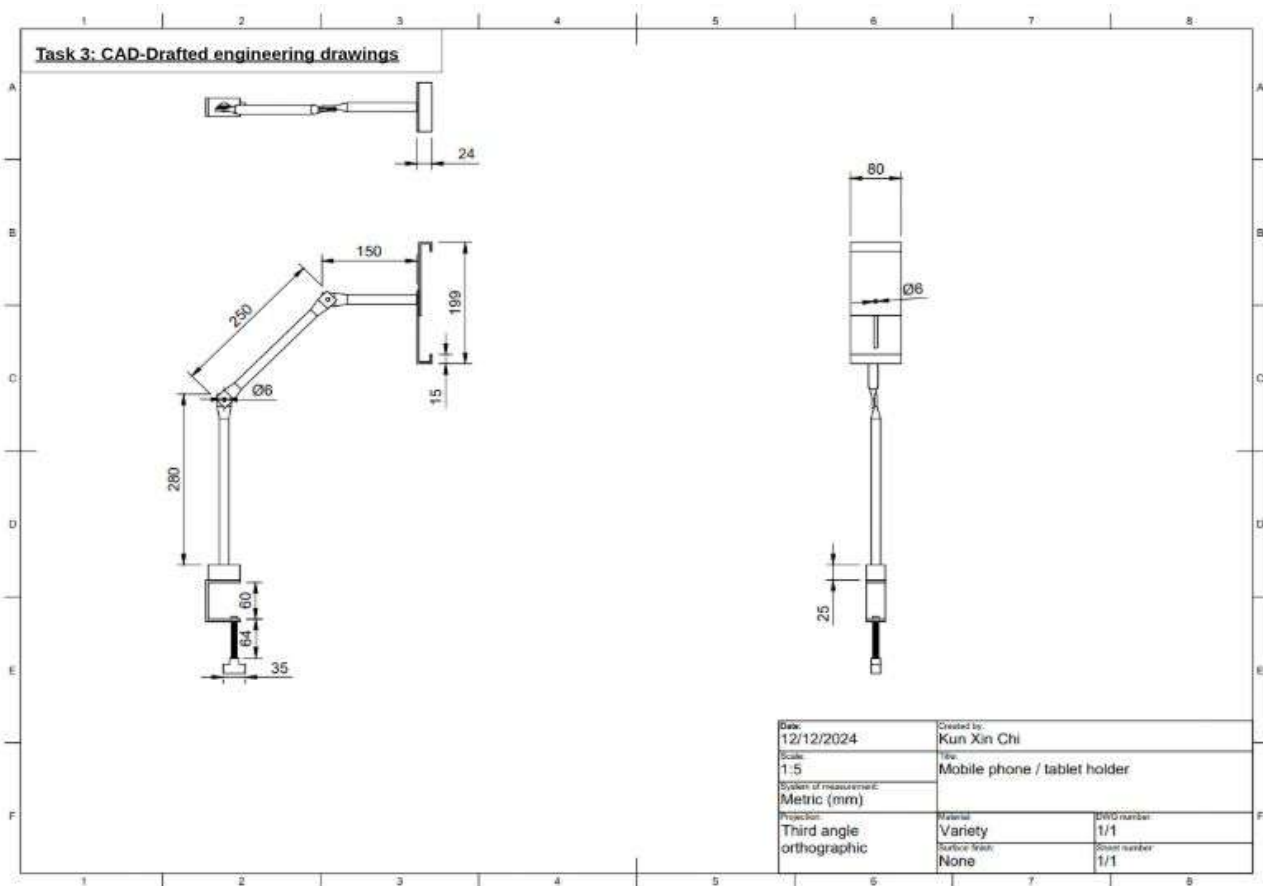
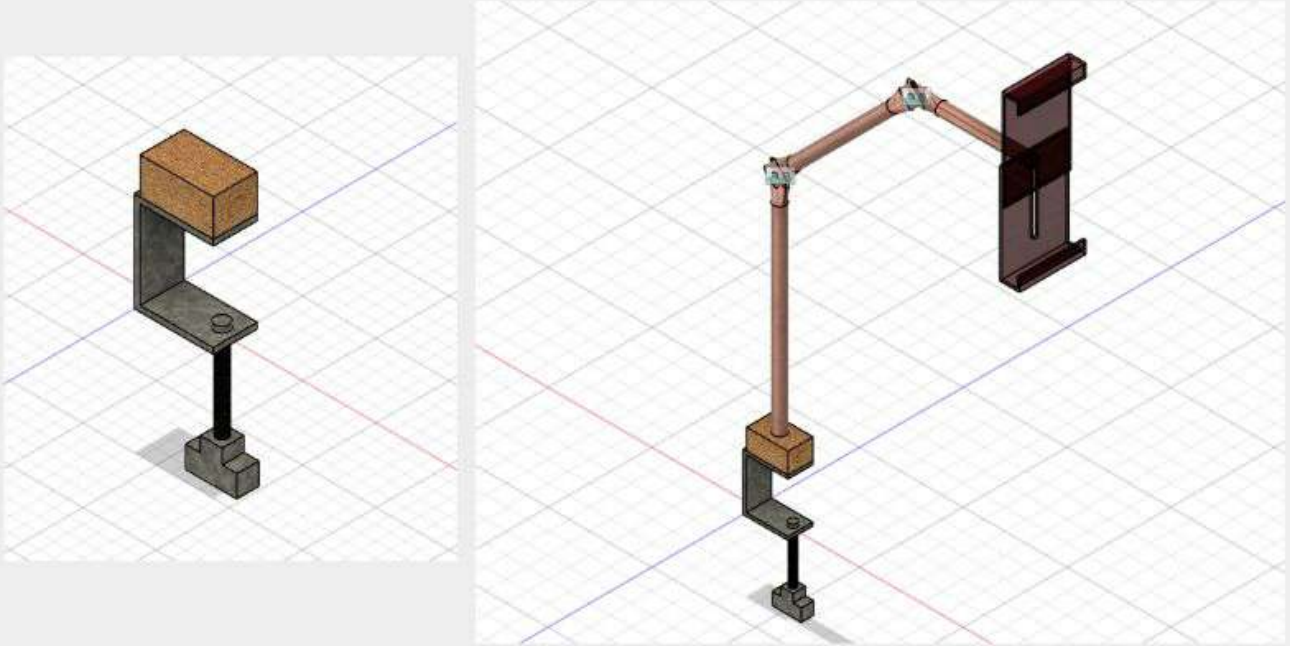
No matter which projection is used, each view should be in line with the other two views by using projection lines that helps to keep the dimensions accurate and the positions of view correctly aligned.

## Task 2: Hand-Drafted engineering drawings



# Engineering - Distinction \*

Task 3: CAD-Drafted engineering drawings



# Engineering - Distinction \*

## Task 4: Production plan

### Step 1: Measuring and marking out [20 minutes]

To ensure accuracy, I will need to have my CAD drawings and hand-drafted drawings to hand to ensure that all my planned dimensions are used correctly. This will prevent inconsistencies between what I have planned with the finished product. As well as this, I would ensure that the table holder works as intended by making sure all components are within reasonable tolerances. In terms of equipment that I will require, I will be using a steel rule and a pencil or metal scriber for marking out. Using these tools will ensure that I am able to correctly follow my engineering drawings. I have taken care to allow sufficient time to correctly measure and mark out as well as double checking my measurements.

### Step 2: Cutting out the three arms (copper) [15 minutes]

Once the lengths of my components have been measured out, I will then cut out the marked lengths of copper pipe for the arms of my table holder. I have decided that I will use a hacksaw because of its high number of teeth per inch which allow for a cleaner, more accurate cut. It is important to cut on the wayide to ensure that the pipe is not kinked. If the length is too long, I can correct this. When using the hacksaw, it is important to use the correct PPS, as well as making sure that the pipe being cut is secured in the vice, using the full length of the blade.

### Step 3: Cutting out components for the clamp [20 minutes]

After this, I will need to cut the lengths of my mild steel block, galvanised steel strap and threaded bar. I will continue to use the hacksaw. The threaded bar is circular, with a thread which may make it difficult to cut. Therefore, to ensure that cut the steel bar accurately, I will secure two bolts either side of the parts I have marked, leaving enough width for the saw. This will help guide my cut and ensure accuracy.

### Step 4: Hammer and bend steel strap [15 minutes]

Once all of my components have been cut out, I will then bend my galvanised steel strap at 2 points that I have planned to create the base of my clamp in accordance with my drawing. I will secure the strap into a metal vice at the point I want to bend the strap. I will use a ball peen hammer which is specifically designed to shape metal. I will hammer the strap down, over the vice until it forms a right angle, repeating this for the second point. Before I start, I would inspect the face of the hammer, ensuring that it is not loose or damaged. Strike parallel to the surface squarely to ensure effective use. I will need to wear safety goggles to protect my eyes from any debris.

### Step 5: Drill hole into mild steel bar [15 minutes]

To allow my clamp to be adjustable, I will need to drill a hole into the mild steel bar to secure the steel bar into. Before drilling, I will mark out where I will be drilling using a hammer and a centre punch. This will be important to provide a visual indication of where the drill bit should be placed as well as stopping it from slipping allowing it to bite more easily. I will then use a pilot drill to drill a 7mm hole, halfway down the bar because of its accuracy and higher power than other drills. As well as this, I have a depth stop to make sure that the hole stops at halfway before drilling. I must ensure that the bar is secured into the machine vice and the depth stop is properly set. I will wear safety glasses and an apron, making sure that nobody is within the exclusion zone before operating the drill.

### Step 6: Drill hole into galvanised steel strap [10 minutes]

After this, I will repeat the process for the steel strap, marking out using a ball peen hammer and centre punch. Observing all health and safety, but this time, drilling at the way through the bar with the table drill.

### Step 7: Cut screw thread into mild steel and galvanised steel strap [15 minutes]

Once these holes have been drilled, I will use a tap and die set to cut firm screw thread into the holes that I have drilled into the steel strap and the mild steel block. This will enable me to fix my threaded steel bar into the mild steel block and allow it to screw into the steel strap. I will ensure that I take my time clearing out any debris as I cut deeper into the components to ensure a high quality thread that works seamlessly.

### Step 8: Fix the threaded bar into the mild steel block [10 minutes]

To fix the threaded bar into the mild steel block, I will use an epoxy resin. First, I will use a small amount of resin, pouring it into the hole that I have drilled into the mild steel. I will then screw in the threaded bar until it is tight and let it set. I will make sure to wear gloves to protect my hands from any excess resin.

### Step 9: Flatten ends of copper pipe [15 minutes]

Before I flatten the pipe, I must ensure that I have marked the pipe in the places up to where I want the pipe flattened. I will use a metalwork vice, placing in the pipe and slowly tightening the vice until it is to the desired thickness. For the centre pipe, before I tighten the vice, I will ensure that the two sides are aligned properly. It is important to take my time in order to ensure that the pipe does not get damaged.

### Step 10: Drill holes into copper pipe [30 minutes]

To allow the arms to be connected, I will drill firm holes into the flattened sections of the copper pipe for me to secure my wingnuts and socket screws. For this, I will be using a cordless drill with a 6mm bit. To observe health and safety, I will wear safety goggles to protect me from any debris that may be thrown up. I will use a ball peen hammer and centre punch to mark the centre of my hole to allow the drill to bite the metal. Once the pipe is marked and properly secured in a metal vice, I will drill my hole, controlling it with two hands to ensure an accurate hole.

### Step 11: Cut out a channel into the beech [20 minutes]

To allow for a flattened portion of the pipe to fit into and crowded to the beech block, I will need to cut out a channel into the beech. Before I start, I will mark out the portion that I want to cut out using a marker. I will drill a series of 4mm holes along the length of this line. After, I will use a chisel to clean it out and allow for a slot for the pipe. Again, it is important to take my time, especially with the beech which may split if cut under too much pressure, therefore I have allowed more time for this step. I must wear safety goggles to protect myself from any debris that may be thrown up.

### Step 12: Secure beech block to copper pipe [15 minutes]

To secure the two components together, I will use a firm bolt. Before I drill my hole, I will place the flattened end into the slot in the beech block. I will then drill my 6mm hole using a cordless drill, making sure to go through the beech and the copper pipe. Then I will secure the firm nut and hex nut.

### Step 13: Secure beech block to the steel strap [15 minutes]

To secure the beech block to the steel strap, I will make use of the pre-existing holes in the steel strap. I will align the beech to the strap in the way I want it to be secured and mark where I want to drill my holes. Using a cordless drill, I will drill two 4mm holes where I have marked, using both hands to ensure that I go through whole block and the drill bit remains aligned. I will then use x2 4mm countersink machine screws and nuts to secure the strap to the block through the holes.

### Step 14: Insert cross dowel into the end portion of pipe [20 minutes]

To allow the acrylic phone holder to fit to the end of the strap, I will insert a cross dowel into the end portion of the pipe. Before I start, I must ensure that the bar is secured into the vice. I will then use a ball peen hammer, tapping lightly to gently force the dowel into the end of the pipe. It is important that I take my time in order not to damage or split the pipe. For this step, I have set more time to allow me to not have to rush and ensure that the dowel is secure properly without damaging the pipe.

### Step 15: Assemble components [30 minutes]

**Stage 1:** To allow the copper pipe to rotate at the joints, I can use a junior hacksaw to trim the corners of the ends of the flattened pipe. I can then use a file to round off the ends. I will make sure that before I start, I will properly secure my work in the vice and when cutting, I will make sure to have a strong grip and have good control over the saw. It may be necessary to wear safety goggles while using my hand file in order to protect my eyes from any dust or debris.  
**Stage 2:** After I will attach this middle portion of copper pipe to the copper pipe that is attached to the beech and steel strap. Using the holes that I have drilled, I will use wing nuts and shakedown washers in order to fit them together.  
**Stage 3:** Next, I will repeat the process, connecting the shortest pipe as the end to the middle portion of the pipe. The shakedown washers ensure that the wingnuts do not loosen while the stand is in use.  
**Stage 4:** Finally, screw in the threaded bar into the firm hole that has been drilled into the bottom of the steel strap. Then, fit a large nut the end of the threaded bar using epoxy resin. Only a small amount will be needed. Again, it would be best for me to wear gloves to protect my skin from irritation if my hands come into contact with the resin.

### Step 16: Create 2D CAD drawing of acrylic phone holder [10 minutes]

To cut out the acrylic holder, we need to create a 2D drawing that can be sent to the laser cutter to cut out. Using my previously made hand drawings and CAD drawings, I will produce the drawing to my planned dimensions.

### Step 17: Laser cut the holder [5 minutes]

Before cutting out my work, I must ensure that the laser cutter is properly set up and calibrated to cut my 3mm-thick acrylic sheet.

### Step 18: Line bend acrylic into shape [20 minutes]

Because acrylic is a thermoplastic, it can be bent and shaped when heated up. Therefore, I will make use of a strip heater to heat up my acrylic at the point I have planned and then bend the joint at 90 degrees using an adjustable jig until it is cool, then checking with a set square. Goggles and heat-resistant gauntlets are especially important, and I must make sure that the plastic is cool before handling. Gauntlets are better suited as they offer more protection, covering the wrists and forearms. Before I begin, I will make sure that my markings have been made in the correct positions.

### Step 19: Attach the acrylic phone holder to the copper arm [5 minutes]

Using a firm machine screw, I will secure the holder in place into the cross dowel that I would have already fixed into the end of the copper pipe.

### Contingency [40 minutes]

Having this in the plan means that if anything unexpected happens I have some time available to fix it and it will be within the maximum amount of time.

### Health and safety:

Throughout the production process, it is important for me to observe the correct health and safety measures to keep myself and those around me safe.

As a general rule, when operating machinery such as a pillar drill, I must ensure that I wear safety goggles to protect myself from any debris and that I am the only one within the exclusion zone when operating the drill. When in the workshop, I must use closed toe shoes and wear an apron.

When cutting anything with a saw, I must firmly clamp the workpiece in the vice. It is also important to keep myself and those around me safe. If I trip myself or have an accident, it is important me to report this in accordance with the Control of Substances Hazardous to Health (COSHH). This will ensure that these risks can be mitigated in future.

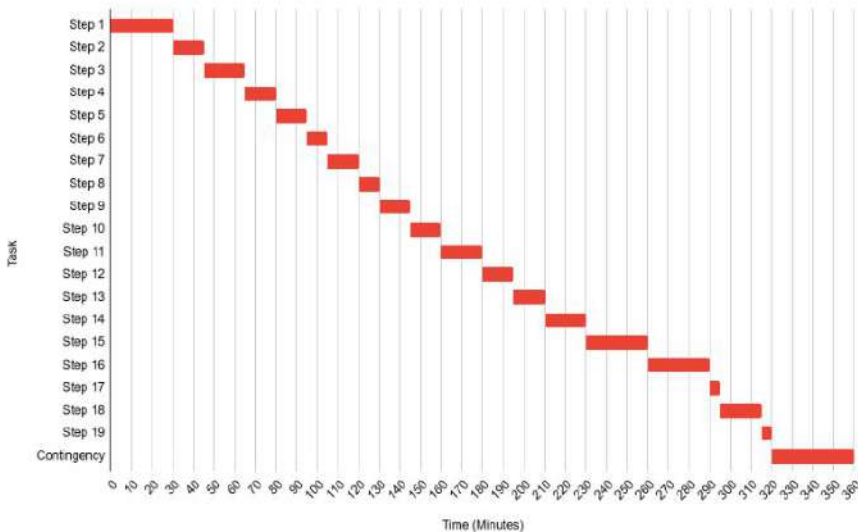
When cutting anything with a saw, I must firmly clamp the workpiece in the vice. It is also important to keep myself and those around me safe. If I trip myself or have an accident, it is important me to report this in accordance with the Control of Substances Hazardous to Health (COSHH). This will ensure that these risks can be mitigated in future.

### Quality Control Measures:

To ensure that the final product is to the standard required, I will implement quality control measures at each stage of the manufacturing process where applicable.

- Before making any cuts, it is important to make sure that all of my markings are to the correct dimensions and within an acceptable tolerance. It is always better to cut on the way-side as I can correct this later on.
- When selecting equipment, I will ensure that they are well maintained and are functioning correctly. For saws, I will make sure that they aren't missing any teeth and are tensioned properly to make sure I get the cleanest cut. For drills, it is important to make sure that the bits are fully dull.
- Before drilling any holes, I must double check the size of the drill bit to make sure that I don't choose the wrong sized bit as I will be using a range of differently sized bits and screws.
- When joining the arms, I will test the joint points to ensure that they rotate correctly. As well as this, during the testing stage, I will place a weight in the holder to make sure that I can properly bear the weight of a phone or tablet.
- When line bending, it is important for me to place the acrylic over the wire of the point I want to bend it at. I can then use a former or jig to ensure that the acrylic bends at 90-degree angles, then using an engineers square to confirm.

## Production Plan

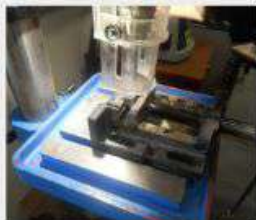


# Engineering - Distinction \*

## Task 5: Manufacture of the working scale model

### Ensuring accuracy when cutting:

- In order to ensure that I made the most accurate product within all of my planned tolerances, I had to implement multiple quality control measures and solutions to any difficulties that arose.
- For example, when cutting my threaded bar, I realise that the thread would potentially shift the position of my saw and affect the accuracy of my cut. To solve this, I used two nuts either side of my marking to help guide the saw.
- Whilst cutting, I made sure to always cut on the wayside of my marking. This means that I can easily correct excess.
- When making any cuts, I always made sure that my work was properly secured within the metalwork vice. By securely holding my workpieces, the vice ensured accurate alignment.
- Before cutting, I always inspected the blade, making sure that it was properly tensioned and not cracked or missing any teeth.



### Marking out and drilling holes:

- When drilling all of my holes, it was important for me to mark out the locations of my holes with a ball peen hammer and a cerise punch to allow the drill bit to bite.
- Before I drilled, I always checked that the drill bit was correct and not dull or blunt to ensure that my holes were drilled correctly.
- When I worked on the pillar drill, I always took my time in adjusting the position of my vice to ensure that it didn't move around.



### Cutting thread into holes:

- Ensuring an accurate screw thread was especially important to ensure all of the components of my clamp interact properly.
- To make cutting the thread easier, I used a cutting compound as a lubricant.
- When using my tap and die kit, I made sure to take my time, only cutting out small parts of the thread at a time, going backwards to remove excess material that may have gathered at the bottom of the hole.

### Line bending acrylic

- To ensure the correct functioning of the phone holder and that any devices held inside the holder would not be loose or fall, it was essential that the acrylic components were bent to 90 degree angles at the correct points that I had planned.
- Therefore, it was essential that I properly marked out my lines and also used the guides at the sides of the line bender.
- Before bending, it was necessary to let the acrylic reach the necessary temperature in order to bend it easily, if not, it may have snapped under the force of me attempting to bend it.
- Acrylic exhibits plastic memory and would attempt to return to its original position during the bending process, therefore, I used a former to hold the acrylic at a 90 degree angle.



### Testing of final product:

To ensure functionality and that my finished product met the requirements of the brief, I performed several tests as described below:

- 1) The first test that I undertook was a test of each of the pivot points. This was important as the user of the holder should be able to adjust the position to their liking. Each of the pivot points moved well and stayed in place when tightened. Therefore, the pivot point functioned properly and meet the requirements of the brief.
- 2) After this, I tested the functionality of the clamp adjustable clamp. This was important because the user should be able to use the holder on a variety of table thicknesses as specified by the brief. The clamp functioned well, being able to hold the weight of itself and any devices placed in it (during later tests) without moving around, tipping over or becoming loose. However, I do feel that the use of a long threaded bar could potentially get in the way of the user and is not very coherent to use. As well as this, I feel that the clamp could potentially damage tables if the user is not careful and tightens the clamp too far. Regardless, the clamp functions as intended.
- 3) Then, I tested if the holder could hold different devices, checking whether the adjustable acrylic component functioned correctly as well as the whole holder's ability to take the weight of a device. The acrylic had a depth that was suitable for a range of devices and I found that both the tablet and the mobile phone that I used fit snugly and were very secure. The arms of the holder did not buckle or loosen under the weight and overall I feel that the holder performed well and as intended. However, I did note that the holder may be difficult to adjust, as a screwdriver would have to be used every time a user wanted to re-adjust the acrylic component and despite my use of wingnuts, an allen key was still required to fully tighten the joints of the copper pipe.
- 4) Finally, I considered the aesthetics of the holder and whether it would make for a good office/home accessory. Although I wasn't happy with the final appearance of my prototype, it did not affect the function of the holder so for a first working scale model the product was satisfactory.



## Final Prototype



# Engineering - Distinction \*

## Task 6: Summative evaluation

Having completed the whole manufacturing and testing process, I will look back and review ways that I could improve the design of the product if I was not restricted by time or availability of materials and other resources.

### Functionality evaluation and potential improvements

- The phone/tablet holder is required to be adjustable and had several pivot points that made this possible and I had to implement this into my design. During tests, the holder performed well under weight and held their position. However, despite the use of snakeproof washers and wingnuts, it was still difficult for me to tighten the joints properly and I had to use an allen key when doing so. Obviously, this would be incredibly inconvenient to a user. Perhaps, I could replace these with thumb screws that are easier to operate by hand.
- Also, I found that although the holder could easily be adjusted to the desired height and angle, there was no way to rotate the holder. This could be solved by allowing the pipe that was connected to the base to rotate. The solution I would recommend would be to use ball and socket joints as the pivot points. This would allow for a far wider range of adjustability and motion, allowing the user to be able to adjust the holder with far more ease than the current design.
- With the arms, I noticed that in some cases, the arms may actually be too long and be a hindrance and it may be worth making them adjustable. Perhaps some sort of telescoping that allows the user to adjust the length of these to their liking may be useful.
- Although making the arms out of copper pipe may have been suitable for a prototype and functioned well, I don't feel like this would be a suitable material from which to produce a finished product as I doubt it would function effectively for the long term. It is simply too soft and although it made it easy to work with, customers would want a long lasting product.
- As for the clamp, I would shorten the length of the clamp so it wouldn't get in the way as well as increasing the surface area of the point that the adjustable part makes contact with the table to reduce the risk of it going through or damaging the table. Also, I found that the mild steel bar was difficult to use and so I would replace it with a more ergonomic plastic knobthreaded handwheel.
- Finally, although I felt the acrylic component worked well and served its purpose, having the adjustable screw behind the device made it hard to adjust, and it required a screwdriver which may frustrate a customer. Also, it had a tendency to fall down and become misaligned when the screw was loose, with the two pieces not staying in position. To resolve these two issues, I would move the means of tightening the holder to somewhere accessible, for example, the bottom or top, and also add rails that held the two pieces together, ensuring that they both stay aligned whilst making it easier to adjust.

### Suitability evaluation and potential improvements

- I feel that the prototype is a close match to the provided drawings and is therefore likely to function well in accordance with the requirements of brief. The holder itself is quite portable and can be moved from place to place and secured to a range of different desk types.
- The clamp of the phone holder means that it can easily be moved and transported from desk to desk which is important in any office environment. As well as this, my choice of materials made the stand very lightweight and portable.
- One point I would like to improve on is the overall finish of the final product. For example, I am not quite happy with the way that I rounded off the edges of the copper pipe. I probably should have flattened my ends further to allow greater room for rotation of the copper pipe. I have noticed that it can scratch and rub against the other pipe during rotation.
- For the phone holder to be suitable for home or office use, I feel that I would need to improve the appearance of the clamp and arms. For example, using wood instead of the copper pipe for the arms may be a good replacement as wood can be more aesthetically pleasing when properly finished. Copper is also a very soft metal and surface scratches are very easily made and difficult to remove.
- Having done testing with multiple devices of a different size, I can conclude that the prototype is able to take the weight of a device and stay stable. However, I did notice that it was difficult to adjust at times and this would definitely need to be improved for this product to be suitable for consumers.

### Manufacturing evaluation and possible improvements:

- I feel that I successfully followed the allotted time processes well and was able to complete all tasks on time without need to use my contingency time.
- My finished product closely resembles my CAD model and hand drawn drawings. The planned dimensions made the manufacturing process much simpler as I had a reference for all of my dimensions. This allowed me to mark everything out at the very beginning, reducing the chance of any mistakes or the phone holder not working as intended.
- In terms of tools, I feel that all of my choices were suitable for the task, however, if I was to make it again, I would use more power tools if available for a more accurate and precise cut. With hand tools, there was more room for human error and therefore, I would have preferred to use a bandsaw with a metal blade, a powered hacksaw, or even a plasma cutter.

# Food and Cookery - Distinction \*

## Task 1 - Amending a recipe

Dish name: Pasta and mega meatballs in a sweet and spicy sauce. 2 hours		
<b>Ingredients</b> <b>Meatballs</b> 400g beef steak mince pinch of mixed herbs seasoning, salt and pepper 1 egg 150g mozzarella  <b>pasta</b> 400g of dry pasta, linguine  <b>garnishing</b> fresh parsley 50g of low fat cheddar cheese finely chopped chillies		<b>Sauce</b> handful of fresh cauliflower ½ of fresh bell pepper 1 canned baby carrots ½ red onion handful of fresh spinach  <b>frylight</b> 1 can of chopped tomatoes 3 tsp of garlic puree 1 ½ tsp of ginger puree 2 ½ tsp honey 2 chopped fresh chilli 160ml of vegetable stock.
<b>Equipment</b> saucepan frying pan -2 mixing bowls Cup cutlery, spoon and knife spatula strainer chopping board -paring knife scale blender/food processor grater plate jug		<b>Special considerations</b> <b>Health and safety</b>  <b>Safety hazards</b> Surroundings must be organised to make sure you don't trip or fall as it can be fatal. Tie away loose clothing so it does not get caught, ensuring your personal safety.  <b>Biological contaminants</b> To be hygienic, wipe, wash with soapy water and remove all microorganisms to minimise the risk of cross contamination and bacterial diseases.  <b>Dietary amendments</b> Lean beef mince contains a decreased amount of saturated fats which still has its benefits of the protein amounting to all essential amino acids as a high biological source (red meats). Therefore it regenerates the adolescents energy levels and minimises the chances of muscle deficiencies while being satisfactory and fulfilling.  <b>Mozzarella and Cheddar</b> are a dairy in the Eat Well Guide which contains micronutrients such as calcium being a mineral. It works closely alongside vitamin D, to maintain strong bones and healthy teeth. Low fat cheddar contains a small amount of saturated fats which should be eaten in moderation of its high risk to food related diseases, e.g diabetes
Time	Method/Sequence	Special considerations
10 mins	Put all belongings into the cupboard to ensure your workplace is tidy. Tie away any hair or loose clothes and wash your hands thoroughly under warm water with soap. Grab 3 table cloths and put on an apron. Wipe down any surfaces you will use (not with a chemical contaminate). Set out all equipment ready to use.	
5 mins	Place the saucepan filled with warm water onto the induction hob and add in hard vegetables, baby carrots and a serving of cauliflower, in order to become soft. Leave to bring to a boil on high heat. (23 mins)	
5 mins	Using a pairing knife and chopping board, Dice 150g of mozzarella into 12 bite sized pieces. Store in a small mixing bowl.	
8 mins	In a large mixing bowl, measure using a scale 400g of lean beef mince then crack 1 egg with the back of a knife into a cup. Add both ingredients together, then scrunch the mixture together with your hands until combined.	
3 mins	Wash your hands under warm water in the sink.	
5 mins	To your mixing bowl, season generously with mixed herbs seasoning and a small pinch of salt and pepper. And again scrunch together with your hands.	

7 mins	Use your hands to roughly divide the mixture into 12 portions, flatten and wrap it around a piece of mozzarella.	
5 mins	When finished, clean the chopping board and knife and wash hands thoroughly under warm water and soap then fill a tub in the sink with warm soapy water.	
5 mins	After, shallow fry the meatballs in a frying pan with fry light, under low to medium heat, often flipping them with a spatula. (25 mins) Meanwhile, strain the vegetables with a strainer from the boiling water under the sink. Rinse the small bowl.	
7 mins	Dice all vegetables ½ onion, ¼ bell pepper, 1 baby carrot, fresh spinach and boiled vegetables using the green chopping board and pairing knife into small cubes, store chopped chillis and fresh parsley on the side, and into a food processor with 1/2 can of chopped tomatoes measured by a jug to blend the soft vegetables.	
5 mins	Transfer the blended vegetable into the other mixing bowl, add the sauce and 3 tsp garlic puree, 2 ½ honey and finely chopped chillis, gently mix with a spoon.	
3 min	Wash the mixing bowl used for raw meats.	
5 min	Boil water using a kettle, to create 160 ml of vegetable stock mixture.	
5 mins	Once the meatballs are cooked, checked by the prominent dull brown throughout, transfer into the original mixing bowl. After, add your sauce to the frying pan and leave to simmer on medium heat. Often add the stock in proportions until majority of the water is evaporated	
4 mins	Begin boiling your linguine spaghetti in the saucepan with hot water on the induction hob. Leave to cook on medium heat. (20 mins)	
6 mins	Tidy up and organise your work space by cleaning up spills on the surface with a table cloth or doing the dishes piled up in free time.	
2 mins	Dovetail between checking the spaghetti and mixing the sauce with a wooden spoon to ensure nothing gets spoiled.	
5 mins	Once the sauce is warm, add the meatballs to the frying pan and leave to cook altogether.	
5 mins	Afterwards, grate a handful of low fat cheddar cheese using a grater and store in a small cup.	

8.5 mins	Turn off the induction hob and strain the boiling water with a strainer over the sink. Transfer the spaghetti and present onto a plate. Place the meatballs onto the spaghetti and lather with sauce. Lastly sprinkle the cheddar on top and garnish with parsley and finely chopped chillies.	the hob ensure the handle is facing away from you as hot food can be spilled very easily making it a hazard to yourself.
15 mins	Ensure all contaminated/used dishes and equipment are washed in the tub of soapy hot water and hands to be thoroughly washed with soap. Clean all surfaces with a chemical contaminate away from the cooked food. Dry and store equipment back into the cupboards. All used cloths and towels must go for the wash in the washing machine.	<b>Project Brief</b> The project Brief includes adding sugar to make the sweet ( and spicy) sauce though an alternative can be honey as it is a natural source, free from artificial preservatives and does not contribute to the intensity of high cholesterol and a vast increase in blood pressures.  <b>Cooking skills</b> Dovetailing is to do multiple tasks at once. You must stay alert and calculated watching over every step of your recipe to ensure nothing gets spoiled.  <b>Safety Hazard • Biological contaminant</b> Declutter and organise your surroundings and you go to prevent confusion, cross contamination causing diseases and spoil foods or grease. Cloths must be washed to kill bacteria used during the making of your dish. Make sure all rubbish is in the bin to prevent pests such as rats and cockroaches.

## Task 1 - Amended Recipe - Nazia Begum

Original recipe	Amendment	Why?
200g organic beef steak mince 200g organic pork mince	400g beef mince	-relatively cheaper than organic by £8-£10 -the social factors of availability outweigh the environmental factors of food miles.
Fresh parsley Fresh oregano Fresh basil	Adding mixed herbs seasoning	-cost efficient, saving money by buying a mix of all. -time efficient and has a longer shelf life than fresh as it is processed.
50g parmesan	50g low fat cheddar	-used to sprinkle on top the presented dish. -saves money by £3.50 -being unsaturated fats means it is made out of olive oil rather than saturated animal fats, so it does not weigh heavy on the heart.
2 tbsp Golden caster sugar	2 ½ tsp honey	-The honey is a natural form of sugar free from additives and preservatives so it is considered better.
Almost none iron rich vegetables	Handful of spinach leaves Leafy greens Carrots	-Contains high amounts of iron and plays a role in fibre. This regenerates healthy red blood cells.
Fresh nutmeg	3 tsp of garlic puree	-The project brief states an allergen to nuts. Instead garlic has a similar effect - Puree instead of cloves as it has a longer shelf life and is more convenient. -cost efficient
Olive oil	Fry Light	- amended to use frylight spray so it promotes healthier eating and prevents long term effects - regular consumption can contribute to mass weight gain as extra fat is stored and weighed down in the liver and collected in the heart arteries.

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Outdoor clothing is a physical contaminate, so you must wear a clean apron to sustain the sterilisation of the kitchen. Ensure all surfaces are wiped down to wipe away any present bacteria, grime and dirt as it is unhygienic in the presence of food. Setting out equipment ready to use as being organised is time efficient when cooking in a scheduled recipe. This allows you to know what you need to measure; a scale, measuring cups and jugs to have the correct amount of ingredients for a set amount of people.



Setting out the correct utensils including a chef's knife for cutting through mince and a paring knife used for vegetables. A green chopping board is specifically used for vegetables, a board is also utilised to reduce the risk of cross contamination of bacteria, between raw and cooked foods or even clean surfaces: also for general hygiene.



Setting out all ingredients is a preparation skill to make sure you have everything you need and is in close reach to be able to save time and dovetail between steps. Unpackaged food has been separated from the raw meat to prevent any cross contamination and the chances of illness.



In essence, the dish was plated up looking pleasing appearance wise. Grated cheese was added on top, melted and oozed with the heat of the dish. As well as garnished with fresh basil finely chopped by rocking the knife back and forth, sprinkled on top of the dish.



Using the claw method; a chopping skill, to cut thin slices of carrot. This allows the carrots to boil evenly. The paring knife is used for vegetables as well as the green chopping board. Cutting away from my fingers is a safety hazard rule as it reduces the chances of harm (cuts) to the chef.



Both carrots and cauliflower go into the saucepan to boil in water on the hob; a cooking skill to allow the vegetables to soften in order to blend smoothly into a sauce. One of the 5 food senses are Texture, which plays the role in the project brief as children are reluctant to clumps and grains, therefore it makes it more appetising in its appearance, allowing the kids to consume their 5 a day: rich in vital vitamins and minerals.



Alongside, mozzarella is cut into bite sized pieces ready to be placed inside the meatballs. This contributes to a fun texture of stretchy and stringy cheese, popular within adolescents.



Shaping the beef mince meatballs using my hands to get a well rounded shaped as well as in equal proportions by being aware that the meatballs must be cooked evenly and properly as it is critical to your health to check its not raw, avoiding food poisoning such as e coli and salmonella.



Immediately after handling raw food, you must wash up all equipment as well as hands, thoroughly, hot soapy water to rid of any harmful pathogens present which penetrates the ability to be transferred to any sterile surfaces or even cooked foods. This reduces the risk of cross contamination from micro-bacteria which can create food borne illnesses; such as salmonella and e coli from potential food poisonings of raw eggs and meats. Doing the dishes also reduces clutter from building up and signifies that you are organised.



Start by peeling the skin of onion and into the kitchen bin. I used the chopping skill; dicing To cut the onions into small cubes. Also removing the core as of its strong scents. Secondly, the pepper's centre and seeds were removed and cut easily from baton pieces into small cubes, to allow the best possible results when blended, a smooth consistency.



Ensure the dovetailing process is upheld when making the recipe through checking when the cauliflower and carrots have gone soft and are boiled. This can be done by using a knife or fork to gently skewering through the vegetable. Although during a normal cooking process on the industrial hob make sure to use a wooden spoon or plastic spatula as it does not conduct heat unlike metal. This ensure the utensil does not reach high temperatures and stays cool to the touch.



Drain the water from the saucepan over a strainer and in an empty sink. This process must be dealt with care and consideration as boiling waters can reach temperatures of up to over 100 degrees celsius causing a high risk to the chef of 3rd degree burns, which must be treated immediately. That is why pots and pans have a plastic coating on the handle as a conductor so it stays cool to the touch.



The chopped and boiled vegetables are ready to be blended using a food processor which then creates the base of the sauce alongside the can of chopped tomatoes measured using a jug to fit the recipe serving and is convenient and cost efficient to use. It contributes to the colour of the dish whilst remaining hidden to picky eaters. Along the way I had cleaned up my surrounding doing the dishes where i can to stay organised.

# Food and Cookery - Distinction \*

## Task 2b- Evaluation- Nazia Begum

In my NEA, we made the Project Brief set recipe: Spaghetti and meatballs in a sweet and spicy sauce. This was for a selection of children from school, ranging from years 12-15 who needed to be met with a hot, fulfilling meal after a days of residential activities. However there were a few amendments made to the recipe to ensure that the dish includes many micro and macro nutrients as well as a variety of foods from the NHS Eatwell Guide, ensuring it is a healthy balanced diet. As a result, the outcome was fairly successful with the dish plated in an appetising way suitable for the likings of adolescents, which takes into consideration one of the 4 food senses, appearance.

### What went well

I think what went especially well was my meatballs as in a frying pan I shallow fried them in a substitute for olive oil, fry light which browned the well rounded sides and cooked them evenly, at the correct, within the time slot of my amended recipe. As well as soaking up the sauce making them moist, juicy and soft, suitable for the children's liking as it practically would melt in the mouth, this is one of the food sensories towards the dish.

When separating the mince into balls, I had made sure to make each meatball equal in size, so they all cooked evenly, at the same time. This ensures the food is not raw, which causes food poisoning as a thicker meatball takes longer to cook, or the smaller meatball would burn. They turned out immaculate and exactly what the recipe intended for.

Also, the preparation skill of setting out all my equipment; used for cooking and measuring my ingredients using a scale as well as my utensils; wooden spoons to stir as it does not conduct heat making it cool to the touch but also my ingredients; setting out what I needed in reach, in set amounts to feed a set amount of people as it is all time efficient to be organised when made to dovetail between steps. Therefore, this gave me time to wash up between steps keeping my workplace organised, clean and free of clutter, which also reduced the chances of cross contamination of bacteria transferring into cooked foods through raw meats and eggs massively. Overall, the making of the dish went well, satisfying all components that needed to be amended.

### Presentation

The meatballs were placed precisely on top of the spaghetti as well as low fat cheddar cheese grated with a handheld grater on top, which melted with the heat of the dish. The popular liking was swapped out with monounsaturated fat cheese made out of plant based foods rather the fatty products of saturated fats such as being reared from animals, to reduce the intake as much as possible, discouraging

fatal lifestyle diseases such as coronary heart disease and obesity from high fats. The dish complimented each other, layering the sauce over the spaghetti, plated with a white dish to make the meatballs stand out and cleaning edges. As well as garnished with fresh basil leaves, chopped finely with the chopping skill of moving the knife in a rocking motion, and sprinkled on top giving a lively colour and providing natural flavours rather artificial, for the dish.

### Meatballs

The Project Brief states the requirement of organic beef mince for the making of the meatballs as it specifies that after the days of residential activities in the UK cool spring months of April, kids must be met with a warm home cooked meal that reives the kids energy levels. Meatballs are a source of protein which amounts to having all essential amino acids and being a high biological value protein.

The NHS Eatwell Guide states proteins, as of short term effects, helps regenerate adolescents making them feel fuller for longer but also prevents last effects such as deficiencies in muscle growth and bodily functions, such as digestion. As well as the spaghetti being a common starchy dish which prompts the idea of feeling full. This is because the macronutrient carbohydrate fulfills all hunger and regenerates energy levels, therefore spaghetti is a complex carbohydrate. However, organic beef mince was replaced with regular beef mince, although lean meat, due to the fact of it being a common social factor affecting food choices; as its availability in the supermarkets was time efficient instead of seeking locally reared farms and being vastly cost efficient of up to £8-£10 in my local supermarket, asda which the project brief seeked for, allowing it to be distributed to more people. I assure the certainty that weighing out all ingredients including the mince 400g using a scale is essential as the accuracy of being proportionate without under or over estimating is crucial as you must have all ingredients weighed for the set amount of people you are cooking for.

In essence, the quick adaptation and swap in mince did the same job as the children are satisfied in the texture aspect as of the chewy, moist, tender meatballs. Delving into the topic of texture, mozzarella was added in the centre of the meatballs which the stringy and stretchy pull, is a fun way to uplift a childrens dish. They were cut into small bite sized pieces and to be wrapped individually into each meatball.

Mozzarella contributes to many health benefits such as being a dairy, maintaining and building strong bones and teeth through the micronutrient and mineral, calcium which also works closely alongside vitamin D. Egg was used in the dish to combine the beef mince together by using your hands to shape and mold the meatballs. Eggs lie in the protein food group which goes hand with the protein beef to essential amino acids to maintain a high biological value. As well as the absorption of vitamin D. The small amounts of fats moderately included in the dish is required for the children to have an insulated layer of skin for warmth, during the winter months.

Locally produced eggs can be bought from local farms to reduce the carbon emission released into the atmosphere by the travel of food miles which the project brief recommended but due to my situation of living in the city I rely on supermarket eggs travelled by food production as of its availability making this a social factor that affects my choices. However, I can grow certain vegetables and greens at home contributing to this demand.

### Kitchen and Knife skills

I used a vast selection of different cooking skills throughout the making of my dish. Using different cooking skills results in different outcomes of cooking foods. Such as, I boiled my firm vegetables, carrots and cauliflower, in a sauce pan full of water with temperatures of up to 100 degrees celsius. This allows the carrots and cauliflower to soften, changing the initial state completely. A benefit to this is that it does not typically change the taste of my vegetables unlike roasting, giving a crisp and almost tangy taste to them. Therefore, this allowed me to blend my vegetables into a smooth consistency with ease using a food processor as lumps and clumps are not ideal to be served to picky and demanding children.

I shallow fried my meatballs in little to no fry light on a frying pan. As well as a variety of chopping skills, acknowledging the differences in when to use a chef's knife; to cut through beef mince or when to use a paring knife; to dice vegetables. I began peeling, then dicing my onions into cubed pieces using the claw method. As well as chopping my peppers into batons then after diced into cubes. This was in preparation for when the boil vegetables were finished ensuring I dovetailed between the steps. Another skill is the preparation of weighing all my ingredients using a balance to ensure nothing is out of proportion to ruin the dish.

### Sauce

I measured out ½ a tin of chopped tomatoes in a measuring jug ready to simmer on medium heat in the frying pan, reducing the thickness to enhance the flavour. Chopped canned tomato contains almost equally the same amounts of nutrients as fresh tomatoes. Also the availability in the supermarkets make it a social factor affecting food choices, being relatively cheaper than fresh making it cost efficient which is encouraged in the project brief. It also went through a manufacturing process making it more tastier, being appealing to kids. Taste is a 5 food sense which puts together the aspects of a dish. Though it is at the sacrifice of being a negatively affected environmental factor as the manufacturing and process of the tin leads to an increase of food miles and carbon emissions from travel vehicles and factories, not making it quite environmentally sustainable when seeking for adaptations. Although, the shelf life is longer than fresh tomatoes making it relatively convenient.

Paired with an assortment of Uk seasonal vegetables such as pepper, cauliflower,

carrots, spinach. Which was added to amend the lack of 5 a day vegetables in the project brief. Adding blended cauliflower acts alike to cornstarch, preferably thickening the sauce and adds to the viscosity. All vegetables in the Eatwell guide suggest they are good sources of vitamins and minerals allowing the body to maintain a healthy gut.

Perhaps to utilise the efficiency of ingredients and to minimise food waste, leftover boiled vegetables can be served on the side as its own dish, skewered on a stick with a side of meatball sauce.

Children must have the right nutrient intake in order to grow efficiently. Therefore vitamins and minerals must be eaten in small amounts daily and of the continuous cycle of all nutrients especially water soluble vitamins. Without the correct source of nutrients, the human body can become prone to life threatening deficiencies. Therefore, the vibrancy in colours outcast the dullness and plain spaghetti presented.

### Dietary amendments

The project brief states a clear allergen against all nuts as the practitioner had a nut allergy, prohibiting the use of it in the dish. Therefore the recipe needed to be amended to get rid of nutmeg which can be replaced with similar concepts such as cinnamon, cloves. However I chose to add 1/2 tsp of ginger puree as I think it would be preferred to a dish for children rather than the cinnamon; woody and slight citrus note. As well as replacing the set recipe of granulated sugars to natural honey free from additives which can be added directly to the sauce including a subtle note of sweetness.

### What was not expected and how did you overcome it

Alongside the relatively successful dish, there were a few perks that needed to be considered immediately that could have had a mass impact on the outcome of the dish. Such as, my sauce was quite thick initially before the simmering and cooking process leading to the sauce to quickly begin to dry out and evaporate under the medium heat. However, this was caught before any disasters took place therefore I continually added vegetable stock dissolved in 400ml of boiling water, heated by the kettle, in small amounts and through a few minutes at a time. This annihilated any negative impacts on the making of the sauce such as it burning and crisping; sticking to the pan. As well as the use of vegetable stock is a great way to subtly enhance the flavour of the sauce.

Also the outcome in colour of the sauce had a slight tint in a pale brown due the contrast of the white cauliflower therefore the appearance was quite disadvantaged to the typical red tomato sauce. Perhaps this explains the strong overtake in taste

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of the cauliflower, therefore, rather add leafy greens that are rich in iron, required for a healthy concentration of blood. Therefore the garnishing of red chillies and basil finely chopped added a subtle pop of colour.

## Peoples opinions

To further emphasise, collecting the opinions of others allows a differentiation of opinions of the delicacy or what can be improved for likings. My teacher's opinion ranged from comments of the importance of including vegetables for a healthy diet to personal preferences of different food sensories. Due to the heavy count, the sauce was thick, but disguised the vegetables, perfect for children. An improvement can be to change the consistency, thinning it out with more vegetable stock to simmer. The meatballs are moist and the pasta was cooked perfectly (not mushy) creating a pleasant presentation.

**In conclusion**, I think that the requirement of making the project brief dish: spaghetti and meatballs in a sweet and spicy sauce was adapted vastly to the likings of children whilst maintaining all the health beneficial foods as of the quick and easy recipe. Also utilising many different cooking and chopping techniques is a great skill to have and include a new experience.



## N. [REDACTED] Task 3a - Two Course Menu - Selected dishes

Chinese takeout inspired vegetarian recipe

### Starter:

#### Bite sized potato balls

<https://www.simplesweetsavory.com/baked-mashed-potato-balls/>

#### Cilantro Lime dressing

<https://www.loveandlemons.com/cilantro-lime-dressing/>

### Main course:

#### Rice sided with Tofu and Mushroom in a sweet soy sauce

<https://thefoodietakesflight.com/tofu-mushrooms-sweet-soy-sauce/>

<https://www.loveandlemons.com/how-to-cook-brown-rice/>

### Table Below:

<https://www.nhs.uk/live-well/eat-well/food-guidelines-and-food-labels/the-eatwell-guide/>

<https://www.nhs.uk/conditions/food-allergy/>

<https://www.asda.com/>

[https://en.wikipedia.org/wiki/History\\_of\\_rice\\_cultivation](https://en.wikipedia.org/wiki/History_of_rice_cultivation)

## Amendments to the recipe and Factors affecting food choice

A recipe is amended to suit the needs of the consumer and to promote healthy eating according to the Eat well guide. There have been special and considerable commandments towards the 2 course dish, including a starter, bite sized potato balls including a dipping sauce, mint lime dressing and also a main course, rice sided with tofu and mushroom in a sweet soy sauce.

### Main course:

Tofu is a vital source of plant based protein, providing all essential amino acids; maintaining a high biological value. Protein is included in the NHS EatWell guide which is easily absorbed and utilised by the body and it is a great alternative to animal-derived meat, as proteins build and repair muscles and nerves. Also, tofu contains micronutrients, specifically minerals such as calcium because it is sourced from soybeans. They are naturally rich as they help amend the body by strengthening

the enamel and bones in the body, but also the absorption of vitamin D into our stream. Tofu is also quite inexpensive, ranging in price from £2.30 - £2.75 with a difference of 45p according to the Asda food shop website. This is sufficient as the project brief states that ingredients must be cost efficient, within a reasonable budget. As well as, its accessibility in a range of supermarkets and its ability to be stored in the fridge in temperatures of 0-5 degrees celsius for some time make it a social factor affecting food choices, an adequate choice.

The recipe includes adding fresh garlic and ginger cloves to the base of the dish. Although fresh meaningfully has a much stronger flavour and smell both garlic and ginger puree seems to be more time efficient with a similar outcome in all 5 food senses, taste, appearance, smell ect. It is processed and packaged to be more convenient to keep around as it has a longer shelf life; does not get wasted easily. Making this a social factor that affects the demand for the product and availability in the supermarkets.

To make a sweet soy sauce I have substituted 3 tbsp of brown sugar for 2 tbsp of honey. This amendment includes natural sugars instead of processed additives. Sugars as a whole must be consumed under moderation as they could have a mass impact on the heart with raised blood pressures and a high cholesterol; potential lifestyle diseases such as diabetes and obesity.

Wine is added to the dish as it enhances the flavour adding depth and complexity to the profile of the meal. This unique taste is favourable in most dinings. Although I have amended this to be vegetable stock instead as it is more appropriate and incorporates similar ideas. This elevates the taste without being overpowering and is a versatile ingredient which suits almost all sauces. There are many herbs, spices and even small amounts of vitamins and minerals.

In many Asian cuisines, white rice is traditionally used. The recipe includes 70g of white rice for one serving. However I have substituted white rice for brown rice as they both serve the same purpose however incorporating brown rice into meals provides numerous health benefits as of its higher nutritional value. The bran layer in brown rice contains antioxidants which help combat hormonal stress balancing chemical reactions in the body. As well as being rich in fiber making you feel fuller for longer, this is because of its complex carbohydrate components and it is convenient as the project brief states dinner meals must be fulfilling. Therefore, its lower glycemic index in contrast to white rice provides a slower, steadier rise in glucose levels, being stretched out for a long period of time.

The sauce includes chilli oil though I have substituted this for chilli powder instead. I think that chilli powder is more convenient to use and find rather than chilli oil. The availability in local supermarkets makes it a social factor affecting food choices.

It is also deemed to be cheaper therefore it complies against the project brief stating for a cost efficient recipe. As well as a few chilli peppers, they contain capsaicin which reduces inflammation and boosts metabolism.

I have amended the recipe to completely exclude sesame seeds as they are infamously known to be an extremely potent allergen and are capable of causing severe allergic reactions (anaphylaxis), therefore they are dangerous to be exposed to a range of people. Especially as the project brief states to exclude nuts as they are also an allergen. They are unnecessary in terms of ingredients as they are typically used for the appearance.

### Starters:

The main ingredient in bite sized dish is potatoes which go under as carbohydrates in the NHS EatWell guide. The simplicity of the dish serves as complex carbohydrates which are satiety; will leave you feeling fuller for longer. Considerable for an active female who will need the energy for a vast period of time. The macronutrient potatoes are also high in fiber, specifically insoluble fibers promoting regular bowel movements. A balanced diet ensures a healthy and well functioning body.

Paired with a dressing which includes greek yogurt, this goes under the Dairy section in The EatWell Guide. This nutrient dense source contains the micronutrients and specifically minerals, such as calcium that is vital to maintaining strong teeth and the bone density, reducing the risk of osteoporosis.

Original Recipe/ Non veg recipe	Amendment	Why?:
100g White rice	100g Brown rice	Antioxidants combat hormonal stress High fiber content Complex carbohydrates means a steadier rise in glucose levels.
Red Meats	100g Mushrooms	Vegetarian substitute Antioxidants that prevent inflammation in the gut lining and chronic diseases.
Red Meats	1lb	Vegetarian substitute

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	Tofu	Source of protein by soybeans includes all essential amino acids. High biological value. Inexpensive.
Wine	60ml Vegetable stock	Versatile ingredient. Inexpensive and more appropriate for a residential centre and work hours rather than fine dining.
Chilli oil	¼ tsp Chilli powder	Cheaper alternative. Processed to be stored for longer. Availability = social factor that affects food choices. Oil contains a lot of saturated fats which we are aiming to reduce to comply with a balanced diet.
No greek yogurt	5 tbsp Greek yoghurt	Dairy in the eatwell guide. Micronutrients like calcium minerals to attain bone density.

Sesame seeds	no sesame seeds	Allergen that is vastly known to a quantity of the population. Must be avoided in open areas with a mix of people such as the residential centre.
2 tbsp White sugar	2 tbsp Honey	Honey is a natural form of sugar free from additives and preservatives so it is considered better than processed sugar.

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12 mins	Using a paring knife and a green chopping board, peel and chop the ½ onion into small cubes; store on a plate, dice the ¼ pepper into small julienne pieces, as well as the leek into thin rectangle shapes. Mince the parsley in a rocking motion into fine pieces and store away into a cup. Using the claw method, dice mushrooms and tofu into bite sized pieces. Store on the plate.	minerals and are essential for daily consumption for a healthy balanced diet. Leafy greens such as leeks and parsley are iron rich a vital mineral that is needed to ensure the growth and development of the body through producing healthy red blood cells needed for the gas exchange of oxygen and carbon dioxide. They are also rich in antioxidants which promote anti-inflammatory properties in the body.
10 mins	Once the potato has cooked and become soft, drain the water from the saucepan into the sink and place the potatoes in a bowl. Measure out 100g of brown rice with a scale, and put it into the saucepan alongside a refill of warm water. Leave to cook on medium to high heat.	tofu is made out of soybeans and a plant based protein. proteins build and repair muscles in the body. A source of essential amino acids to maintain a high biological value.
8 mins	Use a hand held masher to mash the potatoes into a light and fluffy texture. In proportions, add splashes of milk to smooth into a creamier texture.	While rice has been replaced by brown rice as the antioxidants help combat hormonal stress balancing chemical reactions in the body. Also, they provide a slower, steadier rise in glucose levels, being stretched out for a long period of time.
2 mins	Crack 1 egg with the back of the knife and into a cup. Mix both the yolk and egg whites together.	Milk as well as the yogurt for the dressing are nutrient dense, specifically minerals, such as calcium that is vital to maintaining a strong bone density.
10 mins	Distribute the mash into equal proportions, 10 ball pieces, using your hands and dipped into the egg, to be lathered with bread crumbs, sprinkle parsley and ½ tsp garlic powder around the edges.	<b>Organisation</b> Avoid cross contamination by washing the equipment used to handle the raw egg as it can cause foodborne illnesses by harmful pathogens such as salmonella. Also put the scraps of foods into the bin to prevent pests, or even bacteria build up overtime.
6 mins	Space and place each onto a baking tray and into the oven to cook and harden the edges.	<b>Frylight substituted for Olive oil</b> is a monounsaturated fats that are plant based and are relatively healthier than animal and saturated fats.
10 mins	Wash up the dishes along the way to ensure they don't build up. This declutters the workspace making organisation manageable.	Although regular consumption can contribute to mass weight gain as extra fat is stored and weighed down in the liver resulting in food related diseases such as coronary heart disease. Therefore, it is obligatory to monitor fat levels. Arguably, it is needed for the female instructor as she is constantly active therefore she burns fats regularly and needs the bulk to participate in strength worthy activities.
15 mins	With a frying pan on low heat, add 2 tbsp of olive oil and the diced onions, leave for 3-4 minutes. This allows the onions to caramelise. After begin to saute the cut mushrooms.	
1 mins	Dovetail between adding more water to the rice as it has been lost through evaporation and or ensuring the potato balls don't burn in the oven.	
8 mins	Boil water using a kettle to create 400ml of vegetable stock mixture. As well as adding in 1 tbsp of cornstarch to thicken the sauce.	
6 mins	In a cup, mix 4 tsp of soy sauce, 2 tbsp of honey, 1 tsp of ginger puree, 1 tsp of garlic puree and ¼ tsp of chilli powder as well as mixed herb seasoning + salt and pepper. This will be the base of the sauce.	

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## Task 3a - Menu and Action Plan

Dish name: <b>Starters : Bite sized potato balls in a mint dressing</b> <b>Main course : Rice sided with Tofu and Mushroom in a sweet soy sauce</b>	
2 hours and 30 minutes	
<b>Ingredients</b>	
<b>Main course 1 serving</b> 1 lb tofu 100g of shitake mushrooms 2 tbsp olive oil ½ onion ¼ bell pepper a leek 100g of brown rice  4 tbsp soy sauce 2 tbsp of honey 60ml vegetable stock 1 tbsp cornstarch fry light  seasoning: ¼ tsp chilli powder 1 tsp ginger puree 1 tsp garlic puree salt and pepper mixed herbs seasoning	<b>Starters 10 balls</b> 3 potatoes 1 cup bread crumbs ½ tsp garlic powder ¼ tsp dried parsley salt and pepper 1 egg milk  dressing: mint leaves cucumber dash of lime juice salt 5 tbsp of yogurt
<b>Equipment</b> paring knife 2 mixing bowls green chopping board frying pan saucepan scale strainer peeler food processor hand held masher cutlery -spoon and knife :tbsp and tsp plastic plate wooden spoon jug x2 cup	
<b>Special considerations Health and safety</b>	
<b>10 mins</b>	put all belongings into the cupboard to ensure your workplace is tidy. Tie away any hair or loose clothes and wash your hands thoroughly under warm water with soap. Grab 3 table cloths and put on an apron. Wipe down any surfaces you will use (not with a chemical contaminate). Set out all equipment ready to use. Fill a tub in the sink with warm soapy water ready to put used dishes.  <b>Safety hazards</b> Surroundings must be organised to make sure you dont trip or fall as it can be fatal. Tie away loose clothing so it does not get caught, ensuring your personal safety.  <b>Biological contaminants</b> To be hygienic, wipe, wash with soapy water and remove all microorganisms to minimise the risk of cross contamination and bacterial diseases.  <b>Carbohydrates</b> potatoes are a complex carbohydrate which are safety, will leave you feeling fuller for longer and goes under the NHS EatWell guide. Carbohydrates are a great source of energy for the female instructor.
<b>8 mins</b>	Wash and peel 3 potatoes using a peeler. Ensure the scraps, the skin, is put into the bin. Using a chefs knife and a green chopping board cut the potatoes into quarters to ensure they boil evenly and mashes smoothly. Place the saucepan filled with warm water onto the induction hob and add the potatoes. Leave to bring to a boil, in order to become soft, on high heat.
<b>2 min</b>	Preheat the oven to 200 degrees celsius in preparation for the potato balls.  <b>Dietary requirement</b> Vegetables such as peppers, leeks and mushrooms are a good source of micronutrients such as vitamins and

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5 mins	Using oven mitts, take the potato balls out of the oven and set aside on a heat resistant coaster. Turn the oven off completely.	<b>Observation</b> you must use the technique of dovetailing between the industrial hob and the oven and be certain you are following your recipe to avoid anything from getting spilt and burnt, over to avoid mistakes.
15 mins	To your frying pan add the chopped vegetables as well as the diced tofu to shallow fry on low-medium heat. In equal proportions begin adding the base of the sauce as well as the vegetable and cornstarch stock to thicken and glaze the vegetables and tofu. Leave the vegetables to steam but not for long as of the fluid infusion sauce.	<b>thickening</b> Embed cornstarch to the vegetable stock to thicken the base of the sauce (soy sauce) though to keep it translucent as it is made to just glaze the vegetables.
8 mins	Once cooked, turn off the heat to the brown rice and strain the water over the sink using a strainer. Transfer the rice onto a plate.  Along the way, move the ingredients on the frying pan around with a wooden spoon.	<b>Safety Hazard</b> Being cautious when handling boiling water as it can scorch your skin causing 3rd degree burns. Hold boiling equipment with a hand cloth and be sensible. You must have full awareness in your surroundings and in a state of mental consciousness.
5 mins	Using the green chopping board and your paring knife, with a precise angle, finely mince the mint leaves in a rocking motion and into the food processor. As well, 5 tbsp of yoghurt and a squeeze of lime juice.	<b>Safety Hazard + Biological contaminant</b> Declutter and organise your surroundings and you go to prevent confusion, cross contamination causing diseases and spilt foods or grease. Cloths must be washed to kill bacteria used during the making of your dish. Make sure all rubbish is in the bin to prevent pests such as rats and cockroaches.
8 mins	Turn the heat to the frying pan off. The vegetables will be soft and the tofu will have slightly browned.	
10 mins	Blend all ingredients in the food processor into a smooth dressing consistency. In small cubes, dice ¼ of cucumber into the dressing to add bulk.	
10 mins	Begin assembling your dish by placing the potato balls into a small bowl alongside the dressing of the cilantro lime dressing, garnished and presented with a slice of lime. On Top of the brown rice, layer the steamed vegetable on top as well as the other component: tofu. Lather with the leftover sauce in the frying pan.	
15 mins	Ensure all contaminated/used dishes and equipment are washed in the tub of soapy hot water and hands to be thoroughly washed with soap. Clean all surfaces with a chemical contaminate away from the cooked food. dry and store equipment back into the cupboards. All used cloths and towels must go for the wash in the washing machine.	

# Food and Cookery - Distinction \*



Begin with washing your hands thoroughly with warm soapy water to get rid of all dirt and bacteria on your hands as it is a physical contamination when handling foods. Wear a clean apron as outdoor clothes can contaminate the cooking field and the sterilisation with bacteria picked up into the food you are cooking. Also wipe down your surface clean without a chemical contaminate like antibacterial at the moment as it could be harmful for digestion.



Preparation of equipment is a key factor towards cooking a set recipe. Collect all equipment intended to use and listed on the recipe beforehand. This allows you to stay organised with what you need, ready to use, establishes time efficiency as well as ready to dovetail between the starter and the main efficiently. As well as preheating the oven as all dishes are most successful when the oven is at the correct temperature. This allows you to follow the timings of the dish in a monitored manner.



Start with the vegetables, especially the potatoes, wash and peel off the skin with a peeler. Dispose of the peelings into a bin to declutter your surroundings as you cook. This step is begun first as it is time efficient with it taking long to boil and turn soft. As well as chopping the potato into quarters with a chef's knife utilised for more tougher cuts for it to cook evenly throughout with no chunks. Use the correct chopping board, green for vegetables.



Vegetables, as well as fruits, are classed as a minimum '5 a day' according to the NHS Eat well guide. Consumed daily as it contains essential water soluble vitamins B and C as well as iron mineralines in the leafy greens of leeks, parsley, mint leaves providing anti oxidant properties. Potatoes belong to the carbohydrate group and are a great source of energy as well as a lasting fullness.



Slicing the leeks diagonally into thin square like shapes. Once steamed this creates an elegant look in the stir fry which holds the shape of the sauce such that it is an aesthetically pleasing outcome ticking off one of the 5 food sense within a dish.



Fill a saucepan with warm water, so it can heat to boiling quickly and onto the hob on high heat. Boiling your potatoes from a hard exterior to soft throughout allows the mashing process to be relatively smoother and faster. Dovetail between checking the consistency of the potato skewered through a fork so it doesn't overcook to be too soft and not keep its structure.



With a smaller paring knife begin dicing your onion in smaller cubed shaped pieces and your peppers into smaller baton pieces. As well as using a safe chopping method such as the claw method cutting away from your fingers to reduce the risk and chance of causing harm to yourself. Bell peppers include a vast range of vitamin A and C protection against diseases like scurvy as well as fibers both soluble and insoluble significant to digestion. Used for garnishing and the mint sauce, dice the fresh parsley and mint leaves using a rocking motion into fine pieces stored way in a cup for later use.



Once boiled to its desired consistency, drain the water from the saucepan over a strainer and in an empty sink. This process must be dealt with care and consideration as boiling waters can reach temperatures of up to over 100 degrees celsius causing a high risk to the chef of 3rd degree burns, which must be treated immediately. That is why pots and pans have a plastic coating on the handle as a conductor so it stays cool to the touch.



With a hand held mashers, the potatoes are in a soft consistency to mash to form the starter. As well as adding splashes of milk to smoothen out the consistency and any lump. The texture practically melts in your mouth while holding its form, desirable in a mash consistency. This is one of the food senses in a dish. Along the way I had cleaned up my surrounding doing the dishes where I can to stay organised.



Season the potatoes with salt and pepper enhancing the flavour of the potatoes. Although this must be in a controlled manner as regular consumption causes high blood pressure and cholesterol with lasting effects on blood vessels also straining the heart and a major factor towards heart diseases like coronary heart disease.



Begin to roll and form the starter potato balls using the structured mash consistency. With the back of a knife crack an egg into bowl and dip the balls into the egg to coat with breadcrumbs. The cooked breadcrumbs create a hard crunchy exterior while contrasting the inside being a soft creamy mash. This mouthfeel put together with a range of textures.



During the preparation of my dish I had lined my baking tray with parchment paper as it is time efficient when dovetailing between dishes, to prevent the potato from sticking on the tray in the cooking process. Place each at a distance from the other to ensure all the surface areas cooks evenly so there is not a difference in each of the textures.



Gently sprinkle finely diced parsley onto the potato balls to bring colour to the dish as well as aesthetically contrasts colours with the mint sauce, beside it when plated. Place the tray using mittens into the preheated oven to cook so that the breadcrumbs turn golden and crunchy. Wash all equipment as well as hands thoroughly under warm soapy water used in the presence of the raw egg containing pathogenic bacteria as of its food poisoning potential such as salmonella.



Using a chef's knife and chopping board, dice the tofu into thin cube sized pieces to make up the protein of sauce. Soybeans are high in protein containing all essential amino acids, a plant based substitute to meat and poultry, contributing to sustaining internal bone health. As well as a great source fiber towards the digestion and anti inflammatory properties in the gut.



Using the sauce pan begin boiling water on high heat to create the rice ready to be served once the sauce is ready. As well as Meanwhile dovetail with shallow frying in a frying pan the diced onions on medium heat to create the caramelised onions along with 3 teaspoons of vinegar. This creates the essential tangy taste of the sauce tying in with soy sauce added. Once your away from the hob ensure the handle is facing away from you as it can spill and be a hazard towards yourself.



Add in the mixed vegetable stock with a thickening agent: cornstarch to increase the viscosity of the sauce. This allows the steamed soft vegetables to be coated with a sharp tangy sauce as well as browning the tofu slightly: overall aesthetically pleasing and enjoyable to eat with the burst of flavors introduced through different vegetables. Ensure the rice does not bubble over as well as adding more warm water once the vast majority has evaporated as it cooks. A wooden spoon rather a metal one is used as it conducts the heat of high temperatures staying cool to the touch without causing harm to chef.



Drain the water of the rice away from the saucepan above the sink using a strainer and plate up onto a dish. With the stirfry on top of the rice. Appearance and presentation is a key factor towards the visual presentation to look appealing. The Tofu and Mushroom dish features a vibrant range of colours from the earthy tones of the mushroom to the slight browning/golden exterior of the tofu glazed in a sweet soy sauce. As well as another food sense, smell, with the vinaigrette of the caramelise onions.



Plate up the potato balls from the oven stacked up on each other as well as paired with a mint sauce created with dairy yoghurt and mint, parsley and cilantro leaves diced finely. Dipped into this sauce, this enhances the flavour with a kick of the fresh and refreshing herbs. Showcasing similarities between the starter and the main with acidic properties.

# Food and Cookery - Distinction \*

## Evaluating a 2 course meal Task 3c - Nazia Begum

According to the NEA project brief, it states that the female instructor is vegetarian and to evidently refrain from the allergen nuts. A vegetarian can consume all animal products but is believed to not eat the meat or fish itself. Her choices go under ethical and or religious reasonings and factors. Therefore it is obligant the dish applies to her needs while providing all aspects of the Eat well Guide. There have been special and considerable amendments towards the 2 course dish, including a starter, bite sized potato balls including a dipping sauce cilantro lime dressing and also a main course, rice sided with tofu and mushroom in a sweet soy sauce.

### What went well!

I think what went well and enhanced the flavour profile of the main dish were the caramelising of my onions with a vinaigrette on medium to low heat using a frying pan in fry-light. This slow cooking allows the natural sugars in the onions to caramelise without burning into a rich golden brown depth of flavour. They act as a foundational layer, providing a savory base for the sauce. This is one of the five food senses of a dish, the intricate tangy flavour serves as a sublime enhancement as well as complimenting the sharp soy sauce glazed in it.

Also appearance is another food sense and visual presentation of the onions, glossy and rich coloured in the dish can contribute to the aesthetics. They are favorable in a dish especially with adults, which is the instructor's meal, popular in adding complexity and dynamic to a dish rather than to children who prefer sweet over savoury. Therefore these vegetables were glazed in a translucent layer of soy sauce.

This process went extremely well as I had used a culinary technique by mixing parts of cornstarch to the vegetable stock to achieve a desirable viscosity and texture in the sauce. This is called a slurry which is added in equal parts to a simmer in the pan, the heat activates the starch granules which absorb moisture and evaporates the liquid to a thickened one. (coagulation)

### Presentation

The presentation of the dish attracts it to the consumer which was mindful during the process along the way. This also includes the garnishing of both dishes with fresh parsley in finely chopped pieces replaced initially for sesame seeds. The pop of green colour sets the tone of highlighting the ingredients in the dish, especially my vegetables in the sauce, on display. Therefore impacting the diners' experience leaving a lasting impression.

Garnishing herbs such as basil, parsley, and rosemary are one the plants that can be grown and used in the uk, taking into consideration of the uk's climate, therefore can be grown locally and used without costly prices. As well as, reducing the demand in

markets and taking into account the food miles and carbon emissions released by internal combination in lorries. Therefore, a way to mitigate against the enhanced greenhouse effect.

### Kitchen and knife skills

The main dish incorporated an array of intricate cutting techniques in the preparation of the stir fry. All my vegetables were meticulously chopped and arranged in the sauce to maintain their structural integrity, ensuring they held together and did not disintegrate. Therefore this applies to both of the food sensories, appearance and texture.

Using a paring knife and a green chopping board (for vegetables) first I allowed my onions to fry in the pan using fry light, chopped into small cubed pieces, peppers into long baton shapes and my leeks wide rectangular shapes. Therefore, once steamed, they remained floppy and malleable in the soy sauce. As well as using safe chopping methods, the claw and bridge methods, to highly prevent cuts and damages to yourself and others. Also, when mashing my potatoes with a hand held masher, the skin was initially peeled using a peeler, although I made sure to peel it away from me and my fingertips. These are all safety hazards that may affect you or those surrounded.

The preparation skill of setting out all my equipment; used for cooking and weighing out my ingredients using a scale, as well as my utensils; wooden spoons to stir as it does not conduct heat making it cool to the touch but also my ingredients; setting out what I needed in reach, in set amounts to not ruin the dish and it is all time efficient to be organised when made to dovetail between two dishes. Therefore, this gave me time to wash up between steps keeping my workplace organised, clean and free of clutter.

### Health and safety

Before beginning to cook my recipe, I wore an apron. Outside clothes away from the kitchen is a physical contamination where it is necessary in order to not cross contaminate bacteria to the food and surfaces.

Whilst dovetailing between the 2 dishes trying to eliminate all risks present is an obligatory task. This held its importance by inspecting both safety of the equipment (e.g glass shards) which can be a physical contaminate and preventing the cross contamination of the eggs from the rest of the food (and cooked) as it can cause salmonella, a type of food poisoning. Therefore, it is evident that it follows food legislation rules. The Food standard Agency (FSA) began in 1999, in place to protect the public. Food businesses must comply with the standards, otherwise, there will not be a suitable area for food.

I baked my potato balls in the oven and it is evident that you must pre-heat the oven before use, in order to get the right temperature written as preparation on the recipe, to become crispy and goldish on the outside, texture soft and buttery on the inside. However, during this process, I ensured safety to both myself and the environment by using oven gloves to minimise the risks available and reduce the chances of a hazard.

### Dietary Amendments

I had opted to substitute the sesame seeds in the dish with finely diced parsley instead as they are infamously known to be an extremely potent allergen and are capable of causing severe allergic reactions (anaphylaxis) therefore they are dangerous to be exposed to a range of people. Especially as the project brief states to exclude nuts as they are also an allergen. Therefore no risks should be taken with a vast amount of people. They are unnecessary in terms of ingredients and are easily replaced with a pop of green colour to the dish, changing the appearance impressively.

### Tofu + soy sauce

Including tofu in a stir fry is an excellent choice as it is a vital plant sourced protein, fermented soy beans which is substituted for red meats in a vegetarian diet meeting the needs stated on the NHS website. Protein must be incorporated into everyday meals by providing all essential amino acids to maintain a high biological value as well as utilising its importance to the body by structural support to the bodily cells and tissues making up the muscles.

Evidently, the female instructor of the residential trip and with a job including outdoor activities must need the strength and endurance to endure the day and refrain from injuries without side effects, such as fatigue and dizzy spells. For the dish the tofu had been chopped using a paring knife and chopping board into cubed pieces. In a pan, these had been fried (in fry light) alongside the onions initially, to sear the sides into a golden brown colour. Using medium-high temperatures, the food reacts under the heat creating a crispy exterior, like chicken that is intended to be replicated for a vegetarian diet. This contributed to one of the food sensories, texture making a more complex dish to keep the plate engaged and less monotony, stuck to one texture.

As well as the food's sensory appearance as the tofu had been glazed under the soy sauce making the stirfry appetising to eat. This makes tofu a popular choice due to its accessibility in a range of supermarkets and its ability to be stored in the fridge in temperatures of 0-5 degrees celsius for some time, making it a social factor affecting food choices. With it being inexpensive, this is compliant to the project brief which requires ingredients to be cost efficient.

### Vegetables

Vegetables are incorporated into our meals throughout the day as in the Eatwell guide as it suggests they are good sources of vitamins and minerals allowing the body to maintain a healthy gut. Therefore vitamins and minerals must be eaten in small amounts daily and of the continuous cycle of all nutrients especially water soluble vitamins digested each day.

All vegetables such as onions, peppers, mushrooms and leeks have been added to create the stirfry. They are cost efficient by being seasonal produce rather than imported by an aircraft, reducing the food miles and CO2 emissions in the atmosphere. As well as the leafy green contributing to the iron intake for an active female instructor, required for healthy red blood cells but especially for the menstrual cycle as a female.

### Peppers and leeks

Both peppers and leeks contain an abundance of vitamins and minerals. The peppers had been diced sideways into batons, long stripes, to intertwine once steamed and softened with the other vegetables. This creates an elegant look which structures the stirfry into one place. This contributes towards the food's sensory appearance. As well as the food's sensory taste, adding a little bit of sweetness combating the salty and slight bitterness. Sided along with the honey added to the sauce, prior substituted for sugars which honey includes a natural form of sugar free from additives and preservatives so it is considered better than processed sugar, reducing high chances of lifestyle diseases such as coronary heart disease.

Clinical studies have shown honey with healing properties as a natural remedy for coughs, colds which the female instructor's job is to be outdoors most of the time and during the months of late winters as stated in the project brief. Bell peppers are a great source of vitamin C, vitamin A and fibers which provide antioxidant properties as health benefits and are proven to provide eye protection and strength against bacteria. The leeks also provide many antioxidants and protection towards bodily health but also the green vegetable is a source of iron and minerals. Iron expresses its importance in making healthy red blood cells which we use every second to respire and to successfully gas exchange oxygen and CO2. A lack of iron can lead to symptoms such as dizzy spells, headaches and a reduction in immunity. If this remains consistent, the disease anemia can be developed which is fatal. This is especially important to the female instructor due to menstruation and the need to create new red blood cells each month.

### Mushrooms

Alongside tofu, mushrooms are also a substitute for red meats as it is incorporated in a vegetarian diet as providing bodily benefits such as water soluble vitamins like vitamin D which increase the intake of calcium towards our bone health (teeth).

# Food and Cookery - Distinction \*

When slicing the mushrooms into thin pieces, I had intended to keep the shape (outline) of the mushrooms to provide a sense of bulky fullness to the dish, taking into consideration of the appearance.

## Starter - potato balls and dressing

The starter dish as potato balls shows off its simplicity, perhaps towards children of picky eaters, however it incorporates many benefits, as well as many industrial food skills used. This includes peeling the skin, mashing the potatoes once boiled to soften, and shaping into equally portioned balls with my hands. Coated with a layer of bread crumbs and eggs in order to contrast the soft interior with a hard crunchy shell, adding the food's sensory texture to play. Potatoes are a complex carbohydrate, great filler for hunger and a source of energy to revitalise levels. With vitamin B included in the leafy green and eggs (unlike typically meats, that don't follow vegetarianism) this acts as a catalyst and helps efficiently break down the carbohydrates needed to source the body faster.

This dish is not like complex starters found at fine dining, rather suitable for children to "snack on" adapted to be able to use their fingers as well as meeting the requirements to dietary plan meals.

In order to reduce the food miles in the transportation of food, where CO2 emissions contribute to climate change. Eggs can be produced locally and free range, a factor affecting food choices, where it reduces the CO2 emissions and are not caged, humane and ethical. However, with restrictions by living in a city, it is more convenient and less expensive to be brought in the supermarket with its range of availability.

## Peoples opinions

The presentation of the potato balls had caught my eye through its thoughtful appearance of displaying and garnishing the dish with mixed herbs. The dish is not time consuming, rather focuses on meeting the needs of hunger before the main course and to stimulate as an appetiser, going well with the soy sauce based dish ahead. The dipping sauce ranged with an extravagant tang via the lime juice and fresh herbs, which coats the potato beautifully. In order to critique, perhaps the sauce could be a little thicker next time, with a thinness being a little watery, however it ties in as almost unnoticeable.

## What was not expected and how did you overcome it

Although the both dishes were represented in an immaculate way, there were a few problems that occurred along the way though were dealt with immediately to continue to follow the desired recipe and dish. It is important to dovetail between steps to ensure everything is up to standards and compliant to the intended recipe.

Evidently, I had over-boiled my potatoes slightly which relatively made the mashing process easier, although when I had formed the ball shapes and rolled in breadcrumbs, I found they tend to slide off the egg coating due to its soft exterior and were easily dented. Therefore, in order to redeem myself from this, I had a coating of flour on the potato to prevent cracks and to create a non-slip ball of potato. Perhaps to dovetail easier, as an improvement, I could have added a timer to minimise the chances of over or undercooking the food, such as it becoming burnt.

## Overview

In conclusion, the project brief confines to the requirements needed after the days of residential activities outside in the cold winter months, all participants must be met with a warm fulfilling meal which is energy and nutrient dense, significant to revitalisation.



Crack 4 eggs with the back of the knife into a cup and immediately throw the shells away into the bin. This reduces the chance of cross contamination with food in the kitchen, especially the risk of the foodborne disease of salmonella. Pour into the bowl with the granulated sugar.



Begin to double boil the bowl and leave to simmer on low to medium heat for 3-4 minutes. Completely avoid whisking and beating the mixture at all in the moment, since this could denature the eggs in a way to wrong the batter suggested in the recipe. Such as falling back down, becoming runny, once attempted to create peaks later.



Once off the heat, using a hand held mixer, whisk and beat the eggs and sugar for aeration in order to create pale, soft cloud, peaks. (this skill is introducing air into the batter.) This is done in order to achieve a lighter textured food, such as angel cake.

The sugar acts as a catalyst for aeration and it makes the eggs essentially elastic, to expand to take in more eggs. As well as leaving a shine on the coating of the batter.

Watch the timings employed by the recipe, with it being beaten gradually for 3-4 minutes as this can affect the outcome of the texture. If mistakenly over whisked, this can cause the batter to deflate and become viscous (runny). Rather, needing coagulation.



In order to dovetail efficiently and to stick to set timings, I had floured the base and sides of my baking tins beforehand, as a preparation task in order to get the cake into the oven quickly.

The batter had been coloured separately into colours of white yellow and pink, with a burst of the flavours, lemon, raspberry and vanilla.



Use a spatula to scrape of the sides of the bowl to ensure none goes to waste. This allows the recipe to maintain its measured ingredients precisely.

Place into the oven using oven mitts and follow the timings of the recipe for how long it must be baked for (17 minutes).



Along the way, it is evident that you must clean up your surroundings along the way of the bake, from the surfaces, binning waste and doing the dishes to reduce the clutter and to keep dirty contaminants away from the food you are baking. This ensures you are on track and makes dovetailing between each step more efficient and easy.



Begin with washing your hands thoroughly with warm soapy water to get rid of all dirt and bacteria on your hands as it is a physical contamination when handling foods. Wear a clean apron as outdoor clothes can contaminate the cooking field and the sterilisation with bacteria picked up into the food you are cooking wipe down your surface clean without a chemical contaminant at the moment as it could be harmful for digestion. Preheat the oven for later use.



In order to soften the butter quickly into a liquid state, measure the grams needed and boil with a heatproof bowl over the saucepan of water using the double bowl method on low to medium heat. Avoid over boiling to becoming burnt as for an overwhelming bitter taste. Also, ensure water does not get into the mixture as the textures can be disrupted. Dovetail between an eye for the hob and weighing out the ingredients, allow the butter off the heat and store away 1/4 in a cup.



Using a scale, weigh out your ingredients especially dry ingredients to precision, following the recipe as a preparation method beforehand, as it plays the part of having the right consistency and texture for the batter.

Using a scale ensures accuracy and allows the dovetail between the pan much easier. Weigh in grams the sugar to put into a 2nd bowl, away.



Once the cake is done baking replace onto a rack and make sure it is cooled before assembling. Or else, the butter cream will melt.

To maximise the look of the cake the appearance (food sensory), I had made sure there was an even layer for each cake as it would stand up straight once layered. This is done by using a pallet knife specialised for spongy cakes.



In the meantime of the bake I had created the filling to the cake layers a buttercream rich in sweetness contrasting the barely sweetened cake.

Along with the burst of colours topped a thin glaze of icing where a pink zigzagged line scorched along the way using the tip of the knife into a playful pattern.



Slice the cake into individual pieces and complete by plating the dish. The spectacular bake of a cake is created with different layers of colours topped with the sweetness of icing and filled with buttercream, sandwiched in between.

# Food and Cookery - Distinction \*

## **Task 4a- Nazia Begum**

### **Preparing and cooking a dish suitable for someone with a food related health condition.**

The NEA Project brief states to refrain from nuts from all kinds, spreads, pastes or even the raw form. For example tree nuts, such as walnuts, almonds, hazelnuts, pecans, cashews, pistachios and Brazil nuts. They are infamously known to be an extremely potent allergen and are capable of causing severe allergic reactions (anaphylaxis) therefore they are dangerous to be exposed to a range of people. Especially as the project brief states to exclude nuts as they are also an allergen. Therefore no risks should be taken with a vast amount of people.

#### **Angel Cake Recipe:**

<https://www.bbcgoodfood.com/recipes/angel-cake>

The recipe chosen meets the requirements of the project brief and the dietary requirements for not just the instructor but also exposed to the children surrounded, wary of any infamous allergens. As well as including a range of sensory attributes to refrain from a montoned texture.

## **Task 4 (b) - Evaluating a dish for someone with a food related health condition Nazis Begum**

The layered dessert I have chosen is to create a multicoloured, angel food cake resembling an interior of a light and fluffy texture.

The NEA project brief specifies requirements for the female instructor with creating a dessert without the allergen, nuts as having the potential of allergic reactions from inflammation, itches and redness to life threatening situations affecting the breathing, requiring an epipen.

#### **Health and safety**

Consequently, this emphasises the importance of separating your ingredients in the kitchen to refrain from the contamination. This can be done by separators, cleaning the surfaces or simply reading the ingredients, labelled at the back of the packages eg. chocolate spread. As well as emphasis on creating a spectacular celebration dessert, as a treat.

<https://www.nhs.uk/live-well/eat-well/food-guidelines-and-food-labels/how-to-read-food-labels>

#### **What went well**

To conclude the bake of the cake, the process along the way created a spectacular layered cake where the individually cut slice each resembled different layers of colours and flavours, applying to the food's sensory appearance. Where the yellow layer as lemon was prompt, but perfect to not over take the raspberry and vanilla essence. Along with the burst of colours topped a thin glaze of icing where a pink zigzagged line scorched along the way using the tip of the knife into a playful pattern. Between the individual stacks was a sweet buttercream perfectly complimenting the not too sweet cake layers. This is one of the food sensories of taste where the acknowledgement for a burst of sweetness spread along spongy cake makes this a delight.

#### **Cooking skills**

In order to complete the bake of a cake successfully, many skillful techniques must be employed in order to create a replica of the bake, following the recipe. This is important especially during the make of the batter, to ensure the textures are correct in terms of an angel cake which has a light and fluffy interior. This is one of the food's sensory textures, as the cream and sponge go together.

This bake incorporated many valued skills, such as double boiling on the hob with my sugar and eggs. Without stirring, and left to simmer for 2-3 minutes in order to optimise the airy and bouncy look of the batter.

Off the heat, this was whisked using the method aeration (air to create foam) to create light and fluffy peaks of batter, creating the interior of the angle food cake.

Therefore, this practically melts in your mouth, contributing to the food sensory of texture.

Therefore, this was placed in the oven at 160c in order to bake the cake. Ensure this is preheated beforehand to maximise the rising of the cake, for better results. This is one of the many cooking skills used for a cake in terms of food processing.

Evidently the butter cream was created by, firstly creaming both the butter and granulated sugar into a softened, spreadable consistency, before adding the double cream.

This ensures the texture is correct with the ingredients mixed in properly.

#### **Peoples opinion**

A classmate had tasted a sample of the bake I created with efficient feedback to reflect on and improve for next time. The colourings of the dish made it aesthetically pleasing however a brighter pink for the cake filling would've been better. In terms of taste, the lemon zest was strong in flavour adding to the natural sweetness reducing its typically sickly flavour.

#### **Preparation for a bake**

Preparation towards a recipe beforehand is key towards a successful bake as the constant dovetail though requiring to be precise in each step of the cake can become overwhelming. However, make the careful step to preheat your ovens beforehand, ahead of the bake. This ensures that once the cake is placed in the oven, the temperatures will be at the same margins in order to have an even bake and for the rising agents that act quickly in its short amount of time, to raise the cake to its optimum.

As well as, ensuring ingredients are defrosted, to soften the butter, and to calculate the amount of ingredients you need, such as using a scale to measure specified grams. This is in place because it plays the part of having the right consistency and texture for the batter, needing to have the precise amounts for a bake. There follows the equipment, ready to dovetail efficiently rather than searching and taking up time, given to act fast.

To manage my time, I had used 3 cake tins rather than 1 each time, to put them all into the oven at the same time to reduce the time it takes for the bake in a given time, also for them to all to cool at the same time.

#### **What went wrong and how did you overcome it**

Although the recipe had gone fairly successful, the presentation had some difficulties due to the thickness of the butter cream, almost curdling during the whisking process. It could be suggested that perhaps although the butter had been out at

room temperature, the butter had not softened enough for the use into a filling. To solve this, an easy solution would have been to double boil the butter for 2 minutes in order to become quickly softened, however unable to due to the tight time frame of 1 hour and 30 minutes, to follow the prewritten recipe according to its timings. Therefore, rather I thinned out the mixture using more double cream. In essence, looking back at the picture, rather than using a pallet knife I could have used a cake cutter in order for precision so each layer is the same thickness.

#### **Food groups and its bodily functions**

The Eatwell Guide plays a part in all foods, in order to eat the majority of food groups a day for a healthy balanced diet. Although it is suggested you must refrain away from the simple carbs continually, as vast amounts of sugars and oils used can create life threatening diseases over time such as diabetes, obesity and coronary h.d, affecting your bodily functions. Consequently, suggested by the nhs Eatwell Guide, adults should have no more than 30g of sugars a day, therefore this remarks as a warm treat.

As well as, arguing for the suitability of the angel food cake in terms of food groups, nutrients and a balanced diet. Although cakes lack essential vitamins, minerals and fibers, the macronutrient content has valued responses towards bodily health. The simple carbohydrate gives a quick burst of energy once synthesised using carbohydrase. Sugars must be eaten in a controlled manner, though essential as low glucose levels can be fatal, symptoms for hypoglycemia. The dairy found in the double cream used for the butter cream ensures the mineral calcium helping to prompt healthy teeth and bones.

#### **Conclusion**

Overall, in conclusion i believe that this bake confines towards the suitability of the instructor as well as the need to reduce budget costs labelled in the project brief by used processed lemon and raspberry, vanilla flavouring rather than using authentic, natural juices as the difference is minor, though saving a mass amount of money. This is one of the social factors affecting my food choice.

To further emphasise, this bake is suitable towards the setting of a residential trip and will be enjoyed by all.

# Geography

Study Figure 4, photographs showing some causes of climate change  
Figure 4



To what extent is climate change the result of human actions

In figure 4, I can see a photo of factories which burn fossil fuels: coal, oil, gas. Fossil fuels contribute to around 50% of greenhouse gas emissions. This is because when they are burnt, they release carbon dioxide into the atmosphere. This is a high extent of human action because fossil fuels are used in transportation, building, heating homes and manufacturing. They are also burnt in power stations to generate electricity. Therefore, as the world's population grows and wealth increases, resources demanding more and more energy, which increases the use of fossil fuels which, in turn, contributes to climate change in the long term. Ex. Moreover, this would add to

Although humans contribute to climate change, there are also natural causes through the natural greenhouse effect. This is seen in figure 4 through the photo of the volcano. During volcanic eruptions, ash and sulphur dioxide are released which create a layer across the atmosphere. Therefore, when sun rays hit the earth, they reflect back to earth which means the sun soaks down and temperature decreases. As a result, this is a small extent of human action because sulphur dioxide is a greenhouse gas which, in turn, contributes to global warming in the long term.

Overall, humans have the biggest effect on climate change. This is through agriculture which contributes to 40% of global greenhouse gas emissions. Notably, this is the agricultural sector. Therefore, this is a high extent of human action because as the population increases, more food is required to sustain it in Asia where rice is a staple diet. When countries continue to increase their standard of life, there is a shift towards an increasing demand for meat. Therefore, rural areas continue to grow, it's inevitable that large scale agricultural production to climate change will continue to grow.

In conclusion, I think humans are to blame for climate change to a high extent.

# Health & Social Care - Distinction

## **COMPONENT 1: Human Lifespan Development**

### **Task 1 – PIES growth and development through the life stages**

In this report I am going to explain how people develop in infancy and early adulthood physically, intellectually, emotionally and socially.

#### **Infancy**

The infancy stage ranges from birth to two years of age.

#### **Physical Development**

Physical development is the visible changes that happen to the body which can include growth, development of physical skills and hormonal changes.

During the first two months of life, infants are unable to hold their own head or neck up for a prolonged amount of time while in a sitting position. This is because their neck muscles are too weak and aren't developed enough - these are called the paraspinal muscles. However, they might momentarily lift their heads for a brief moment while laying on their stomach. An infant's nervous system is not developed yet during the first two months of life, although the basic structures, such as the brainstem and spinal cord, are generally well developed, the higher level areas of the brain are still very primitive. By the end of these first two months, an infant should now be able to lift their head for a few seconds and turn it from side to side while laying on their stomach but they can steadily hold it between 3-5 months of age. Being able to hold the weight of their own head and neck up is crucial because it signifies developed neck muscles, which are necessary for all motor skills learnt in the future such as

rolling, sitting, crawling and walking. Newborns are born with instinctual reflexes in their arms and legs such as the startle reflex where they extend their limbs, the grasp reflex where they impulsively grip firmly onto something placed in their hands and many more. This is possibly because their bodies are wired to respond to stimuli without deliberate thought but this gradually transitions into voluntary, deliberate movements as they mature. They usually start to make meaningful movements with their arms and legs between 3-6 months.

By 2-4 months old, an infant shows significant improvements in head control as they have gained the ability to support their head for longer periods and with more stability. This is developed by the strengthening of back, neck and shoulder muscles which can be strengthened through activities such as tummy time. Many infants are able to push themselves up onto their forearms during tummy time between the 2-4 months stage because their upper body muscles are strengthened through consistent tummy time. An infant's shoulder, neck, upper arm, chest and core muscles need to develop in order for them to gain the ability to push themselves up. Although an infant is born with the instinctive reflex to grip firmly onto an object placed in their hands, this reflex isn't intentional and they only learn to intentionally do this later on in life between the ages of 2-4 months. This development is due to improved hand-eye coordination and developing muscle control. It is common to see infants put objects that they pick up into their mouth because this is how infants explore the world through their senses since their mouth is more sensitive than their hands and provides information on taste and texture. It is also a normal part of motor and sensory development and is a way to self-soothe during teething or to show signs of hunger.

Infants typically start sitting while supported by 4-6 months, which then progresses to sitting supported in a 'tripod' position which is when they lean forward and put their hands in front of them for balance and support. They still need sufficiently developed head and neck muscles, core and upper body strength and improved balance in order to be able to sit up. A common development milestone during these 4-6 months is being able to roll over, however achieving this skill may vary depending on each infant as some may be able to do this earlier or later on. An infant still needs to strengthen their back, neck, core and upper body muscles in order to start rolling over because they need the neck muscles to support their head, their shoulder and arm strength to push up and core muscles for stability.

Between the ages of 6-9 months, an infant will now reach a new milestone and start to crawl in various forms, not only the traditional hands and knees style. Some may shuffle on their bottom, bear crawl or even skip the crawling stage and start walking straight away. Gross motor movements are large physical actions that use the large muscles of the body, such as the arms, legs and trunk and these are learnt through active play and exploration. In these months, an infant may also start to stand up, especially with support and they learn to stand through progressively strengthening the muscles in their legs, hips and core and practicing balancing and also repeating movements that pull them up against gravity.

Infants can start learning how to walk between 9-12 months. This is when infants need to have developed their leg muscle strength, balance and coordination through the earlier milestones previously spoken about and strengthened them. To take steps while walking, they need to have developed their gross motor skills in their leg, hip and core muscles to support their body weight and maintain balance. This progressive muscle development will have been built on earlier through milestones like sitting, rolling and crawling. Fine motor

skills are the small, precise actions done using the muscles of the wrists, fingers and hands, which can also include coordination with the lips, tongue and eyes. A fine motor skill that a 9-12 month old may be able to do is using their thumb and index fingers to grab small objects and they may also learn to voluntarily release held objects.

Infants will now be learning to run or climb at 12-18 months old after they have mastered walking. These gross motor skills develop due to a combination of practice, physical maturation and cognitive advancements. At this point the infant's mobility will be advancing rapidly and by the end of 18 months old they will have fully mastered being able to walk and run independently.

By 18-24 months old, infants will develop more complex cognitive skills. They will be able to walk and run, throw and kick a ball, and stack blocks to build towers. They also begin to play imaginary games like naming items and will start to put words together to build sentences.

#### **Early Adulthood**

This life stage ranges from 19-45 years old.

#### **Physical Development**

When a person reaches 19-45 years old, they will have reached peak physical fitness meaning their body is performing at its highest individual level, endurance, flexibility and overall well-being. This allows them to have a reduced risk of injury. Typically, in the 20s to 30s, an adult's fitness levels such as their muscle strength, endurance, cardiovascular fitness and sensory abilities are at their highest. To maintain these high fitness levels, adults should focus on having regular exercise, adequate sleep and a healthy diet. Furthermore, because adults are at their peak in life, they are able to perform demanding physical activities with optimal strength, endurance and speed. However, although they are at their peak and physically can do more than other age groups, they do not generally find weight loss and muscle growth easy. This is because they are at the time of their life where their metabolism is slowing down, their hormone levels start to decline, and they naturally lose muscle (sarcopenia). Young adults are also at their full weight and height because their long bones have stopped growing after their growth plates (areas of cartilage) closed due to hormonal changes during puberty. Many young adults like to engage in hobbies such as reading and writing or arts and crafts, while others like to engage in more physical hobbies such as sports, dancing, hiking or yoga. Other adults might also find a liking in hobbies like gaming as a way to connect with friends over the internet, have a way to relieve stress or for personal development. Adults who have more physical hobbies such as basketball or football, will more likely be seen as a more athletic or healthy person, whereas a person who has hobbies like gaming or watching movies may be seen as a more lazy, unathletic person. This is due to the fact that if someone does highcore exercise and plays a sport regularly, they will typically be physically healthier because exercise is a great tool for weight maintenance and other parts of the body like improved cardiovascular health, increased stamina and stronger bones and muscles. There are also many other benefits to being physically active that can help with day-to-day life: enhancing your immune system, improving sleep quality and delaying signs of aging by improving mobility and independence in later life. However, someone who plays video games and sits down all day in front of a

screen will experience the inverse effects of this. This is because they won't be as physically active then they ideally should be. Playing video games on a regular basis will lead to many health problems such as obesity, poor sleep, repetitive strain injuries, poor eye sight and many more. Video games can cause many problems physically and emotionally and the consequences of this will also lead to mobility issues in later life and a health decline since they will have intense neck and back pain due to poor posture and even conditions such as carpal tunnel which is caused by pressure on the median nerve as it passes through the narrow carpal tunnel in the wrist, which leads to symptoms like numbness, tingling and pain in the fingers. During the early adulthood stage, people will be the most fertile that they have ever been. This means that they will be more likely to get pregnant, and since 20s-30s are some people's ideal age to have a child, they may choose to have a child. If a woman decides to get pregnant, it can come with a lot of physical changes due to a change in hormone production. Some of these changes may include morning sickness, weight gain, and breast changes along with internal alterations to circulation, metabolism and organs. These hormones can also cause skin darkening, fatigue and mood swings. It is commonly thought that exercise during pregnancy is hard, but in reality it isn't necessarily 'hard' but it requires modification due to the physical changes the body undergoes such as a shift in balance, more oxygen demand, a higher heart rate and hormonal joint softening. After childbirth, a mother's body starts to recover which is called the postpartum phase. This is where the uterus shrinks, vaginal discharge (lochia) occurs, and hormones shift causing fatigue, hair loss and 'after pains' which are similar to period cramps. The fatigue experienced after childbirth will cause many problems including muscle weakness, soreness, dizziness, slowed reaction time, headaches, memory lapses, poor concentration and moodiness. Fatigue will then affect a woman's everyday life because they will be less active, creating a vicious cycle where inactivity will worsen fatigue. It will also decrease the body's ability to exercise, leading to less calorie burning and a higher chance of weight gain. Holding a child can also create problems for a parent's body. While beneficial for a child to have a parent carrying them, it can cause a strain on an adult's back and shoulders from repetitive lifting and awkward positioning. Towards the end of this life stage, an adult may see a gradual decline in their physical abilities like stamina, muscle mass, eyesight and recovery from exertion. While some aspects of aging are predictable, the rate of aging is unique to individuals. In their late and early 40s, a few signs of aging may become apparent: wrinkles and fine lines, grey hair and loss of skin radiance and moisture.

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## How Physical Development Changes From Infancy to Early Adulthood

During infancy, if an infant is provided with their correct nutrients needed they will grow rapidly in weight, height and size. However, in early adulthood a person will have already reached their peak height so they won't continue to grow, but they may lose or gain weight if they don't exercise or eat correctly. Another difference between infancy and early adulthood is their eye colour; an infant's eye colour starts off grey or blue and through their first months their permanent eye colour will come through, whereas in early adulthood their eye colour won't change since they already have their permanent eye colour. However, a similarity between infancy and early adulthood is that an infant's and an adult's hair colour will change but in different ways; an infant's hair will gain colour e.g into brown/black/ginger etc, but in early adulthood an adult's hair will lose colour and turn grey. An adult's hair will turn grey because melanocyte stem cells in the hair follicles are lost over time, which leads to a slower production of melanin (the pigment that gives hair its colour). A similarity between an infant and a young adult is the applying and refinement of physical skills. This is because both life stages include the refinement of gross and fine motor skills to be able to achieve complex actions, they are focused on utilising and building their muscle strength, and the skills learnt in both life stages are the foundation for future physical abilities such as a child's athletic performance or an adult's ability to stay physically active. Additionally, the speed and strength of a young infant's immunity differs to that of an adult; an adult's immune system is significantly stronger than a young infant's immune system so if an infant were to fall ill they would heal slower than an adult with the same illness. This is initially due to the fact that infants are generally more vulnerable to illnesses because their immune system is still maturing and they have an underdeveloped ability to fight off disease. Although some infants are able to fight off some pathogens, this doesn't necessarily mean that they can heal quicker, and they are still at a higher risk of developing severe infections compared to an adult. Conversely, in later infancy a child's immunity would be significantly stronger than an adult's, so they would be more likely to heal quicker than an adult from the same illness in just a couple days. Infants don't have the developed reproductive organs that an adult does in order to have children, this makes it impossible for them to reproduce and have children. They still have the reproductive organs needed to reproduce, but they aren't mature enough yet.

## Intellectual Development

Intellectual development is all about the changes of the brain including memory, learning new skills and knowledge.

### Infancy

In infancy, an infant will naturally learn how to speak, this is called language acquisition. This is the natural process of gaining the ability to understand and use words to communicate. Between 0-3 months old, an infant won't be able to use words or form sentences yet so they use non-verbal cues such as crying, making gurgling and cooing sounds, facial expressions and eye contact to express needs. Infants may also 'babble' which is the practice of making speech-like sounds as they learn to talk. Infants may 'babble' to practice their language skills by experimenting with sounds, exploring vocal capabilities, and learning to engage with others to get a response. To express their needs, they may also cry to show that they are hungry, tired, need a diaper change or to show irritation. One of the first forms of communication in infants is cooing which is characterised by a soft, single-vowel sound like 'ooh' and 'aah'. They may do this to express contentment and joy, get attention or to simply explore the sound of their own voice. Although infants are born with the ability to cry as a survival mechanism, they are not born with the ability to coo: this is learnt through imitation of sounds from people around and caregivers. Between 6-12 months, an infant will communicate by babbling, gesturing, sounds, and responding to their names and familiar words. By 12 months, an infant may be able to say a few words such as 'no', 'bye-bye' or simple names for objects or people. Caregivers facilitate the development of communication by creating a language-rich environment and constantly speaking, reading or singing to their children. At 12-18 months, an infant's brain starts to develop faster than their mouth. They begin to say more words and even respond to questions like 'where's teddy?' and they have a rich use of babbling to sound out sentences. They may not be able to speak in full sentences but they can successfully use single words purposefully to show what they want.

They learn these words through parents speaking about everyday activities or foods that they eat and pointing at objects in picture books. At 18-24 months, they experience a 'naming explosion' where they can learn up to 8 new words a day. They begin to combine words into two word sentences like 'more juice' or ask questions like 'what's that?'. They begin to expand who they speak to as they may start going to a daycare or a nursery and use their communication skills to speak to other children or daycare workers.

Babies learn to focus their vision as the ciliary muscles in their eyes gain strength with training which allows them to focus their lenses on objects at varying distances. Newborns have very poor focus with only being able to clearly see about 20-30cm in front of them. Their eye contact develops over the first few months of life from short, unfocused looks to longer, deliberate gazes. Interestingly, a newborn can't see in colour. They can only see in black and white or shades of grey.

An infant learns to eat and chew at 6 months old. They learn to eat and chew from parents, allowing them to mimic the mouth movements of chewing and watching others around using utensils to eat food. It is better for an infant to first try soft, small bite-sized foods so they don't choke. They then start to feed themselves with their hands by 9-13 months and by 14 months they can use a small spoon to feed themselves.

A parent will teach an infant to be toilet trained as early as 18 months old. When an infant is first born, they don't have control over their bladder; they excrete urine reflexively because their bladders are too small and their brain hasn't developed enough to send those signals about when to hold or release urine. They typically gain control over daytime bladder control between 2-4 years old and nighttime control later on in life. In the meantime while they are still not toilet trained, they wear a diaper for absorption and containment of urine and faeces to maintain hygiene and prevent skin irritation. The process of toilet training an infant goes from recognizing their readiness to gradually transition from diapers to underwear by introducing a toilet or potty.

Memory development in infants is a rapid and continuous process. They begin forming basic, short-term memories from birth and these skills become more complex and longer-lasting throughout the first year. At 0-6 months, an infant can recognise voices and smells, preferring their mother's voice and scent. Their short-term memory begins to develop in their first few months and expands rapidly throughout infancy. This allows them to remember faces and familiar routines. An infant's long term memory could be characterized by implicit memory (e.g procedural memories such as how to walk and eat) rather than autobiographical memories. The ability to form explicit, autobiographical memories emerges after the first year with significant improvements. At 6-12 months they can certainly remember routines, especially predictable daily routines such as baths, feeding etc. At this stage their short-term memory will also have progressed a lot, leading them to be able to remember where they left a toy or recognise more people's faces; however, they can only remember people's faces that they haven't seen for a long time at the age of 12-24 months. They can also learn to perform simple tasks that they haven't done before such as dressing themselves or holding a bottle by this age.

During early adulthood, the prefrontal cortex goes through final maturation. This involves strengthening connections and completing its wiring, which results in the development of executive functions such as decision making, planning, and impulsive control. Synaptic pruning is a natural process in which the brain eliminates unnecessary or weak synaptic connections between neurons so that it can become more efficient and also support memory, learning and complex cognitive functions as it matures. This process happens in the early and late 20s of a person's life. A young adult will also be able to apply knowledge, which is a fundamental aspect of cognitive development; applying knowledge means to use already acquired skills and information to make decisions, perform tasks and solve problems in new situations that they haven't faced before. In early adulthood people will also 'refine' their problem solving skills by developing more adaptive and sophisticated strategies, improving brain function for complex decision-making, and integrating experience with logical thinking. This process also involves using divergent thoughts ('thinking outside the box') with convergent thoughts (practical knowledge) to navigate through real-world situations. Most people typically go to university at the age of 18, however anyone can go to university at any age: there is no limit. People can learn many things at university, such as law, medicine or even subjects like bioinformatics. They can even learn useful life-skills such as teamwork, communication, research and networking. Some people may decide to move away from home for university such as to another city or even to another country, this is called an international student. If someone chooses to move away for university, they will need many personal care skills such as being able to do your own laundry, managing money for bills and food, being able to prepare food and knowing how to get around especially if you move to a new area that you have never been to. While being at university, a young adult may also learn various life skills such as self-sufficiency, time management, problem-solving skills, communication and resilience. After finally completing school, it would now be time for a young adult to start a career, which usually happens around the ages of 22-24, however this may vary depending on the length of their course. The opportunity of starting a career and getting their first job can teach people many professional skills such as taking responsibility, handling pressure, the value of having a positive attitude and asking questions. They may also need to learn individual skills for their job, for example a software developer would need to continuously learn new programming languages to stay ahead of the competition. One of the most common jobs in the UK is a careworker; being a careworker can teach you many valuable skills such as teamwork, problem-solving and time management alongside learning essential professional behaviours. Another job example could be the role of a teacher. While they teach others, they also learn many organisational and critical-thinking skills, such as planning and organising classroom activities while also making sure they are engaging, assessing student work and measuring their progress throughout the year, managing classroom behaviour and establishing routines and many more valuable things that could also be used in other aspects of life such as with their own children. In England and Wales, the average age to have a child is 29-30, but in the US it's lower between 27-28 years old. When having their first child it may be stressful because they haven't had a child before and they don't know what to expect, but they will learn many skills in order to successfully take care of their first child. These skills may include soothing a child, responding to their needs and also establishing a strong routine for their child while also developing a well-built parent-child bond. They may also develop numerous life skills that they already have such as patience, problem solving, time management and resilience. Many expecting adults will attend maternity or birthing classes in order to prepare for birth

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and parenthood. In these classes they may learn about what it's like to have a healthy pregnancy, what to expect during labour, and how to take care of their newborn baby.

## How Intellectual Development Changes From Infancy to Early Adulthood

During infancy and early adulthood, an individual's brain and its development continue to progress in many common ways. An infant's intellectual development progresses quicker than a young adult's intellectual development because in infancy they have much more that they need to learn than they do in early adulthood such as their vocabulary, memory and learning the skills for taking in new information. In infancy, it is much easier to pick up new things whereas in early adulthood, it is harder to pick up new things. An example of this is learning new vocabulary; infants are notably better at picking up new words (they can pick up around 8 new words a day between 18-24 months old) and they are generally better at memorisation, however, an adult's brain will outperform an infant when it comes to grammar rules. This is because in infancy they have a highly neuroplastic brain which is constantly removing and forming neural connections, this makes it easier for them to take in new information at a higher rate than in early adulthood, where these neural connections take longer to form or be removed. Despite this, during the later parts of early adulthood memory starts to deteriorate and become defected, which is the opposite of what happens in infancy since an infant's memory becomes better towards the end of this life stage. An infant and a young adult are in a critical time when it comes to learning new skills: infants learn language and basic cognitive skills, and a young adult will learn complex reasoning and problem solving skills. Furthermore, another similarity between these two life stages is that they learn through active exploration. An infant and a young adult both learn from experimenting with their environment; infants bang objects to learn about cause and effect, while adults will use their newly acquired knowledge to solve problems in their work environment or in other aspects of life. Another difference is where these two types of people learn from, an infant will learn their cognitive skills and language skills at home from their parents, however, on the other hand a young adult will learn their complex reasoning and problem solving skills from their peers around them in university or at work. During the infancy stage, an individual will focus on learning new intellectual skills such as object permanence, which is the ability to understand that people and things still exist even when not in sight, but an adult will more likely focus on refining their already learnt skills instead of learning new ones.

## Emotional Development

Emotional development is all about learning and changes of feelings and emotions.

### Infancy

When an infant is born, their first immediate attachment is with their mother and later on with other immediate family members. Their primary caregiver, which is typically the mother or father, is the person who provides consistent emotional and physical care and responds to their needs. This newly formed attachment can make an infant feel safe, loved and supported. This is also important because it gives an infant the feeling of knowing that they can always return to their safe place whenever needed. It can also give them separation anxiety when their primary caregiver leaves but they will be happy and easily comforted again once they return. This is very helpful because it helps a child develop trust in their primary caregiver.

There are many ways a child will show that they are hungry, some of them being 'rooting' (turning their heads around with their mouths open while trying to find a food source), becoming restless, sucking on their fingers and opening and closing their mouths. The feeling of hunger can make an infant feel discomfort and pain. This is because their developing bodies need to rely on a constant source of nutrients for energy and growth but when that supply is low, it triggers a primal, physical urge to seek nourishment. The feeling of pain and discomfort can also mix with frustration because they can't feed themselves and they have to wait for someone else to feed them which leads to them becoming impatient and even hungrier. Once they are finally fed, they will be content and calmed down since their needs were listened to and the process of being fed provides essential nourishment, physical closeness and warmth that soothes their nervous system which builds on that relationship and trust between them and their caregiver.

An infant will experience many emotions when playing with toys: curiosity, enjoyment, excitement, frustration and maybe even confusion. This is because playing with toys provides sensory stimulation, allows for exploration of cause and effect, and facilitates emotional and language development by providing a way of acting out their emotions and processing feelings. When they learn to play with new toys, they will develop more skills and because of this they will also experience feelings of success or anger if a task is too challenging. If a toy that they are playing with is taken away by an adult or even another child, they can experience feelings of anger, frustration, sadness and even fear because they have lost something valuable to them.

Their main source of interaction would be with a caregiver, which can make them feel secure and loved which is a result of consistent responsiveness, leading to the development of their trust and attachment. They may show their happiness through smiles and through vocalisation like gurgles and coos. They may also use body language such as eye contact or laying in a relaxed position and energetic body movements like flailing their arms. Social interactions can also help an infant to learn emotional skills since it will teach them critical social skills such as having empathy, turn-taking, and emotional regulation.

At 3-6 months old, an infant will be able to start reading other people's emotions, this can also affect their emotions. For example, when they see someone smiling, it can make them happy and safe but when they see someone angry, they might feel afraid and stressed, which is why it's important to control the environment that a baby is in because how their emotions are affected during this stage will also affect how they grow up. While they can read the difference between extreme emotions like happiness and anger, they aren't always able to read emotions during these months, however this skill does develop even further to be able to read complex emotions around 7 months and beyond. Infants can also feel a lot of confusion due to a lack of routine, discomfort from teething, confusion from learning the difference between day and night and also when learning to breastfeed instead of with a bottle.

An infant will struggle to understand their own emotions. This is because their ability to do so develops over time, young infants are able to distinguish between different emotional cues

and older infants start to use words to describe their feelings. When they don't understand their emotions and feel overwhelmed, they typically resort to crying and making noises and also having an increased level of physical activity or agitation. To soothe themselves, they may start sucking their thumb because it communicates their internal state and signals to caregivers that they need comfort.

An infant's physical health may also affect their emotions. Issues such as a lack of sleep and nutrition can lead to mood swings, behavioural problems and irritation. Specifically, a lack of nutrition can cause a baby to feel fatigued or weak and can make them feel mood changes such as depression or lethargy - the feeling of having a lack of enthusiasm or energy. When a baby is ill, they may get very irritable and experience a range of problems like becoming fussy with their feeding and sleeping.

During the later parts of infancy, a child may start nursery or daycare, which can cause emotions such as excitement and joy because it's a new experience and it's an opportunity to make new friends, explore a stimulating environment and gain independence. However, they may also be scared to start nursery or daycare because they will be away from their parents for the first time and they may display this fear by being clingy and not wanting to be away from their parents since they have built this safe space around them and they can go to them whenever they need comfort. To help, a parent may acknowledge their feelings and provide comfort without dismissing them and making them face the fear all at once.

### Early Adulthood

In this life stage, people will refine their emotional regulation. Emotional regulation is the ability to manage and understand someone's emotional state, including the types of emotions felt, their intensity, and how they are felt. Young adults get better at regulating their emotions due to many factors such as the neurological maturation of the prefrontal cortex, increased experience with environmental and social challenges, the increased use of adaptive cognitive strategies, and the growing capacity to understand emotions. Young adults will also start to use coping strategies and get better at using them. Some forms of coping that they may use are regular exercise, mindfulness, maintaining supportive connections, engaging in hobbies, setting goals, and practicing positive self-talk. Some adults may also get better at having emotional intelligence but some may be better than others. Emotional intelligence is the ability to understand and manage their own emotions or the emotions of others. They may engage in things such as mindfulness to help them understand their own emotions but to help them understand other people's emotions, they may pay closer attention to non-verbal cues or body language and start to listen more to others and how they feel; this can also help them get better at empathising for others. In this life stage, many people may also start searching for intimacy, which is the feeling of wanting closeness and a deep connection with others. This is good for a young adult's emotional development because it provides a secure base for self-expression which helps to foster a sense of well-being and trust. A person may also start a long term relationship in this life stage and be looking for that special connection with someone which can make them feel very happy, comfortable, and fulfilled and they may also feel like they have found their soulmate. However, if they break up, they will experience the opposite of this and they will feel very lonely, upset, they may grieve and even experience anger because the brain is wired to want connection, but loss triggers that stress response similar to withdrawal, which

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## Social Development

Social development is about the development and changes to relationships and friendships.

### Infancy

When a baby is born, they communicate their needs to their parents through crying to express hunger or discomfort, cooing, gurgling and non-verbal body language such as through eye contact, movement and facial expressions. These communication methods, as well as physical closeness, helps to build a strong, well built relationship and a base of trust and security between the infant and parent. From 3-9 months, an infant's communication will develop further and they will start to make more eye contact, interact with others and take turns, almost as if they are having a real conversation with someone. This eye contact is essential for building relationships because it initiates a communicative link, signals availability and synchronises brain activity between the child and parent, which are all very significant for building social skills. Between the 9-12 month stage, an infant will communicate through more physical movements such as pointing and waving, and they will also use more vocalisation such as babbling and even saying their first words; they will also start understanding simple words and routines. In this stage, they will also start to communicate with a wider range of people such as caregivers, other family members and also other children. To build on their parent-child relationship even more, a parent may engage in activities that their child shows interest in and play games with their child that involve their interest: examples of this could include playing with dolls, cars, playing dress-up or roleplaying with toys. Between 1-2 years old, an infant will become more vocal with their communication. They will start to use a mix of single-word and two-word phrases, pointing and gestures like nodding and shaking their heads. Once they learn to speak, they will now be able to build further relationships with family members such as siblings, aunts, uncles or other children in the family. This will help them make friends when they start nursery or school because they will be used to speaking with other people and start conversations with people they don't know and they will start to form friendships and bonds with other children they meet.

It is crucial for a child to form a good bond with their mother/caregiver. This is because if they don't they may experience a range of difficulties such as neurological, emotional,

psychological and physical issues. These problems can develop into many different behavioural problems including aggression and hyperactivity, poor academic and social development, and problems forming healthy friendships and relationships later on in life. In a severe case, this may lead to a child developing Reactive Attachment Disorder (RAD), which is a condition that can be identified by a lack of healthy attachment with a caregiver due to unmet needs for affection and comfort. This can be avoided by forming a healthy bond early on in the child's life and making sure they are well taken care of so that they can build a healthy, trusting relationship with their caregiver or parent.

As part of their social development, an infant will learn to do something called 'parallel play'. This is when young children play alongside each other without directly interacting with each other, maybe in daycare or when they start nursery. During parallel play, children are present in the same area and may imitate and observe others while still maintaining their individual activities. This helps them to form relationships because they will be introduced to other children and their presence in a comfortable way before they start to interact with them in their own time.

An infant's closest bonds and relationships will be with their family, mainly their primary caregiver. They are completely dependent on their primary caregiver for survival and development, which helps them form a critical attachment to them that helps to develop their social development. A parent may send their child to a nursery for childcare while they are at work or for the benefit of their social development before they start school. Here they will develop relationships with other children or with a worker since they will be providing for them and fulfilling their needs. They may form relationships with other children through smiling at each other or gestures like waving and then engaging in play and exploration together.

### Early Adulthood

In early adulthood, people will mainly focus on maintaining friendships instead of finding new ones. They may focus on searching and forming romantic relationships (most likely leading towards marriage), and redefining their relationships with family members to become more of an adult-to-adult relationship. They will most likely be looking for intimacy in their relationships, which is the feeling of a deep connection. Although this feeling of closeness and trust is mainly associated with romantic relationships, it can also be seen in platonic friendships because intimacy is this higher level of comfort and trust that could be experienced with very close, trustworthy friends. Having a lack of intimacy, either romantically or platonically, can lead to isolation. Isolation is the process or act of being detached from others. This is because a failure of having or finding deep connections results in feelings of loneliness and detachment. This increases the risk of mental health issues such as anxiety and depression and can have an overall negative impact on a person's well-being. At university, a young adult will meet many new people from many different areas, cultures or religions, they will also meet people from very diverse fields of study. This will lead to more purposeful friendships and connections since they will transition from automatic or forced social connections to proactively seeking friendships through shared interests such as hobbies, backgrounds, clubs or courses. Young adults will have to adapt their communication skills in order to get along well with new people because they will have to work and put in effort to let these new friendships grow and to express what they want or

can lead to feelings of insecurity, low self esteem and mourning both the loss of the person and the envisioned future. Once they think they are ready, they may decide to get married, which can come with a mix of emotions. They may feel excited yet also nervous: excited for the future yet nervous because they don't know the future outcomes of this decision. Another life event they may experience is buying their first car. This can come with very exciting and happy emotions because this may be their first big purchase and it gives them a sense of independence because they can transport themselves around without having to rely on another person or thing. However, they may also be fearful because they will care a lot for their first car since they don't know if they will damage it or crash it. They might leave home for university and move to another city, which can make them feel very nervous because they need to be able to take care of themselves and their new accommodation/ house, which they have never done before. They will also have to pay their own bills and do their own house chores. A positive thing they might feel due to going to university may be the fact that they have more independence and can do things more freely without having to ask for their parents' permission to go out or make changes to their lifestyle. Getting their first job may be very thrilling because they have a source of income but they might feel out of place and don't know what they are doing since they are new and everyone around them will have more experience so they might feel a lot of pressure. Another large purchase they might make is buying their first house. This can bring feelings of independence, joy, stress, and fear. This is because buying a new house is a very large step in adulthood so they might feel good about how their life is going but they might be fearful of their new future in that house because they won't know if bills will be different, if they will adjust well to the new environment or if the house itself will suit them. Towards the end of this life stage, features of aging may become apparent such as wrinkles or grey hair, which can bring many emotions including fear of being closer to death, lower self-esteem because they are slipping away from their youth and many more.

## How Emotional Development Changes From Infancy to Early Adulthood

Emotions can vary between infancy and early adulthood. Infants can feel and understand a few emotions such as interest, distress, and pleasure which evolve into further, more complex emotions like joy, fear, excitement, anger, and sadness all within the first few months of life. However, infants don't have the ability to understand their own emotions in the same way that adults do and they also can't understand other people's emotions in order to be able to sympathise for others like adults can. A few more complex emotions that adults can understand that infants can't include guilt, shame, pride, jealousy and empathy. Being able to understand a higher level of emotions can help young adults sympathise for others. The reason that adults can sympathise while infants can't is because adults have developed the cognitive abilities needed and have the life experience that infants lack in order to understand complex emotions. On the other hand, a similarity between infants and young adults is the search for trust and security. Though it might be in different forms, an infant searches for trust and security in their caregivers and people around them which then helps them learn how to regulate their emotions and build a strong bond with those around, while young adults search for security and trust in long-term relationships to help them maintain a good mental state and allows them to have a greater sense of self-worth by providing a safe space for stability and the freedom to express themselves however they feel comfortable to. Infants and adults will express their emotions differently, an infant will express emotions such as stress, discomfort or hunger through crying or throwing tantrums, while an adult will express their feelings of sadness by speaking about them in order to fix their problems. This is because adults have the ability to regulate their emotions and control how they react to them while infants don't have this ability so they express all their negative emotions through crying, and opposingly they express their positive emotions through smiling or laughing. An adult can regulate their emotions better because they have a more mature brain and specifically in their prefrontal cortex, which is responsible for cognitive control, whereas an infant depends on a caregiver for soothing. Although they experience emotions differently they can also experience a few emotions in the same way; infants and adults can both experience fear in an instinctual way for infants or because of complex fears that involve imagination, social cues and experiences for adults. Similarly, they can also both experience happiness. Infants feel a simple, immediate joy, while adults experience a more complex version which could be influenced by life satisfaction such as when getting a new job or buying a new car.

# Health & Social Care - Distinction

feel in these relationships. The move to university will have an impact on a young adult's relationships with their parents and families and their parent-child dynamic. This is because the move to university will give the young adult a sense of independence and will cause a separation. This is due to the psychological change to adulthood from being dependent on their parents to then having to depend on themselves and make their own decisions. This alters the family roles and evolves their relationship to become more peer-based. They will still see and speak to their family and there will still be a family bond because they will still be supported by their parents whenever they need help, but this will be different from when they were younger and had help from their parents for everything including little things to then needing little to no help at all from their parents because they will more likely go to other people for help such as their long-term, trusted friendships. Early adulthood gives young adults the opportunity to form long-term romantic relationships, which is essential for learning other social behaviours such as conflict resolution and providing emotional support. It will also affect how often they see their friends since their new priority is maintaining this romantic relationship so they won't have as much time as they used to for their friends; this can cause distancing between them and their friends that they aren't already close with but it might not affect their close bonds and friendships because they already have that strong connection. In this life stage most adults will get married, this may increase their social circle because they will meet more people such as their significant other's close family and friends. This can be a foundation for building new friendships such as with their partner's siblings or close friends as they will be around them more often. They may also have children when they feel ready and are prepared enough which can also affect their social life. This may be because they will spend more time at home taking care of their child and won't have any time to socialise and go out as much as they used to. Despite this, having a child can bring families closer together and strengthen their bonds because they may share responsibilities when it comes to taking care of the child at certain times and also sharing knowledge from the young adult's parents to them about taking care of a child. A parent may take their child to many different types of places to socialise with them such as to a park, library, swim lessons or sports games. This can lead to parents meeting other parents, who they can become friends with, and this allows them to find someone who they can relate to about the experiences and struggles of parenthood. Due to going on different paths and having different goals and ambitions for life, an adult may not see their old friends from adolescence and childhood as often because they won't have the time for each other and will most likely have moved to different places to start their lives in. As a result of starting their first, full-time job, they will most likely build friendships with their colleagues through work since they will be around them often and will have to work with them on a daily basis.

## **How Social Development Changes From Infancy to Early Adulthood**

An infant will be building relationships and bonds with their parents, caregivers and other people around them. This is because they depend on their support for help and fulfilling their needs as well as their development. In contrast to this, a young adult will start moving away from their parents' support since they will gain independence and if they need help they would ask other people such as their long term friendships or their new friendships from university. Instead of relying on their parents for food or shelter, they may still rely on them for financial support for their education or practical help when it comes to housing. However, they may still want security from their parents, similar to an infant, because at this stage of life they will be going through many key events that they don't have experience with but their

parents will e.g moving away for university, buying a new house, getting married etc. In early adulthood, a young adult may form romantic, long term relationships with people they have met through university or work, but infants won't be searching for this level of intimacy. Instead, they will be forming relationships with their family members and in the later part of infancy, they may start forming friendships with other children that they meet through nursery or daycare. An infant and a young adult's social circle will be very different in comparison to each other: an infant will have a small social circle including their parents, immediate family and/or siblings, but an adult's social circle will be a lot bigger and will include long term friendships, new friendships, and maybe even romantic relationships. An adult's social circle will be larger because they have met many new people through school and life experiences but an infant will have spent their entire life at home with their immediate family so their social circle would be very small. Infants will form their bonds while they are being taken care of by their caregiver because it gives them the time to build trust and to build a safe space around their caregiver, but an adult will form their bonds with new people that they meet through their education and work life and their bonds are more based on common interests instead of depending on someone to support them. Infants rely solely on their parents or caregivers for care and comfort, however, in early adulthood an individual may rely more on their partner for financial compatibility and mutual assistance in their careers. If an individual has siblings growing up, during early and late infancy they may be closer to them than in early adulthood because in early life they would be living together and they would be more around them so they will have a closer relationship. However in early adulthood, they might grow apart from their siblings because they will get busier in life and will most likely live further apart from each other and start their own families so they will speak less to each other and lose their close sibling bond.

# History

Thursday 29th January 2026

How did gold miners view the war?

(1) Harold Godwinson - Brother in law of Edward  
- powerful noble  
- English

(2) ADRIAN HADWARD - Viking Grandfather  
powerful  
Army  
was king

(3) William of Normandy

- Promised the throne by Edward.
- Harold swore an oath to support him
- Pope's support.

What was the impact of the Californian gold rush of 1848-1849? (10 marks)?

One impact of the Californian gold rush was that it led to excessive migration to the west. This was due to the rumors which spread about miners making \$1000 a day in California.

people began living on plains /

- treaty of Fort Laramie broken by new disease and grass

- Change in attitude towards the states: before they were seen as a place to pass through.
- It started the slow process of populating the "missing middle".
- settled and established farms, needed food, so more people to the issues of "Bleeding Kansas".
- New mining towns like Denver (tribe).
- Growth in population led to Kansas becoming a state in 1861. This led to the issues of "Bleeding Kansas".
- Kansas Territory was occupied by Cheyenne Indians (a powerful Plains tribe).
- Competition for grazing land meant the Cheyenne and Arapaho had to travel further from their land to hunt. It led to even worse relations with the Indians as the government broke treaties (1851 and 1853 which established routes) and white settlers flooded the Plains. Tribes began to fight back against white settlers.



Impact - increasing tensions/conflict with Native Americans

<p>California's wealth</p> <p>California had enough people to become a state in 1850.</p> <p>San Francisco became a thriving city and sea port. Lumbering and farming spread to support the growing mining towns with food and wood.</p> <p>Demands for the railroad link to the east grew.</p>	<p>The Business</p> <p>1852: All the surface gold had gone. Companies employed hundreds of men. Miners who had once hoped to get rich quick ended up working for on tiny wages. They dug out tons of rock and big machines crushed the rock and washed it with chemicals to release the gold.</p>
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- 1848 gold is discovered. Soon rumors making \$1000 a day; men were washing bards. (Average wage \$2-3 a day)
- The Forty-niners: In 1849 50,000 rush to get rich-quick; travelled by sea across California trail. Thousands came from merchants sold denim trousers, Nancy Strauss sold denim trousers; Nancy Strauss sold denim trousers and bought the free food for miners and bought the free

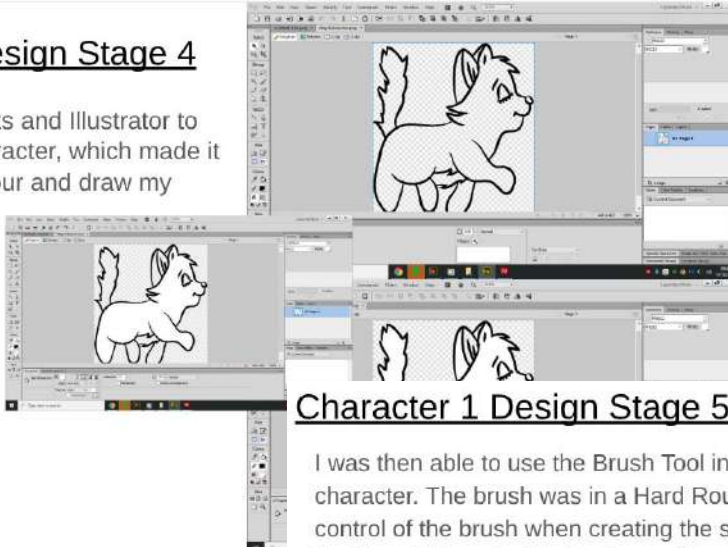


# Information Technology - Distinction

## Character 1 Design Stage 4

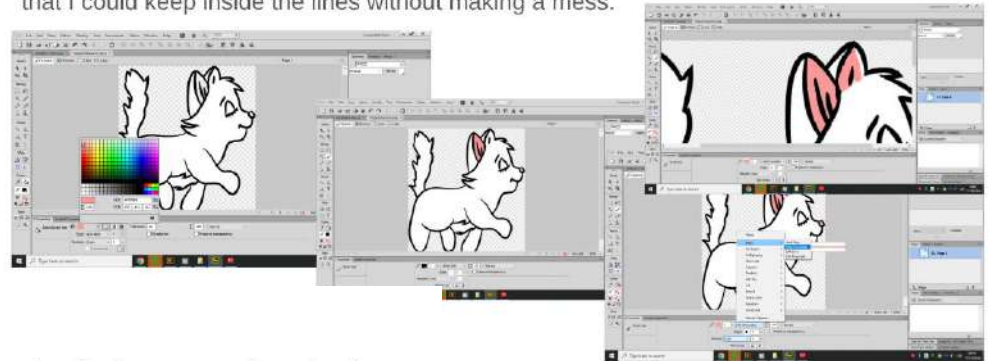
I used both Fireworks and Illustrator to create my main character, which made it easier for me to colour and draw my character digitally.

I used the Paint Bucket Tool to efficiently colour my whole character. Which I decided to do in a shade of white.



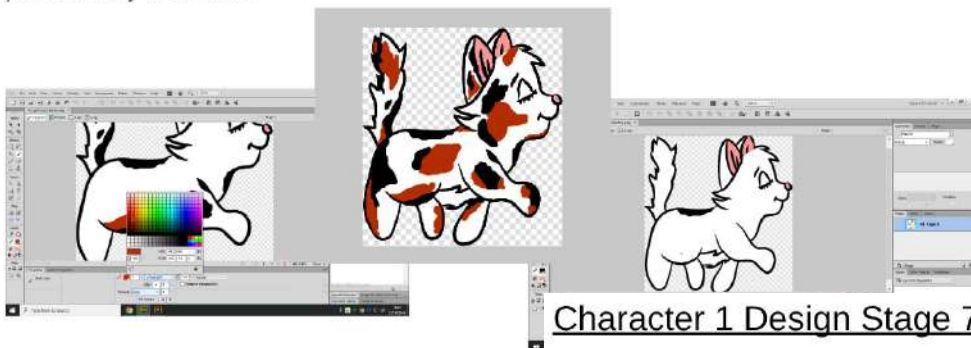
## Character 1 Design Stage 5

I was then able to use the Brush Tool in a shade of pink to fill the ears and nose of my character. The brush was in a Hard Rounded line on size 9 so that I was able to keep control of the brush when creating the shapes around the body of my character and so that I could keep inside the lines without making a mess.



## Character 1 Design Stage 6

I finally started to use the paintbrush and create spots of colour on my character. I intend for her to look like a calico cat, so I used a rusty orange colour and black to create certain spots of colour around her body. After this, I had finished the side profile of my character.



## Character 1 Design Stage 7



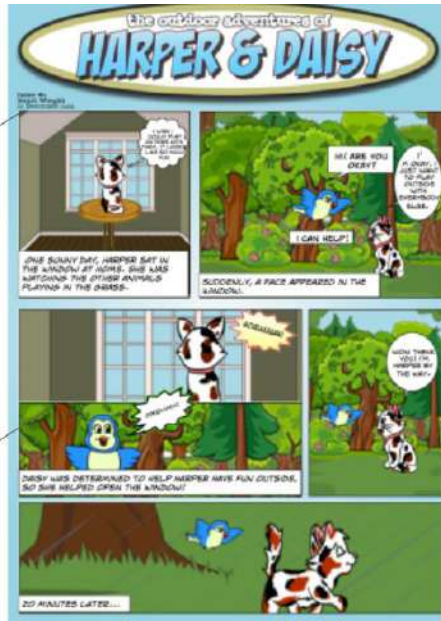
I then copied this whole process again with my second character design. For this one, I gave her a sad face that I can use when my story gets to its conflict. I used fireworks to colour, and illustrator to trace around the design that I scanned into the computer.

# Information Technology - Distinction

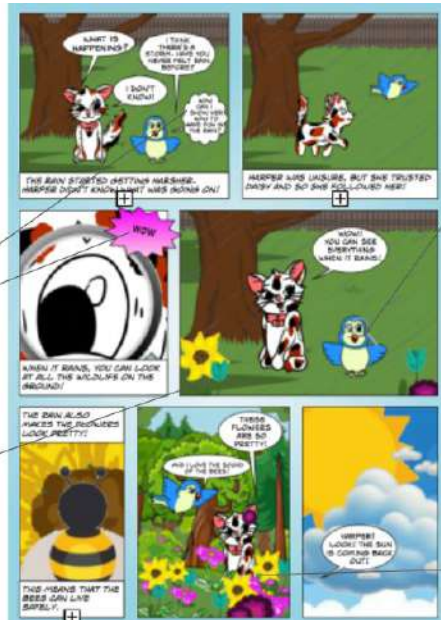
## The Final Comic

I added three text boxes, each saying the issue number, my own name and the current date. This makes me comic look more official and professional like the comics that I looked at in Task 1.

I decided to include a split panel so that I could use a variation of different panel types in my work.



Multiple character positions/ facial expressions



Repurposed images from the internet.

Variation of speech bubbles

Original drawings

Flowers, sun, grass, etc so that my comic is accurately suited for the client brief.



Final lasting message to the reader that emphasises the requirement of the council.

# Information Technology - Distinction

## Suitability

When researching and creating my character, I took a lot of inspiration from big film companies such as Disney to try and narrow down my aim and appeal to my target audience, whilst still maintaining my own creativity to create a completely original character. Therefore, I chose to make both characters animals as that is where my skills lie, it is a common theme that I took from Disney films, and it takes some pressure off of making the children exactly relatable to their audience. Moreover, I think I did a good job of keeping my characters as gender neutral as possible, whilst also giving them slightly gendered names. Therefore, they will appeal to not only young girls, but both sexes, making my comic suitable for all children aged 5 - 9. I made sure that each of my characters had more than one position so that I could demonstrate movement, and I also made sure that they were given multiple different facial expressions, allowing me to emphasise emotion in each of my scenes. After creating each character, I also made sure to save them as a PNG, as this file format is most suitable for me to include images that are PNGs in my comic. It would've been less appropriate for me to use a file format such as a JPG because it doesn't offer transparent backgrounds like PNGs do. My characters were made to be over 400 pixels, so they don't pixelate when they are zoomed in on. Furthermore, I tried to make my comic as close to the client brief as possible. I focused on the aims of making my comic educational about nature and demonstrating the advantages to staying fit in nature. To do this, I made my story set outdoors to show the journey of my main characters falling in love with nature. I used a colour scheme of primarily shades of blue and green, as to reflect the benefit of nature and to create a calming effect. I think that by creating this calming effect, my comic will become more suitable for small children as they need to be exposed to colour schemes like these in order to develop. I made sure that I used a sans serif font, settling on Comic Sans as it is the most famous font used in comics, and I tried as hard as possible to make sure that the tone of language is suitable for my target audience as I don't want people to be confused when reading my comic. On top of this, I made the size of my comic A4 as that was the size that most of the comics that I researched were. Finally, I saved my comic as a PDF in both 300dpi and 72dpi. I saved one as 300dpi so that it would be suitable for printing and distributing using print publishing, and I saved the other as 72dpi so that it can be viewed online and distributed using the internet without taking up too much time or storage. I could have also saved it as a JPG because it is the most common file type after PDF. Therefore, I think that my comic fits the brief well enough that the local council can definitely share my comic to achieve their goal of getting more children to play outdoors since my comic will be able to be opened on tablets and ipads so therefore will be accessible by most children nowadays.

## Improvement and Further Development

If I were to make my comic again with different improvements, I think that I maybe would like to create my characters in human form instead of animals as this might be more engaging and relatable to a younger generation. For me, I find drawing humans really difficult and I know that I am better at creating animal characters. However, I think that - given more time - I could work on creating a human character that is young and relatable to its audience. This way, I think it would be much more beneficial for younger children to see people who do and don't look like themselves in media, which will also help educate not only on the environment but also on their social surroundings. Moreover, I think that I could also do with narrowing down my target audience. I think that more research could be put into the interests, likes, and dislikes of children aged 5-9 and this would be really beneficial for me to explore in order to help me create a comic that is perfectly advertised towards my target audience. This would really help to make my comic more suitable for the client, as it would align perfectly with the brief that they outlined for me. Another way that I would improve my comic is by improving the quality and resolution of my characters and images to be higher than 300 dpi up to 500 dpi for a higher print quality. As most images are at 300 dpi, which is enough dpi to be printed and viewed digitally. With the final comics exported at both 300 dpi and 72 dpi this is okay for the required brief, as it mentions that it wants me to create both a printed comic AND a comic that is easily reachable online, as to reach more families in their local area. This makes my comic suitable for the client, a higher dpi would become a lot better quality when printed and therefore will be a much better product to be shared by the council. On top of this, I think that my comic could utilise a larger variation of panel types as this would add depth to the comic and would make my story appear more fascinating to a younger audience, making sure to keep their attention throughout the duration of the story. I would like to add more split panels and more wider and shorter panels because I think they help to progress the story further, and provide variation for the eyes of the reader. Finally, another improvement that I would like to add as well would be to add slightly more narration. I think that this is necessary as my target audience are still really young, and they require more explanation so that they can understand a plot. I think that more narration would be really helpful for younger children in aiding their learning (such as their ability to read), and would help them to grasp the story and the meaning of the plot. When further developing my comic, I think that it could look a lot more impressive if I had made a few more positions of my characters and a few more facial expressions. If I had done this, I think that my comic would look more seamless and would have more of a solid flow throughout the pages. Therefore, this would help to develop and improve my comic as there would be a much nicer, well thought out story that is aesthetically pleasing and nice to look at. Although this may not have affected the plot, I think that it would still be really useful in creating the comic as it is visually understandable for children who are struggling to read narration/dialogue. Moreover, I need to add my own name to my comic so that it definitely belongs to me. To do this, I'm going to add my name, the date, and an issue number to make my comic appear as though it is professional like the ones that I researched before the project. I noticed that each comic use issue numbers and dates as timestamps of when the comic is made, and each includes the name of the creators and illustrators. I think that including this will help elevate my comic and make it appear as professional as possible for my local council. On top of this, I would really like it continue my story or create a second issue as a sequel to this one. I think that this would help to reinforce my story and the lessons that the client wants me to impose onto their target audience. This would solidify the purpose of my comic, ensuring that it is 100% useful for the client, and entirely matches the brief. Finally, I think that the beginning of my comic could benefit from a few more background images. It is quite easy to get lost in the background as it is so vast, and it makes my characters seem small and empty. To develop this, it would be really nice if there was more of an atmosphere when my main character first goes outside, so that there was a noticeable change. This would just emphasise the benefits of being outdoors, which my client wanted me to portray through this comic.

# BTEC Tech Award in Music Practice - Distinction

## Task 1 – Styles portfolio

### Style 1 (world music)

## Traditional Western African Drumming

### Sonic features of African drumming (cont.)

#### Texture

The texture of african drumming consists of Polyrythms which are more than one rhythm played at one time. Occasionally people play in Unison. That's where everyone is playing or singing at the same time. This called a rhythmic break because it is a temporary break from the usual polyrhythmic texture of the piece. This can be heard in The djole when everyone does call and response where only the master drummer sings then everyone else joins in this can be heard at the start of the piece.

#### Production

African drumming is not normally record it is usually played live for an audience or a celebration people sing dance and play along it is passed on by Oral tradition which is Music that is not written down but instead by word of mouth an example of oral tradition is something like lailaiko. The djole is typically played live during celebrations so others can join.

### Sonic features of African drumming

#### Instrumentation

The instrumentation in african drumming consists of A dunun which is a Mandinka bass drum often played in a set of three different sizes that has a cowbell on it this can be heard in the djole this instrument is one of the lower pitches in the djole.



#### Talking drum

Talking drum is an hourglass shaped drum and the pressure on the ropes can change the pitch. Different rhythms were used to communicate between villages as warnings or just to talk



#### Sheker

Sheker which is a hollowed out gourd with shells and and beads on a outer net. This comes in 10 seconds through the song

It sometimes is used to keep the pulse and keep others in time as well and can play rhythm cycles.



#### Djembe

It also has a Djembe which is a solo or lead drum made of wood in a goblet shape and the head is made of goatskin you can make a bass, tone and slap on the drum this is used by majority of players and the master drummer the djembe can be heard at the start of the djole as the master drummer plays the opening signal letting others know to play.

# BTEC Tech Award in Music Practice - Distinction

## Style 2 (Gamelan)

### Sonic Features

#### Production

Gamelan is a sacred form of music. Gamel means to hammer, Musicians in gamelan will take off their shoes before playing and there instruments and seen as sacred and are never stepped over as it breaks the instruments connection to god. Low pitch instruments are played less often while higher pitch instruments are played more often and our used for the melody. Gamelan uses the pentatonic scale which is scale that consists of 5 notes. All can be heard in the Lancaran 'Kandhang Bubrah' Slendro Manyura.

#### Texture

Gamelan is polyphonic as well and polyrhythmic which means multiple rhythms as melodies are played at the same time this can be heard in the Lancaran 'Kandhang Bubrah' Slendro Manyura as you can see the first three layers are all playing different rhythms.



### Compositional Features

#### Melody

Slendro / pentatonic scale / many melodies interweaving - polyphonic

#### Harmony

Lots of harmony because you have many melodies playing simultaneously

#### Tonality

The tonality in gamelan is major or minor

These all can be heard in Lancaran 'Kandhang Bubrah' Slendro Manyura

#### Rhythm

The rhythms and melodies repeats continuously like a rhythm cycle. This can be heard in the Lancaran 'Kandhang Bubrah' Slendro Manyura as there are three different rhythms from the gong aegean, kethuk and the kendhang which repeat continuously in section A but these may change in Section B but still are rhythm cycles as the rhythm still gets repeated.



#### Structure

Often Gamelan follows an ABA structure starting with the first section then going to the second before going back to the first piece as well as the saron that plays one cycle twice then switching to a new cycle playing it twice and going back. but this may be affected by what is happening by the events of the screen similar to how film music is as the music is there to add effect to what's happening.

### Musical Examples - Lancaran 'Kandhang Bubrah' Slendro Manyura

In the kandhang bubrah the gong aegean is used to start the cycle and plays the least often. Then the the kempul is used playing the second least often in kandhang bubrah slendro manyura then the kehangan is used not very often and is used to accompany the melody. Then the saron is used for the main melody and uses the pentatonic scale as well as having two melodies. The kethuk is used making a thuk noise as the name suggests as well as it plays off the beat and after every 2,4,6,8 of the kandhang bubrah and then the kendhang is used being used by the master drummer to set the tempo, keep people in time as well as to provide a rhythm this shows its polyphonic and polyrhythmic nature as multiple melodies play together. The music is cyclic as they repeat again and again

1	2	3	4	5	6	7	8
6	2	3	2	3	3	1	2
6	2	3	2	3	3	1	2
6	2	3	2	3	3	1	2
6	2	3	2	3	3	1	2
6	2	3	2	3	3	1	2
6	2	3	2	3	3	1	2
6	2	3	2	3	3	1	2
6	2	3	2	3	3	1	2



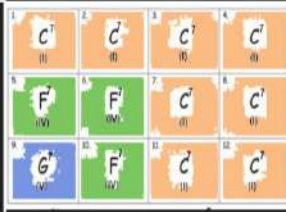
# BTEC Tech Award in Music Practice - Distinction

## Style 3 (Rock N Roll)

### Introduction

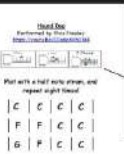
[https://www.youtube.com/watch?v=hLJ8\\_9aDZ3A](https://www.youtube.com/watch?v=hLJ8_9aDZ3A)

Rock n' roll originated from Blues music and therefore a lot of Rock n roll music is based on the 12 bar blues chord sequence. Songs such as great balls of fire by jerry lee lewis use the same progression but in a slightly altered form. Songs might substitute one chord for another or add additional chords to sound different. In the song long tall sally by little richard the 2nd chord which should be chord 1 for is swapped for chord IV. Rock N roll is different from Blues in that it is louder, faster and more energetic. Rock n' Roll lyrics tend to be less soulful and more uplifting, singing about relationships, holidays, rule breaking and having a good time.



### Harmony and Tonality

The main chords used in rock n roll are 1, 4 and 5 which are all major chords are in the 12 bar blues sequence but can be rearranged differently like long tall sally which is been rearranged and hound dog which stays the same some even use 7th chords in there songs.



Using twelve bar blues

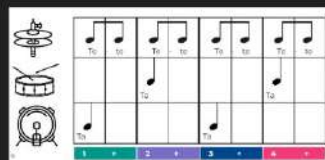
Chords are switched around



What are the

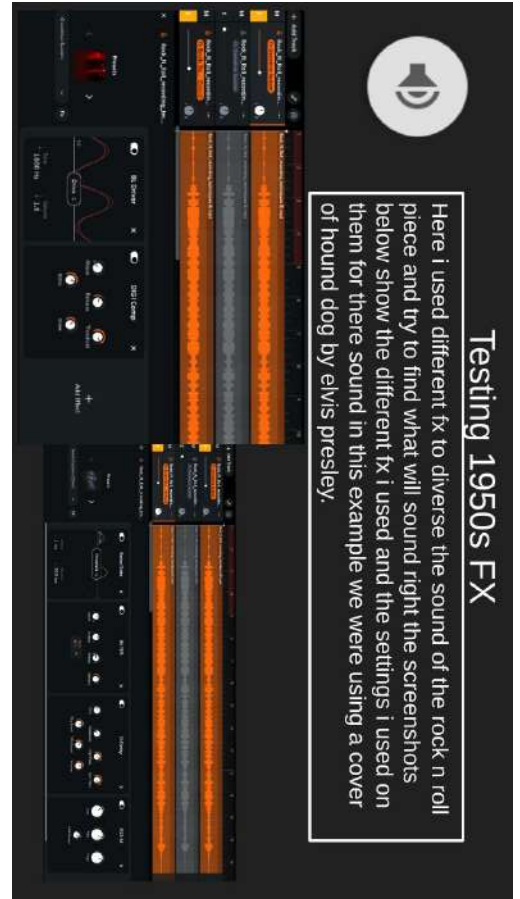
### Rhythmic techniques

Rock n roll drums take the swing rhythm from blues and play it straight. Rock n roll also speed up the tempo to 140 bpm. Rock N Roll typically uses a 4/4 time signature with four beats in each of the 4 bars. rock n roll has a constant highhat and a bass drum on beat 1 and 3 and a snare on beat 2 and 4 making a back beat to the song. For example Jailhouse Rock by elvis was 140 bpm as well as Rock Around the Clock and Another Saturday Night are all 140bpm.



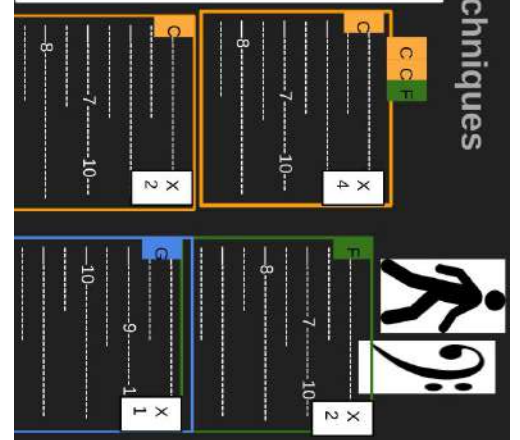
Here i used different fx to diverse the sound of the rock n roll piece and try to find what will sound right the screenshots below show the different fx i used and the settings i used on them for there sound in this example we were using a cover of hound dog by elvis presley.

### Testing 1950s FX



In 1950's rock n roll shuffle riff and walking bass lines are used for that signature sound a walking bassline is when a bass plays a steady rhythm utilising the 1,2 bar blues sequence. Also artists would improvise things like a guitar solo and a piano solo during the song which they play on the spot without it being pre wrote and on the spot where they use glissando on piano (sliding on guitar) they also uses bends on the guitar where you bend the string up to next note, they also use hammer ons and pull off on the guitar where they play a string and hammer there finger on another fret and pull off when they pull their finger off the fret playing the note these can be heard in songs like johnny b goode by chuck berry they also play more than one string at a time this is called double stopping. The piano solo in great balls of fire by jerry lee lewis uses similar techniques he will play more than one key at a time and places at a fast pace in between these notes he uses glissando.

### Melodic techniques



# BTEC Tech Award in Music Practice - Distinction

## Style 4 (EDM / Hip hop / own choice)

### Texture

Texture is the many layers of music most EDM songs use a basic texture but is melody dominated and homophonic. As the melody sits on all the chords and the bass and drums. Also the bass usually used the notes of the chords.

### Production

EDM is mainly produced on a DAW (digital audio workstation) like FL Studio or Logic Pro. You would start using a drum machine to make a drum beat then using a MIDI keyboard to record notes. This is used to give EDM its signature sound. This can be heard in 'Faded' by Alan Walker.



### Sonic features of .....

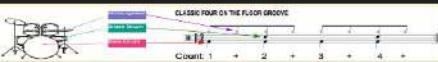
#### Instrumentation

Modern day EDM uses the drum machine on different music programs this gives it its more electric sound separating it from disco music. They can play programmed beats and also allow you to create your own drum beats. Also in EDM they will use a synthesiser this can play a range of many sounds as usually operated by using a keyboard. 'I took a pill in Ibiza' by Mike Posner uses this instrumentation for example.

#### Timbre

Since EDM consists of synths and drum machines it gives it a very futuristic artificial sound like how if a string instrument shows up in EDM they are altered and don't sound like an actual string instrument.

### Compositional features of .....



#### Rhythm

EDM uses the four on the floor beat where the bass drum is on every beat and the snare plays on every other beat and the hi hat is chosen by the player but can make the song this originated from disco in the 1970s with Earl Donald Young the drummer of the Trammps and can be heard on their track 'Disco Inferno'. This exact same beat can be heard in approximately 90% of modern EDM tracks. Calvin Harris is an example of an artist that does this in songs such as 'This is what you came for'.

#### Structure

The structure of EDM consists of a mix in, a main section as well as a breakdown and a mix out. The mix in is the start of the song where layers slowly build up into the main section. The breakdown is at the middle of the piece usually where all instruments fade out except for one layer then this builds itself back into the main piece. The mix out is used to end the piece where slowly all instruments fade out and stop playing. These can be heard in 'Wake Me Up' by Avicii as well as 'Starboy' by Daft Punk featuring The Weeknd.

### Compositional features of .....

#### Melody

Most EDM uses a simple but memorable melody. This can be sung or played and in some cases both this can be shown in Alan Walker's 'Faded' where the melody is played at the start and then is sung later in the song which is then repeated and is catchy. When it is sung it is usually happy about partying and having a good time but can also be about relationships.

#### Harmony

In EDM they use major and minor chords in their songs which uses triads where three notes are played. This makes the chords on the keyboard this gives EDM its signature sound. These chords are usually played in a sequence using multiple chords for major triads you will count 4 semitones from the first note giving the second note then from the second note you count three semitones to get the last one. For a minor note you will count three semitones from the first note for the second note then you count 4 semitones for the last note.

#### Tonality

Most EDM songs are in minor but some are in the major key.

Uses four chords (in minor key)



# BTEC Tech Award in Music Practice - Distinction

## Task 2 – Explore techniques used to create music products

### Introduction

I linked all my products to time as all my pieces sound and are from different time periods as EDM is very futuristic while gamelan sound very accident with rock n roll also giving an old style but still semi modern.

Chosen products and how they relate to the theme of 'time'

I related this piece to time as gamelan is a very ancient form of music especially compared to my modern pieces as gamelan is a ancient form of film music and I related all my pieces to music by each piece being from a different time period.

## Product 3 My composition product -Gamelan

### My performance product-Rock n roll

## Product 1

In my rock n roll performance with the main riff I used the rock n roll shuffle riff I also had to play power chords for this while tapping my other finger on a different fret and also for the f and g chord I used my hand to stop the note fast killing it off. The video I've provided is a great way of demonstrating it and how I did it consistently I also used stop time on the g and f chord or bars 9 and 10 on the twelve bar blue sequence.

I also improvised a part of the performance on the guitar over the band for my improvised solo I started by playing the pentatonic scale which I moved up and down on. I also used bends where I bent the strings up and down altering the sound it made but had to be careful I didn't bend them too much so they didn't sound bad. I also used palm muting making some of my notes short and some longer. As well using slides where I went from one fret to another almost connecting the notes and I used distortion giving the guitar its signature sound.

Also everyone in the piece played in time and to the tempo. All of this made it as close as we can to rock n roll piece from the 1950s.

This rock n roll piece was linked to time in many ways as the band had to be in time and I had to play the twelve bar blues sequence in time with the band I achieved this by counting the bars of each note to know when I need to switch chords I also kept the pulse in my head and we also used stop time where everyone but but one person stopped playing leaving just the guitarist or singer or another instrument I was also able to keep time during stop time by keeping the pulse in my head even when only one person is left playing or singing while I play



Insert screenshot of Bandlab project here  
(windows+shift+s)

[MACHIN\\_A\\_C1](#)  
[Product1\\_Performance.MOV](#)

[MACHIN\\_A\\_C1](#)

[Product1\\_Performance](#)

[Product1\\_Performance](#)

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[C1 Product EDM DAW.mp3](#)

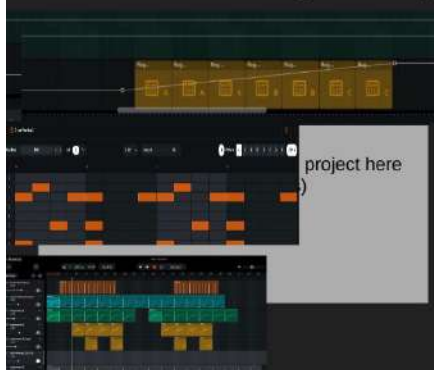
## Product 2

### My DAW product - (EDM)

For my EDM piece my drum beat used a four on the floor beat where the bass drum played on all four beats and the snare drum plays on beats 2 and 4. Also to develop my drum beat I added my own hi hats to give it my own sound. I developed this by creating a drum build up to bring the drums back in half way through the piece so the drums build in instead of coming in with no warning I further developed the drum build up by using automation so the volume of the drum build slowly increased.

For the chord sequence in my EDM piece I used 4 triad chords both major and minor. I used the MIDI keyboard and played all four chords in real time with no stop. I developed on this by quantizing the chords letting them be in time. I further developed his piece by the four chords are looped through the entire piece I also developed my sound by using a synth sound as this is the sound EDM primarily uses.

I also managed to relate this time as in my EDM piece I had a break section which is like stop time as one instrument is left over as the other build out before building back in I did this as I made all my instruments to fade out and quiet down except for one which was left over before I build the rest of the instruments back in as they got louder this shows as even though EDM is very futuristic but it still uses parts from past music like how it uses stop time from rock n roll like I've explained and is similar to gamelan as gamelan has one piece that repeats throughout the song this is called cycling and can be seen in EDM as we loop the instruments in EDM over and over.



# BTEC Tech Award in Music Practice - Distinction

## Plot Summary:

Shrek The Musical starts with Shrek's swamp being intruded upon by fairytale creatures, who were kicked out from the kingdom of Duloc by Lord Farquaad. He then goes on an exciting adventure with Donkey, who he finds while on the road, to confront Lord Farquaad...

## Influences:

Shrek The Musical is heavily influenced by Shrek, the Dreamworks movie, which is in turn inspired by Shrek! by William Steig.

Visually, the influence is most apparent in the costumes, which are nearly direct copies of the movie. A prime example is Shrek, who is clearly inspired by the movies. The book influence is still slightly there through the movie, but he is far less terrifying.

The majority of the fairytale creatures are inspired by Shrek the musical, but some are inspired by other media, such as the original stories' illustrations or from movie adaptations, such as Peter Pan, who is in the Shrek movies, but whose costume in the musical is far more similar to the animated movies from 1953.

The plot is also heavily influenced by the film, following the same sequence of events, such as Donkey and Shrek setting off to confront Lord Farquaad, saving Fiona, and Shrek and Fiona falling in love as they return to Duloc. The choice to follow the same plot and the appearance as the film was done to appeal to already existing fans of the movie. The plot of the musical may also draw on features from the books, such as Shrek getting kicked out by his parents, something that isn't in the movie but is in the book and musical. Fiona's backstory in the musical is also not mentioned in the first movie, and the story and mentions of her parents taking her to the tower are from the second movie where she and Shrek go to visit her parents.

The choice to adapt Shrek into a musical may have been inspired by other movie to musical adaptations, such as Beauty and the Beast.

## Creative Intentions and Purpose:

When creating any show, the main focus of the creators is to bring in money. To bring in money, a show must be entertaining, which is the purpose of any show, and it must appeal to large numbers of people. The creators of Shrek The Musical did focus on appealing to existing fans of the movie the most though. The musical also aims to raise awareness of the importance of acceptance, which is a very important and positive moral message. The creators also wished to create a "new" version of Shrek, to put their own spin on it, and to also develop the characters further, some of which they did by drawing on the movie sequels.

## Style and Key Features:

Shrek The Musical is a musical, proven by its being a theatrical performance that heavily features singing and dancing. This fits the definition of a musical, which is 'a play or film in which singing and dancing play an essential part.' [6] Songs in musicals have many different purposes, such as:

- Telling a backstory (e.g. "Big Bright Beautiful World" which shows Shrek's childhood)
- Showing how a character feels (e.g. "Story Of My Life" which shows how the fairytale characters feel about the events that lead to them being in Shrek's swamp)
- Advancing the story (e.g. "Travel Song" which shows Shrek and Donkey's journey to Fiona's tower)
- Introducing a place ("What's Up, Duloc?" which introduces the kingdom of Duloc)
- Encouraging an emotional connection with the audience (e.g. "Finale" ("This is Our Story") where Fiona sings about her flaws and accepts them, also "Big Bright Beautiful World" which shows Shrek's traumatic childhood.)

## The key features of Shrek The Musical are:

### Visual Style

Shrek The Musical is very bright, exaggerated, and cartoonish in costumes and in set. The costumes are very elaborate and also very exaggerated, a perfect example being Pinocchio. Pinocchio is very detailed, and his wooden, puppet aspect is very exaggerated, being present in all of his outfit and makeup. His prosthetic nose is also able to extend when he lies, showing the detail in the costume.

The fairytale costumes especially are all vastly different and all very detailed, using a variety of materials, such as fur for the white rabbit, and colours.

The Big Bad Wolf is also a parody of cross-dressers [9] and drag queens, showing how the humour in Shrek The Musical ties in with costuming. The Big Bad Wolf also reveals a glamorous red dress in "Freak Flag", showing the importance of accepting those who dress differently and/or have different interests.

The ogres are extremely detailed and would've taken lots of effort and time, being mostly prosthetics and large amounts of make-up, which would attract and appeal to those who are interested in stage make-up and how prosthetics are used in shows. Shrek is very visually different to the other characters, as while Shrek is also humanoid, he is less visually human than other characters. This follows the movie appearance, but it also highlights Shrek's being outcast from society.

Lord Farquaad is designed as comedic relief, his short stature often being a point of humour and a satirical physical gag. This is another example of how humour ties in with costuming in Shrek The Musical. The usage of primary colours in his costume also attracts the attention of young children, this also applies to the Duloc residents.

The costumes are designed to not only appeal to the fans of the movie, but also to visually entertain the audience members. The bright colours and textures intrigue young children, and also appeal to older people interested in stage costumes and fashion, who would be interested in the choices made. Prosthetics are often used in Shrek The Musical for humour, showing the strong usage of physical comedy. This would appeal to younger audiences, as it is a "simpler" form of comedy, and easier to understand.

The set is designed to create that magical environment while still being accurate to the film. The lighting is often mellow and quite soft, or utilises colours to create the fairytale feel. For example, when Shrek is introduced in "Big Bright Beautiful World", there is green lighting

which helps to immerse and entertain the audience as green is associated with swamps and Shrek, and it also creates that otherworldly feel. Shrek's outhouse is also used for humour, showing the playful nature of the show, being used to comedically introduce Shrek by showing him destroying his outhouse.

The Kingdom of Duloc also is exaggerated to show the neat and proper aesthetic Lord Farquaad desires. The hedges are all cut the same and the castle is symmetrical, and is also quite dark and uses very heavy and square imagery, to show the prim and proper, evil, oppressive nature of Lord Farquaad and his desires for everything and everyone to be the same. The stormy looking weather for the background also adds on to the evil atmosphere intended.

Shrek the Musical often uses the set to create a magical, immersive feel and to evoke specific emotions and thoughts, such as the Kingdom of Duloc, and visual style is a strong aspect of the musical being used to entertain the audience and to appeal to original fans.

## Humour

Shrek The Musical strongly utilises physical comedy, as seen above. The best example of this is Lord Farquaad, whose short prosthetic legs are used as points of humour and they physically entertain people too due to the ridiculous, over-the-top height they create.

Shrek the Musical also utilises slapstick comedy. One example of this is Shrek and Fiona's farting battle after "I Think I Got You Beat", which is a humorously embarrassing scene.

Musical Parody is also used often, for example, referencing other musicals such as The Lion King in "Travel Song" where it shifts to "Circle of Life" and puppets of African animals.

Humour is also balanced with emotional depth, as Shrek's vulnerability is hidden by humour, using sarcastic jokes and general gruffness.

Shrek The Musical itself is a giant parody of traditional fairy tales, where the princess is helpless and beautiful and the hero is handsome and strong.

## Subverting Stereotypes and Inclusivity

As mentioned above, Shrek The Musical parodies traditional fairy tales. This parody changes the fairy-tale traditions, poking fun at these usual tropes by making Shrek an ugly ogre and Fiona a princess who is strong and transforms into an ogre at night, challenging stereotypes.

Challenging stereotypes comes with self-acceptance, which Fiona is a prime example of. Fiona is at first insecure and hides her ogre form, shown through her conversation with Donkey in Act Two, Scene Five and her want for a "handsome" traditional prince rather than Shrek. As the story progresses, Fiona accepts herself, most prominent in "Finale" ("This is Our Story") where she sings about her imperfections and marries Shrek, allowing herself to love him even though he is ugly and does not fit standards. Shrek is also an example of this, accepting that he is not part of society in "Big Bright Beautiful World" and withdrawing from society.

The fairytale creatures also embrace their differences, and sing about empowerment. This is shown in "Freak Flag", where all the fairy-tale creatures sing about being proud about their differences and letting their "freak flag" wave. This might be taken as a metaphor for Pride Parades and other celebrations like Black History Month.

## Blending Modern and Fairy-Tale worlds

Shrek The Musical blends modern humour and life with fairytale worlds. This is done through multiple references to other movies and musicals, such as Gypsy and The Lion King, and through subverting traditional fairy tale stereotypes, which are apparent throughout the story as generic fairy tales are the basis of the story. The moral message of self-acceptance is also relatively modern, as self-acceptance when not fitting the norm is a newer concept, as shown through gay marriage only being legalised in 2015 and segregation only ending in the 1960s.

The fairytale themes are apparent throughout the musical, a prime example being Shrek (hero) going to save Fiona (princess) from a dragon (evil), which is a theme in almost every traditional fairy tale, such as Sleeping Beauty, where she must be saved by a hero from her tower.

## Broadway Musical Traditions

Shrek The Musical incorporates many Broadway musical traditions, including big production numbers with lots of ensemble choreography, an example being "Freak Flag" and a large variety of song styles, such as rock or rock-influenced songs ("I Think I Got You Beat") and ballads ("The Ballad of Farquaad"). There are also comedic patter songs, fitting with the fact the musical is a comedy, such as "Don't Let Me Go". Another variety of songs in the musical is "I Want" songs (where "main characters sing about their dissatisfaction with their current lives and what they're searching for" [19]). e.g. "I Know It's Today" (sung by Fiona) which talks about her dissatisfaction with her life in the tower and wishing for someone to save her and "What I'd Be", sung by Shrek, where he wishes about being someone else, specifically a hero. This range of songs appeals to many people, even with different music tastes, and creates comedy and amusement in the show.

## How Do These Features Achieve Creative Intentions?

All these features are used to create a show that entertains a wide range of audiences through comedy and through creating emotions, appealing to those who want a laugh, and those who want some feels. The comedy also appeals to all ages, having adult jokes ("I think he's compensating for something") and jokes for children (Shrek and Fiona's fart battle). The wide range in cast is also something that appeals to all, having very comedic characters like Donkey, to melodramatic ones like Pinocchio, and ones who touch on deeper topics such as Shrek.

Another intention of the musical is to celebrate diversity and difference and raise awareness to the importance of acceptance, which is done through showing the struggles of the fairytale characters and Shrek, who are symbolic for minority groups, and then showing them getting a happy ending, accepting themselves ("Freak Flag") and beating their oppressors, Lord Farquaad.

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The musical is also made unique to the movie, not only from the addition of singing and dancing, but also from adding in new information about the characters, for example Shrek's backstory, which is another goal the writers wanted to achieve.

## Target Audience and Narrative Structure:

I think the show does achieve the goal of appealing to many different audiences, through the wide variety of songs, characters, settings and costumes, and emotions experienced. The linear narrative structure definitely plays a part in this as it makes it easier for children and mentally disabled people to follow as it is not confusing, and also allows for people to just sit back and enjoy the show rather than having to constantly think about the line of events.

## The Role of a Performer:

A musical performer's role is to interpret a character through:

- Acting,
- Singing,
- Dancing.

This is to tell you a story and entertain an audience. In the original Broadway cast of Shrek The Musical, there were around "30 performers". [21] One of the main performers in the show was Brian d'Arcy James who played Shrek. Brian d'Arcy James was nominated for a Tony Award in 2009 for his performance of Shrek, and he won the Outstanding Actor in a Musical (Drama Desk Award) and Award for Best Actor in a Musical (Outer Critics Circle) for Shrek, and has been nominated for and won many other awards. He has been acting since 1988.

After being selected for the role of Shrek, Brian d'Arcy James would need to prepare for rehearsals. To do this, he would need to research the project and character by viewing previous versions of it, such as the 2001 Dreamworks movie. This is important because he could draw inspiration from previous actors, and incorporate characteristics, such as accent, into his performance. To fulfil this responsibility, he would need to use initiative, as no one would ask him to do this and this is an independent choice, research skills, as he needs to find information and to take in the information, and observation skills, to think about what he has seen and choose a way to apply that information.

Another responsibility that Brian d'Arcy James would have is learning lyrics and his lines, and in a video taken during rehearsals, it was seen that Brian was off-book and no longer using the script. He would have done this by practicing the script. This is important because it shows dedication and prepares him for rehearsals and the show. To fulfil this responsibility, he would have used initiative, as this would not be asked of him before rehearsals, and memorisation, as he needs to remember and memorise his lines. He would also need to understand the story and his role, and would need to read the script for this. This is important because he needs to know the story and his character to give a good performance. To fulfil this responsibility, he would need to use initiative and observational skills, as he needs to think about what he has seen and choose a way to apply that information. Brian d'Arcy James also would need to physically and vocally prepare himself for rehearsals. To do this, he would need to eat healthily, not exert himself and his voice, and to make sure he stays fit. This is important because he needs to use his voice and body in rehearsals and for the show, and so he must be prepared as his role required "a certain amount of physical exertion" (quoted from Brian from SHREK TV - "This is Our Story).

Swamp to Stage' Ept. 4: The Hero). To fulfill this responsibility, he would need to use initiative and discipline because he might not want to do exercise and eat healthily all the time. Another responsibility he would have is to figure out his schedule and transport. He could do this by making sure he is available to do the show and rehearsals, and also by making sure he can either take himself, or get someone to take him to rehearsals. This is important because if he cannot make it to rehearsals, he could get fired and also, unless he does lots of work at home, the quality of his performance would drop. To fulfill this responsibility, he would need to use time management, organisational skills (to make sure he can plan his days in a suitable way) and initiative, because this would not be asked of him. He could also experiment with tones and how he would perform the character. This is important because it gives him an idea of what he could do for the show and in rehearsals, and prepares him. To fulfill this responsibility, he would need to use initiative, as this would not be specifically asked until rehearsals, and adaptability, so he can change according to feedback, tone of voice, body language, so he can express emotion and status through tone and body, and self-criticism, so he can reflect on his acting and change it so his performance is more enjoyable and accurate.

During the rehearsal period, Brian d'Arcy James would have to attempt to fulfil the director's vision and listen to feedback. To do this, he would need to listen and use feedback, and to pay attention in rehearsals. This is important because if he does not fulfil the director's vision, he could be fired. To fulfill this responsibility, he would need to use discipline, if he doesn't like the vision or what is asked of him, listening skills, so he is aware of what he needs to do, resilience, if the feedback comes off as harsh, communication skills, to improve his performance by asking the director for feedback and so he understands the feedback, and adaptability, when he receives feedback. He would also need to practice and learn his lines and lyrics, dances, cues, and learn blocking and tone/line delivery. This is important because he needs to know what he is doing for the show to put on a good performance. To fulfill this responsibility, he would need to use listening skills, initiative, discipline, blocking skills, so he can always be seen by the audience, body language and tone of voice, so he can convey emotion through body and voice, and his memorisation skills. Brian d'Arcy James also had the responsibility of showing up to rehearsals, and being on-time, which is very important because if he does not show up to rehearsals he would lack knowledge and miss feedback. It is also important that he is on time because if he isn't, coworkers would be frustrated and he might get dropped from the show as he is not trying and missing rehearsals. To fulfill these responsibilities, he would use time management, organisational skills, and initiative. He would also need to maintain a good public image, and good relationships with his fellow performers and crew. This is important because if he does not keep up a good public image, people are less likely to go see the show, and it will get bad press. Keeping good relationships with coworkers is also important because otherwise, there will be tension and it will be harder to get on with rehearsals. To fulfill this, he would need to use teamwork skills, so he can get on well with people, self-control, if anyone makes him very angry or upset, and conflict resolution, if any arguments start up.

During the actual show run, Brian d'Arcy James would have the responsibility of knowing his lines, songs, dances, and actions. He also would need to know his cues and blocking. This is important because the show needs to go smoothly and be entertaining and good. He would also need to improvise through mistakes, if any occur, in character, and stay in character during the show. To fulfill these responsibilities, he would need to use problem

solving skills, to improve his performance using his imagination, memorisation and observation skills, so he knows what he is doing and knows the script, body language, tone of voice, so he can accurately convey emotions through body and tone, blocking, so he can be seen on stage by the audience clearly at all times, and focus skills, so he can stay in character. He would also need to present the character accurately and confidently, in order to be entertaining and make people want to come back and enjoy the show. To do this he would need to use projection, so he can be heard by the audience, memorisation skills, tone of voice, body language, blocking, focus, and discipline, so he can push through it even when he doesn't want to. During the show run, he would also need to look after himself and do warm-ups. This is important because otherwise he might injure himself during a show, or not be able to perform to the best of his abilities. To do this, he must use discipline, stress management, so he doesn't get too stressed that he can't perform or work well with the crew and so his mental health doesn't take a toll, and initiative. He must also show up and be ready on time, especially as he needs to put on heavy special make-up, this is important as he needs to be ready to go on stage and put on the show. To do this, he must use initiative and time management. Lastly, he must show respect backstage. This is important because he should hold up good relationships with his coworkers and keep a good public image if anything got out about him being rude. To do this, he must use teamwork, self-control, and conflict resolution if any arguments start up.

## The Role of A Director

A director's role is to be in charge of the production from start to finish. The director of Shrek the Musical (2010) is Jason Moore.

Before rehearsals begin, Moore would have to develop a creative vision, to do this Moore collaborated with the writers and the set designer to create the look of the show and had to use teamwork skills, so he works well with the others, and at times had to edit the ideas of the writers and designers to make sure they had a clear vision. This is important because he needs to know what costumes to order, what to tell the set designers to do, and to have a clear vision to communicate to actors and backstage crew. To fulfill this responsibility, he would have to use initiative, as this would not be asked of him, problem solving, so he can make changes using his imagination, creativity, to think up ideas, communication skills, to talk to his co-workers about his ideas, confidence to sell the idea to the team, and imagination. Another responsibility he would have is to hire performers and people to work backstage. This is important because he needs performers for the musical that are able to give a good performance and meet the creative vision and if there is no one to create costumes, set pieces and props, and to control the lighting, teach the actors dances, etc, the show would not be immersive and entertaining and people would not enjoy it. To fulfill this responsibility, he would need to use decision making skills, to decide who is hired, communication skills, leadership skills, so he can make good decisions for a whole group and work well in control, organisational skills, to make organised plans and choices for who is hired and to schedule interviews in an organised way, problem solving, and patience if he cannot find actors that fit his creative vision, or if there is a lack of workers.

During the rehearsal period, the director would have to direct the show, and give feedback to crew and actors. This is important because he needs to instruct the actors on their performance and their actions and placements on stage, and he also needs to give feedback on the set, costumes, lighting, etc, and to correct acting, dances, singing, etc. He would also

need to meet with the design and technical teams to share his creative vision and make the idea come to life. This is important because he needs to make his vision real in an accurate way. To fulfill these responsibilities, he would need to use leadership skills, direction skills, so he can accurately give instructions, constructive criticism and empathy, so he can understand and not hurt peoples' feelings, patience, if someone is struggling to take in and apply information, problem solving, communication skills, to talk to the actors and workers in a clear way, teamwork, and confidence.

During the show run, Moore would have to give notes, particularly after feedback from the audience and critics, which did happen when the show went on tour - several changes happened, with the opening changing, and songs being replaced, for example "Donkey Pot Pie" was replaced by "Forever". This is important because the actors need to give good performances and be entertaining. The show also needs to be enjoyable visually, so people will come back and recommend it to friends and family. To fulfill this responsibility, he would need to use adaptability, so he can make appropriate changes based on feedback, constructive criticism skills, so he can give and receive criticism appropriately, patience, problem solving skills, so he can make appropriate and enjoyable changes, communication, leadership, direction skills, and decision making skills.

## The Role of the Musical Director:

A musical director's role is to oversee all musical aspects of a performance. The musical director of Shrek the Musical is Tim Well. During the show, he would have worked closely with Jeanine Tesori (the composer), David Lindsey Abaire, who wrote the lyrics and the director, Jason Moore.

Before rehearsals begin, Tim Well would've had to hire musicians to play instruments in the orchestra (musicians who play the backing track live during the show). This is important because the musical director leads the orchestra so he must know and trust the abilities of the musicians. To do this, he must use communication skills, to talk to the potential hires clearly and confidently, stress management skills, so he can deal with the workload and pressure, confidence, decisiveness, so he can make choices well, and leadership skills, so he can take charge and interview people confidently. He would also have had to meet with the lead actors. This is important because he needs to know their vocal range and coach and prepare the lead vocalists so they know what notes they can hit and if backing music needs to be adjusted to fit their vocal range. To do this, he must use patience, if the actors do not immediately understand or are able to sing how wanted, communication skills, to talk to the actors clearly and confidently, teamwork, to be able to work well in groups and with others, adaptability, so he can make changes after feedback, problem solving, so he can make changes, and listening skills, so he can process and take in what others are suggesting and the actors' range.

During rehearsals, Well would have had to rehearse, either with individual performers or in pairs, to practice and coach the actors in their songs. This is important because the actors must be able to sing their songs accurately and enjoyably, and without harming their vocal cords. He would also need to practice the musical accompaniment with the orchestra. This is important because the backing music must be correct and ready for performances. To do

# BTEC Tech Award in Performing Arts - Distinction

this, he must use patience, if the rehearsals are not going well, leadership, teamwork, communication skills, listening skills, constructive criticism skills, and directing skills.

During the show, Tim Weil would need to conduct the orchestra during the performances. This is important because the music must be enjoyable and in time with the actors and scenes. To do this, he must use directing skills, time management skills, and leadership skills.

## Section 3: Approaches, Processes, and Techniques

### **Shrek the Musical - Pre-Broadway:**

Shrek the Musical had a pre-Broadway tryout at the 5th Avenue Theatre in Seattle. Like many Broadway shows, Shrek the Musical used an out-of-town tryout to test the reaction to the show, identify weaknesses, and make changes before its Broadway debut. There were several changes from the original show to its Broadway version, for example:

- Chester Gregory II (right), who originally played Donkey, was replaced by Daniel Breaker because the creative team thought Chester wasn't fit for the part
- The dragon, who originally was voiced by Kecia Lewis-Evans, was instead voiced by company members, Haven Burton, Aymee Garcia and Rachel Stern.
- The song "I Could Get Used to This" and "Let Her In" was replaced by "Don't Let Me Go" and "Make a Move", respectively.
- A reprise of "Who I'd Be", set after Shrek overhears Fiona and Donkey's conversation, which led into "Build a Wall" was cut, and "Build a Wall" was placed after "Morning Person (Reprise)".
- "Build a Wall" was cut, but later re-added.

### **Tim Hatley- Costume and Set 3:**

Tim Hatley was both the set and costume designer for the show. A set designer creates and designs the set for the show, and a costume designer is responsible for the overall look of the costumes and accessories in theatre, film and television productions." (National Careers Service).

When creating the costumes and set design for Shrek, Tim wanted to keep the same visual look as the film, but make it 3D:

*"It's always quite a challenge taking something that already exists that everybody knows so well and in the case of Shrek, loves. And it's so visual and so known and it seemed to me that we have to absolutely acknowledge that and embrace the fact that it's a world that people know and not go against it. But at the same time you've got to bring it into 3 dimensions and make it into a piece of theatre."* (Quoted from Tim Hatley, Episode 2 - Design: Costumes)

### **Costume Design:**

*"There's no telling what I'm going to think about first. I can read a play and actually some of the first images that come to me are what these people look like, the way they might function and what they might wear....I think they might live in this sort of world! The two things (set and costume) are hand in glove, I never see them as separate..."* (Quoted from Tim Hatley, Episode 2 - Design: Costumes [33])

To get ideas for the set and costume, Tim reads the script. This generates ideas of what the costumes and set would look like.

At the start of the design process, Tim's imagination plays an important part because he needs his imagination to create a vision and imagine what the characters look like. After Tim has imagined what characters look like, then he has to be able to sketch them so the others working with him can understand his vision and what should be made using what materials, techniques, etc. The first character that "came out of his mind" was Lord Farquaad, whose legs and how they operated he had to think about. [35] The most challenging costume Tim had to create was Donkey, as Hatley struggled on how to do a costume of an animal for a human. Once the costumes are created and the actors have tried them on, Tim checks that they have mobility, as the actors need to dance and move about on stage. To create Pinocchio's costume, Tim layered felt to create a wooden look, and also utilised technology so Pinocchio's actor, John Tartaglia, could use a remote attached to his glove to extend the nose on stage.

### **Set Design:**

When creating set designs Tim started by drawing and doing sketches, then he changes to cardboard models. The Dreamworks Studios also created animations of the set. The musical used the latest technology for example, they used motion-capture technology, which Dreamworks helped with, for the Magic Mirror, whose actor is backstage acting in real time using sensors, and this is the first time this technology was used on stage. Thousands of LEDs were also used along the stage, and 3 revolving individual stages were utilised for Fiona's tower.

They also used a remote control backstage to control Donkey's ears. To create the overall look onstage Tim has to communicate and work alongside the lighting designer, Hugh Vanstone, who said "[he] spent a lot of time, [he thinks] more time than [he's] spent on any other show in [Tim Hatley's] Design Studio" (Quoted from Episode 2 - Design: Sets and Lighting). The director and Tim also worked together to create a magical feel, especially to appeal to children as it might be their first family show.

### **Being a Costume Designer:**

To understand the process, skills, and techniques of a professional in Shrek the Musical I took on the role of a costume designer. For this role I had to design a modern version of either Little Red Riding Hood or Rapunzel, that was still related to the original characters and could be recognised as them.

To begin the process of creating a costume I did character research on Little Red Riding Hood. This is important because I needed to find out what I should include (staple character features) and what I can transfer to a modern look, so it can still be recognised as Little Red Riding Hood. To do this, I had to use research and observation skills, to find and remember information, and my imagination, to think of what I could design. To do this, I googled Little Red Riding Hood's story, previous illustrations and designs in previous adaptations and thought about how I can create something similar, but still modern.

The next step I took was creating a mood board. I did this because it helped to visualise and generate ideas. To do this, I needed to use research and observation skills, and also my

imagination to think of ideas. I completed this step by looking at other, similar characters and previous designs and compiling them into one slide. This helped me to think of what I am going to include in my design of Red Riding Hood and how I am going to include her story and staple features.

After that step, I sketched up the costume and made annotations. I did this as I needed to visualise my final design, and to be able to clearly communicate it to the director. It also helped me know what I would need to change as it would not work. To do this, I used imagination and creativity skills and also drawing skills. I completed this step by sketching up a body, the clothing on the body and the clothing individually so I can annotate it. I also coloured it in to show what colours would be used, and annotated it to show what materials I would like to be utilised.

Step 4 was to meet with the director to discuss ideas. I did not do this, but this is an important step because a costume designer needs to know if the costume does fit the creative vision and is what the director desired, and if not what to change. To do this step, I would have used communication and teamwork skills, to work with and talk to the director about the design, and adaptability if any features should be changed. To complete this step, I would've talked to the director and shown my costume sketch.

The final step would be to source fabrics and construct the costumes. This is an important step because it will be the creation of the costume. To do this, I would have used adaptability, problem solving skills (if any problems arose) and creativity. Other skills needed would be sewing skills and research skills (to know what materials would work and where to get them). To complete this step, I would have found and bought my desired materials and pieces, and constructed the costume by sewing and hot - glue if anything was not readily available.

If I was the actual costume designer for Shrek the Musical, the process would be harder and longer. This is because:

- Tim Hatley has a budget that he must follow, while I did not.
- Hatley would have more characters to design for, such as Pinocchio, Lord Farquaad, Shrek, and around 27 others.
- Hatley would have a whole team under him and have to talk to the director.
- He would have to learn measurements for about 30 actors.
- Tim would also have to figure out how to work Pinocchio's nose, and Shrek and Lord Farquaad's prosthetics.

# RE - Grade 9

Explain with 2 reasons why some religious believers choose to work for an organisation that helps victims of war (6 marks)

One reason why religious believers may work to help victims of war is to help with financial struggle. This is evidently encouraged in the Bible as the parable of the Good Samaritan states "Love your neighbour as yourself". This suggests that helping others is a good deed and Christians should do this.

Another reason why Islamic believers may want to help victims of war is by giving charity. This is as giving charity such as Zakat.

On the other hand, some people may agree that spreading the gospel which is also known as Evangelism is a more important aspect of the role of the church. This is as Evangelism serves to re-iterate how Jesus' teachings are superior and references to both believers and non-believers. This is encouraged through the Bible which states "Therefore go and make disciples". The reference to this shows that it is the church's responsibility to encourage followers of Christianity. Therefore this is a strong argument because it suggests how the church should guide believers and non-believers about the roots of Christianity as the church can be viewed as the closest holy place to Jesus and God.

To conclude, I believe that practical help is the most crucial role of the church because for example, street

"The most important role of the church is to provide practical help to the local community." (12 marks)

Some people may agree because practical help supports anyone who may require the help. This can be viewed as the duty of the church and a crucial part of it. This is as practical help may be provided through support such as street pastors and food banks. Food banks are highly encouraged through the teachings of God as the parable of the sheep and goat suggests "I was hungry and you fed me". This reveals how God has advised the church to help community by providing food for those who are in need. Therefore, this is a strong argument due to the fact that it directly links to the teachings of God and it is serving as the purpose of the role of the church.

pastors help keep the local community out of danger. This is encouraged by "Love your neighbour" which is referenced from the parable of the Good Samaritan. Therefore, street pastors ensure the safety and wellbeing of the community is maintained.



# Spanish

<p><b>Verbs for bullet 1</b></p> <p>Hago - I do          Veo - I watch          Escucho - I listen          Juego - I play</p>	<p>Write an email to your friend from Uruguay talking about your free time. Use at least 60 words.</p> <p>Mention:</p> <ul style="list-style-type: none"> <li>what you do in your free time</li> <li>what you did with your friends last weekend</li> <li>what you are going to do with your family next weekend</li> </ul> <p>[15 marks]</p>	<p><b>ACTION bullet 1</b></p> <p>A - divertido          C - porque          T - en mi tiempo libre          I - bastante          O - en mi opinión, es una buena manera de relajarme          N - no paso todo el día en casa</p>
<p><b>Verbs for bullet 2</b></p> <p>Fui - I went          Salí - I went out          Pasé tiempo - I spent time          Hablé - I talked</p>	<p>En mi tiempo libre, siempre voy de compras porque me encanta buscar ropa, es muy divertida! Lo malo es de comprar ropa es que la bastante cara y no siempre tengo suficiente dinero.</p> <p>El fin de semana pasado, salí con mis amigos al cine, y a mi media de ver la película era muy emocionante. Yo solito y no nos aburríamos nada. El próximo fin de semana, quiero ir al cine con mi familia para pasar un momento agradable, porque en casa cuando vamos es más divertido.</p>	<p><b>ACTION bullet 2</b></p> <p>A - emocionante          C - ya que          T - el fin de semana pasado          I - muy          O - desde mi punto de vista, fue una experiencia genial          N - no nos aburríamos nada</p>
<p><b>Verbs for bullet 3</b></p> <p>Voy a ir - I'm going to go          Voy a visitar - I'm going to visit          Voy a pasar - I'm going to spend          Voy a comer - I'm going to eat</p>	<p><i>trabajo</i></p>	<p><b>ACTION bullet 3</b></p> <p>A - especial          C - además          T - el próximo fin de semana          I - realmente          O - a mi parecer, será un buen plan familiar          N - no voy a quedarme en casa sin hacer nada</p> <p><b>Complex structures</b></p> <p>Más... que          Menos... que          Tan... como          Desde mi punto de vista...          A mi parecer...          Lo cual...</p>

This is extremely accurate but you can add more complex language eg. The subjunctive. Cuando sea mejor.

Hay un chico muy alto, Rafael, con el pelo negro y ojos grises. Parece muy capaz y práctico, y tiene una actitud positiva y optimista. Bruno es una persona interesante con sus tatuajes y su pelo azul. Parece muy amado y los otros piensan que es muy ambicioso. Alex es distinto de los otros no le gusta hablar con gente desconocida porque no tiene mucha confianza. Con su pelo corto y rubio y sus ojos marrones, tiene un aspecto muy agradable.

La semana pasada fui con todos los de mis amigos a una fiesta cerca de mi casa y lo pasé bomba. Bailamos, cantamos y hablamos todo de la noche. Al final fuimos a mi casa donde dormimos en mi salón.

La próxima semana, voy a pasar tiempo con mi familia porque es mi cumpleaños. Vamos a celebrar en un restaurante mexicano porque me encanta la comida mexicana. Será fenomenal y no puedo esperar.

Personal Relationships			
2/5	0.3/10	0.4/15	Total Percentage
5	8	15	38 95%

dressing according to the Star Performers

f/1's used:  
 attempts at complexity of  
 least two different time  
 not always be successful  
 errors, and minor errors.  
 a response is more accurate

at describes yourself, family and friends, talk about dates  
 can see verbs in the past, present and future. Then, you

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Notes 19 de noviembre  
 Attack

# Cambridge National - Sports Studies

## Sport and the media

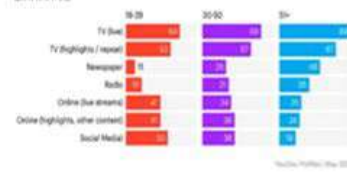
### The positive relationship between the media and sport

#### Introduction

Both media and sports share a positive relationship and in turn this can have positive effects for example what Marcus Rashford did during Covid for kids. Rashford who is a very popular footballer managed to use this relationship in the best way possible as he managed to get the attention of the governments to open their eyes for these kids and how they need more food. Not only did this give the children more food it also created happier families. The relationship between sports and media can affect the viewer rates and participation rates ,

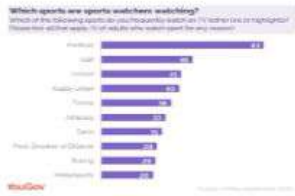
#### Media consumption patterns vary across age groups in Britain

Which, if any, of the following do you use as a means to watch/follow sport? Please select all that apply. (%)



this is because in sport nowadays fixtures and events get posted on social media where a vast majority of people are and it catches their attention and makes people aware of upcoming events. For example in Golf when the PGA championship was on , it was broadcasted on sports apps and bbc iplayer which a lot of people watch on. This enabled people to see what's going on during this event boosting the viewer rates and it also increases participation rate because it being broadcasted takes into

consideration people who may be disabled or cannot attend the event . Essentially this means that people at home will have the ambition to want to play it in their free time while this event is on. This highlights the relationship both sports and media has as it has multiple positive effects which vary from viewers / people attending to families who may need a role model / influencer to help them through difficult times for example during covid , influencers became famous by doing things which interacted with viewers who couldn't do anything and this is similar to broadcast media as it interacts with people who aren't able to do a lot of things. In world sport , football is the most popular and watched sport however Golf is second statistically meaning that broadcast media is the most effective media for sports viewers as it catches more people attention due to many factors and its statistically proven that people that acth tv live are in the ages from 18 to 51+ meaning all people can watch concluding the idea that media and sport have a good relationship as it also generates money for the clubs and broadcasters.



#### The positive relationship between Trentham Golf Club and the Media

The relationship between the media and sport can be broken down into two key areas: Participation and Raising the profile of the sport.

#### Increase number of participants in the sport and frequency of participation

It has been statistically proven that through new and traditional media have increased the rates of participation over the years of development of media. As media has developed , more people have heard and seen and become more aware of sport and golf specifically. Traditional media stems from TV , Radios and Print which discloses news , highlights of live events and documentaries , when considering sports it introduces viewers to any live sport and engages viewers . This would inspire them to do lots more sports based things and make them participate more. An example of this was when the masters tournament was on , when this was being broadcasted on traditional media , 1.85 million people watched it and had the want to play in their free time which boosts golf club members and money coming in as revenue. New media stems on Social Media , Streaming Platforms and Websites , this is an effective way to increase the numbers of participants as a lot of the population in this generation have popular apps such as TikTok, Instagram and X which are the most popular when it comes to spreading information and raising awareness of golf and many other categories , as the years have gone on more people including celebrities have gone onto these platforms and made videos to inspire people to do challenges to become like them. This all helps viewer engagement as on Social Media , a lot of people can comment and say what they feel about the topic and make blogs and communities to involve everyone . This can also inspire people who have never played Golf before as a lot of people will be debating , sharing videos and it will catch people's attention and hopefully get them to join / start playing golf. Overall , the combination of both Traditional and New media help inspire participation as a lot of popular , award winning competitions will be broadcasted and also posted on social media and on streaming websites and apps this maximises the amount of people that can reach these events and be engaged into the communities of the sport which may encourage new comers to go out and try something new .



#### Increase participation at grassroots level

The media can have a positive impact on participation and inspire aspiring sports players to join groups at grassroots level through live broadcasting. This is effective as a lot of young people who are interested in sports watch it live and see things that professionals do, making them want to play the sport and become better . An example of this was Phil Foden , he used to watch Micah Richards play at Man City and he ended up playing like him and gave him the ambition to want to become better and try the things he's been seeing on live tv. An example of this for Golf is on [Sky Sports](#). This is effective as people who aspire to play golf can watch how the professionals do it and become better by watching it. A big role model in golf is Tiger Woods. A lot of professionals



have reported that they have been inspired by him and his expertise . These players are :Rory McIlroy, Jordan Spieth, Jason Day, and Hideki Matsuyama; they all started at grassroots level at a young age in local junior programs. Another way broadcast media has helped increase participation at grassroots is through Radios. The local radios around me talk about my golf club , Trentham Golf Club , this may enlighten a lot of people who want to find a new hobby or join a golf club. This is really effective as a lot of people in Stoke drive and listen to radios such as signal 1 and bbc on early mornings to get caught up on the latest news . The latest report from Signal 1 about Trentham Golf Club is that they want to sell off a portion of their green belt for new houses . If more people were to join them at the grassroots level I doubt that they'd sell off their green belt as they need more space for newcomers. Another way media helps my clubs participation levels through grassroots levels through print media such as [The Sentinel and Stoke-On-Trent Live](#). These are the main forms of sharing intel in



Stoke through print media . However they are not as effective in boosting participation levels in grassroots because there is new forms of media which are easier to get , the age of people that get print media nowadays are normally older people though it is still a good way to get older people into the sport as it can inspire them to do the same, essentially improving the participation level at grassroots. The best thing about this is that now , the golf organisations have decided to reinvest 30% of their TV rights back into golf meaning that the 30% of golf that's played and isn't broadcast will be now and it'll be great for the grassroots players as it'll encourage them to want to be shown on tv. It'll become a dream/aspiration for them to make it in golf. Furthermore , the money will be funded into the ' Beginners Academy ' which is the club I've chosen , Trentham Golf Club qualifies for . Ultimately meaning that Trentham will be upgraded as there is money coming in to fund it meaning that there's a higher possibility of Trentham participating in big golf tournaments such as the PGA tour in the near future.

#### Role Models and Influencers



Role models and Influencers improve the participation rate in all sports when they post online . For Golf , famous influencers and role models are [@Tiger Woods](#) , [@Arnold Palmer](#) and [@Jack Niklaus](#) on Instagram and Tiktok . In general role models make Golf appealing to everybody , it shows everybody that it's possible to play despite having some disabilities. They invite everyone to play over the internet and it creates a statement that if we can do it why cant

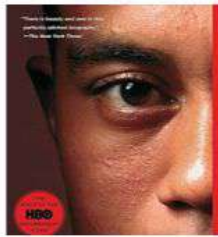
you. This creates an emotional connection between the players/influencers and the viewers and world. They are able to post all their achievements and their personal journeys about how they achieved all their accolades and progress throughout their career. They help people also have knowledge about the sport and helps people participate more and more with the sport. It becomes clear to the audience that these role models and influencers create a good environment and community for everyone making it a free space for everybody no matter what gender , beliefs , disabilities or race. They also show the dedication that goes into the sport , it enables everyone to see the mentality and mindset you need to become a player at such a high level. It helps viewers and followers become more productive about their days even when there are bad conditions. Like seen from all other influencers and role models they post their highlights online , essentially this urges the viewers to want to do the things that they do which improves the participation levels. Role models mostly post on the popular apps that i've named before however they also make auto-biographies , appear on newspapers , articles and blogs (print media) and appear on podcasts , radio and television on popular broadcasts such as [BBC sport / news](#) , [Sky Sport](#) , [ITV Sport](#) or news in general .



# Cambridge National - Sports Studies

## Remove Barriers and Relationship between media and sport

The media has a positive relationship in breaking and removing barriers in golf for example when a person is looking for a club and its too far from them, social media: TikTok, Instagram, X, is always reliable in finding new ways or a new club to go to which is a lot closer than some clubs. Furthermore, it also provides information about the club which can help you out as an aspiring player and is overall a convenient resolution to this barrier. For example in golf, there is a campaign called 'Golf Is Good', they work and fight for people to have a better mental, physical and social health which overall improves the participation rate for people who are aspiring to play golf. This removes the barrier that people think they can't play golf maybe due to their mental health or physical health but in reality this community and organisation promotes people to participate and work for a better life and a better experience playing golf. Another example of this is when people have bad stereotypes about the sport, they can watch it live and hear the commentators talk about it and provide them with new information about the sport and help people participate as they can be inspired by the things that the professionals do. This also helps people remove the mental barrier they have about playing the sport. For example, disabled people may think they can't play, but when they watch these broadcasts, it helps them think they can do whatever they want which goes against the stereotypes. Another example of this is in print media. Through magazines and newspapers it challenges the



stereotype of age, as nowadays older people buy newspapers and magazines such as 'The Sentinel' and these golf specific media can inspire them to go and try it out and be involved in the sport which can have a very positive impact on their lives which enables them to become more active, healthier and fit even though they may think they're too old to do these things. Tiger Woods autobiography has helped a lot of people get out and play the sport as it has become a way to share their experiences with the world and help destroy the barrier in aspiring sport players' minds that they can't make it. It's also helped encourage people to never give up and have a strong work ethic. On a more broader scale an example of this is Cristiano Ronaldo. He has been interviewed and he never came from a rich background but he explained that if you don't give up you can make it which has also removed the barrier in people's mind. It's an effective way as role models and influencers play an important role to break down people's stereotypes or barriers about a certain subject. For example, the Alfie Turner effect, from the help of the media, he became the most known young golf player which gave him the title of the number 1 junior in Europe and this is all from the help of the media. He became popular in the local area and was posted on Trentham Golf Club's Facebook giving him exposure to the media. If more people participate they may feel inspired as seen through the Alfie Turner effect and they may gain ambition to become a star and known well in the world of sport.

## Raising the profile of the sport

If a sport is more popular in the media more people will participate in it because it's statistically proven that the most watched sport is football but shortly under it is golf as seen in the photo. It is also statistically proven that broadly, football is the most played sport in the world and this may be because of how many people watch it worldwide. Raising the profile of a sport means to increase its visibility to the public and provide it general recognition. I think that if more people were to watch golf on Sky Sports, DAZN and NOW, more people in the world would play it. Broadcast media is an effective way of raising the profile as it increases the levels of participation in all sports when there is a big competition being held. Broadcast media is also the most used media with up to 85% of people using it which is 1% more than social media, furthermore, it implies that the more people that have it means the more people are aware of sport of this level. However I think that they need to add more elements of fun in the game as nowadays only middle aged - older aged people play golf on a competitive level. For example if they made more competitions and more rules like more active sports such as football it'll attract more people to

- Soccer (Association Football): 3.5 billion fans
  - Cricket: 2.5 billion fans
  - Field Hockey: 2 billion fans
  - Tennis: 1 billion fans
  - Volleyball: 900 million fans
  - Table Tennis: 850 million fans
  - Basketball: 400 million fans
  - Baseball: 500 million fans
  - Golf: 450 million fans
- The most played sport in the world is soccer (football), with an estimated 3.5 billion fans and over 250 million registered players. Other widely played sports include basketball, volleyball, and tennis.

come watch and play the game. When golf first became popular in the late 19th and 20th century, mostly rich people played it however now that time has advanced and the introduction of media has happened, more people who aren't even that financially wealthy play the sport because of influencers and role models on popular apps such as TikTok, Instagram and X. Furthermore you can see the progression over the last 20 years of how many people played and watched golf. It's statistically proven that it's boosted over this period of time because more people have this technology. Lastly print media such as newspapers and magazines, aren't as effective at raising the profile as you have to buy newspapers and mostly older aged people buy them which is sort of effective as it keeps them engaged in sports.



## Sports initiatives

Sports initiatives is a program or project which is designed to promote sport to a specific type of people to encourage them to take part in physical activities. These help to improve participation in sport as it helps people who may have disabilities or are discouraged to realise that they can play the sport just like the professionals and influencers that they see on television. In golf, the sports initiative foundations in Stoke are 'Get into Golf', 'Unleash Your Drive in Schools' and 'Inclusive Golf Events' these campaigns focus on getting people into getting into golf and play when they think they can't. They all provide a fun environment which prioritises participation in golf in sport. They share their information through their websites however they also promote on social media and popular digital platforms such as Instagram, X and Facebook.



They use these because they're a really effective way to get people to go to their website and find out more about what they're offering. Furthermore as these medias are the main form of sharing information nowadays majority of people worldwide have access to what they post meaning it has the potential to reach many ven outside of the UK. [On Unleash Your Drive](#), they claim to "help change the face of mental wellbeing in schools, by introducing golf to children from all backgrounds". This means that they emphasise on the participation of people who have a hard time and try to offer them an escape from their everyday problems through sport. On a more broad scale, sport initiatives you can find on big platform such as Instagram or X can be found at #GolfSixes League which sends people

In 2024, major golf tournaments were watched by millions of people in the United States, with viewership for the final rounds of majors generally ranging from 1 million to over 11 million viewers. 📺

An estimated 450 million people worldwide follow golf as fans, with the number of viewers for individual tournaments varying significantly. Major tournaments like the Masters can attract over 10 million viewers for the final round, while regular PGA Tour events generally average between 2 and 4 million viewers in the US. 📺

# Cambridge National - Sports Studies

to a blog and community which they can follow and join so they're always updated on what gets posted up there.

## The role of the media at promoting an active healthy lifestyle

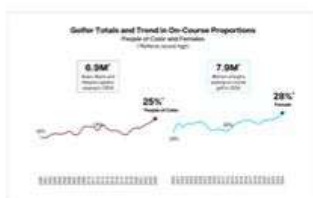
Engaging in golf provides comprehensive health benefits ranging from improved cardiovascular fitness to cognitive function. Here are a list of benefits I've found about my sport on different websites ; getting a lot of exposure to the sun which allows people to absorb vitamin D (which is a vital vitamin needed for people's health)

golf is a social sport (which enables people to have a healthy mental health and social life), golf is even good for your heart , this is because it allows your body to circulate blood around , exercises your heart , keeps your heart rate up and and builds muscles. This can all be found on the [Circle Health Group](#). This discloses that participating in golf does improve the mental and physical health of a people and it's also a good way to keep a good social life and a good hobby. Through digital media , health is promoted through the use of smart watches and sports apps which track how many steps you've taken , your heart rate and even how much sleep you get which help people keep in shape and fit. Alongside this , all media help with this such as print media and broadcast media. Through print media , people in health centers put up flyers which promote playing sports and keeping healthy. Furthermore newspapers and magazines get sold at shops which can catch people's attention. However they aren't as popular nowadays as they were before due to the introduction of new media such as broadcast media which help with people's health through radios and tvs which have adverts about people's health and encourage people to play sport to become more fit.



## Education

The media is a great tool to educate fans and spectators about sport and in particular golf. Education is the act of learning something new and expanding your knowledge on it meaning if more people know about sport it will impact the participation rate positively and get more people to join in. This can have a positive impact on golf as if more people know about it they'll know the rules and regulations , how to play and essentially make it a hobby. A catalyst for education in sport is the use of digital media as more people have phones and they scroll through TikTok , X or Instagram , they'll end up seeing a sports



vid/advert and be inspired to go and learn / try new things. As said before , media coverage is essential for sport exposure as it serves direct information to spectators and it doesn't cost a lot which helps sports clubs to promote their sport/club. Alongside this , they also have a health benefit such as a healthy heart rate and a lot of vitamins which get taken in and for people who are trying to keep fit and media also helps sport become more popular through the likes of adverts and videos. It's clear that as more people get exposed to golf more people end up playing and participating worldwide which is a very good thing when it comes to people's health and wellbeing. [write about boot websites](#)

## Rules , technology and variations of the sport

It's been studied that as technology has improved , the sport has progressed in many ways. In conclusion , it has become more advanced as now golf has many platforms which help track the golf ball when it's been hit. This can be seen on live TV when it's broadcasted once a player hits the ball they show the ball being tracked and the journey it goes on . This is effective as it helps keep up on where the ball goes making it easier for the people around to keep the game going. Furthermore they also use drones to keep up with the tracking and its effective when it's used in broadcasting as it gives people a birdseye view of the course and how the game goes on from a different angle. It has been studied that its increased the engagement of the viewers watching the sport which will make them want to watch again. Furthermore a lot of people who haven't managed to watch it live can see it on youtube , highlights etc which also keeps the viewers engaged and overall gives them more information about the sport.



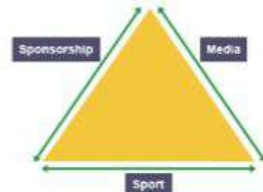
## Revenue - The Golden Triangle

The Golden Triangle demonstrates the relationship a sport has with the media and sponsorships. Without media and sponsorship less people would be as engaged with brands that sponsor clubs and this is clinically seen through the world of big sports such as football and basketball . For example Manchester City is mainly sponsored by Asahi and Puma , I am a Manchester City supporter however without them being sponsored by Asahi I would never have known about their business which shows how effective their sponsorship is.

- Sales Volume Growth:** In the first half of 2025, Asahi Super Dry recorded an 11% year-on-year growth in sales volume outside its home market, with the company specifically citing the impact of the football sponsorship as a contributing factor. This follows a 9.7% growth in UK supermarkets in the year prior to the sponsorship announcement.
- Brand Sentiment Increase:** During the first season of the partnership (2022/23), Asahi saw a 40% increase in key brand sentiment metrics across its core markets of the UK and China.
- Fan Engagement:** Digital campaigns related to the sponsorship, such as the AR-enhanced training kit launch, generated substantial engagement, including over 19.87 million content impacts/views and more than 426,000 interactions on social media platforms.

These metrics indicate a substantial increase in brand visibility and consumer interest, leading to measurable sales growth, though an exact individual customer count cannot be provided.

Essentially the golden triangle is how media helps businesses and clubs generate revenue. Without media there would be less coverage of both the club/sport and the business which highlights how they rely on each other. Sponsorships also help spectators as it allows them to have perks with other business for example Manchester city citizen and the Coop Live Arena , because Manchester City and Coop have a partnership , they allow people who buy the membership to get early notice about events that go on at the Coop and get early tickets to events which makes a lot of money for both businesses.



## The Golden Triangle explained through Golf

The golden triangle as a way for producing revenue for clubs can be explained through Golf and specifically Trentham Golf Club . The main sponsor of golf tournaments is PGA which recently generated \$1.8bn. The main sponsors for my club are : WDPS Stoke Ltd and Wooling Hill Memorial Estate however when its a tournament , they are sponsored by BMW which generate quite a bit of money for the club. These tournaments such as PGA Staffs - Trentham Pro-Am are also a good way for the club to make sales and revenue from people who attend / watch the tournament. Furthermore the more people that attend these tournaments / fixtures the more the participation would increase dramatically in local areas such as in Stoke. Alongside this it increases the exposure of Trentham Golf Club to people in the region and essentially can generate more members who seek to play golf. With this being said , its seen that the more people that participate , more people buy the merch of the sponsors and the club which is also another great way for Trentham to generate money. Like said before , in golf , it has previously been stated that Golf's governing body has signed a conduct to reinvest 30% of their tv rights back into golf which will allow more money to come into golf as a sport and even the club of Trentham Golf Club as more money is going into funding the sport. This is positive as more than golf will have a much larger exposure in the world of sport and hopefully attract more viewers and essentially more participants.



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## Promotional opportunities for businesses

Businesses small or big will see sport as a really good way to promote their business, when the media are involved in a sport this allows more people to engage and see the business, sparking an interest in the brand. 85% of internet users view or interact with sport. A company will want to have their name associated with a sport because it's the most effective way to get many people to see the same name all at once at every fixture. Meaning that it'll become more common to sports watchers as they watch and buy merchandise. For example through football, companies such as Spotify, Emirates etc get their name on kits and because a lot of people watch sport they get more involved in the business. Through golf, brands such as Rolex sponsor golf and because the majority of people who play golf are financially stable they can afford the likes of Rolex. Therefore golf clubs invest in sponsors as Rolex as they know that there will be lots of exposure of the brand and club to a lot of people and generate sales. These sponsors show their branding through the kit as seen on kits over every football team and generally most sports kit. For Trentham Golf Club, their logo is on their kit and they use their badge as a trademark used for recognition.



## Sport as a commodity

Sport can be seen as a commodity as it can be sold / exchanged and there are many opportunities for businesses to make money through selling tickets, merchandise, food, broadcast deals and the list goes on. In golf broadcast deals can be worth \$700 million which is earned annually through the PGA tour with CBS, NBC and ESPN. It also struck a 12-year, \$2 billion international rights deal with what's now Warner Bros. Discovery in 2018, for a total of more than \$8 billion in U.S. and global media rights. If you put this onto a scale it's a lot of money produced for golf and broadcasting businesses as well. The reason why it costs so much is because of the rise in technology and the relationship golf has with broadcast media as more people have bought TVs and have sport apps. Furthermore, golf viewers are a typically upscale demographic and this is a greenlight for advertisers particularly those who sell high end products like said before Rolex. With this being said, high quality advertisements and quality in broadcasting results in more money for the club and broadcasters as a whole.

## Promotional opportunities for clubs and sports stars

As well as sports being a commodity, the media then allows more opportunities and ways of making money for the club and sports stars. Even though golf is a massive sport, they still

maintain their relationship with the media to reel in more revenue when they have big tournaments such as the PGA. This allows their sport to be even more profitable for the club and top golfers making millions from prize money and endorsements, while lower-ranked players can earn less than \$100,000. The media during these events such as the PGA big sponsors such as Rolex on tiktok get posted and it helps produce more exposure to people who aren't as fond of sport to get participating meaning that they rack in more viewers and people who pay for the license to watch the tournament. Alongside this, golf players may get endorsements and get gifted by these big companies which sponsor their tournaments and golf in general which ultimately increases their income as well.



## Sports stars

Sports stars can also use the media to promote themselves on the media using apps such as Tiktok, Instagram and X which gets them their own sponsorships and deals and gaining more fans. A good example of this is most academy and professional footballers who are sponsored by Nike, Puma or Adidas. This helps these sports stars get all the support they need throughout their career as they get new boots every time the sponsor makes some and clothing as well. Furthermore on an even broader scale, Cristiano Ronaldo can be used as an example where he has deals which stem from Nike all the way to Louis Vuitton and makes \$18 million from these sponsors annually. Through Tiger Woods 9 sponsors that range from sport game producers such as 2k to Sun Day Red and Rolex and makes \$45 million annually which is a good way for them to earn money and gain fans and also motivate aspiring grassroots players.



## Conclusion

In conclusion, different forms of media and sport have a positive relationship as it increases the participation rate because of broadcast media. The rise in media, specifically broadcast, has helped sport get more viewers and participants because of Radios, TVs and live Podcasts which disclose everything you need to know about sport. Furthermore big competitions like the world cup spread the word worldwide and get many people's attention and when it's streamed it increases the morale of players and viewers making them want to play. This increases engagement as it makes viewers look forward to something that encourages them to go to the field/pitch and play. Furthermore, media like social media share the benefits of playing sports like better heart rate, better mental health and its overall good to go out and exercise. Alongside this sport they have a lot of partnerships and connections with big brands which allows them to generate and gain money through it.

Media is also great for getting sports stars as young aspiring players get the likes to show their skill online and gain popularity and even become great players in the future. Lastly, the media helps people know more about the game and the rules and regulations. Like on tiktok people post about the rules of a sport and it can be viewed by anyone worldwide which helps people know more about the sport and clubs in sport globally.

## Grant- £10,000 lottery and justification

If my club was to get a £10,000 grant, they'd use the money to spend it on digital and broadcast media mainly because of the mass majority of people who use these media forms. The reason why I haven't said print media is because of the lack of people who actually look and purchase print media nowadays due to the advance in technology.

Right now, I think the clubs current promotional issues are their broadcast and digital media forms as they don't really get the attention of the news as often nowadays and they don't have millions of followers on apps such as tiktok. I think that they need to get better exposure of the media targeting golf and this can be by getting more people to know about the club by first getting more broadcasts in Stoke and becoming famous nationally across the UK. I think that if they use this grant correctly they can attend to the club's internal problems and make solutions to fix the current issues they have with current members. Their current members are aged 30-50 so if they get better exposure, they'd have a wider variety of people attending.

If they were to have better digital media it's almost guaranteed that aspiring people who play golf in Stoke would go and attend Trentham Golf Club's sessions. Furthermore, through digital media, they can improve their website for new people who are seeking to play golf and give them the latest information about the memberships, the booking system, tours and all their achievements that can entice people to want to play golf. For example [PlayMoreGolf](#), they have a variety of information in their web and I think their website is better than Trenthams as its more advanced and it looks as if they use the likes of AI to keep their web updated and improve their digital presence. If Trentham Golf Club had this, it's inevitable that they'd have more people viewing their website and have more engaged members. Through these improvements, they can also attract sponsors as well and gain more money through them and get their members sponsors through it too. In conclusion, I'd pick broadcast media as more sponsors, viewers, sport scouts and sport superiors can watch them play. It's way more effective than any other media for this club as a lot of people in the UK have broadcasting devices such as TVs and phones and it's the best way to get people's attention as more people nowadays spend more time on their devices rather than spend time interacting with people. Ways they can do this is also by getting big sports stars to film an advert for them and post it on Youtube and national TV and other big broadcasts apps and it gets more exposure as more people may know the big sports star over the club which gets the club more attention. The negative side of my choice is the cost. The cost of broadcast media deals are very expensive and to get them to have a wide

viewer scale it would be expensive and way more the £10,000 annually for example the prem have a deal with bbc for £6.7bn so it'd be a hard way to keep it sustainable however I think that they can start this by finding a broadcast service that's less expensive for now while they're on the rise to becoming better.

# Cambridge National - Sports Studies

## New Grant

If my club was to get a £10,000 grant, they'd use the money to spend it on digital and broadcast media mainly because of the mass majority of people who use these media forms. The reason why I haven't said print media is because of the lack of people who actually look and purchase print media nowadays due to the advance in technology. If I was to pick which one, I'd pick digital media

because in comparison to broadcast media, it's a lot cheaper to improve website exposure and exposure in the media on popular apps such as TikTok, Instagram and X, the reason for this is that Trentham Golf Club's digital media is quite outdated and poor in comparison to other big golf organisations such as 'Golf Digest', on the internet it is stated that they have over 19 million people across various platforms. If

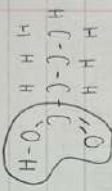
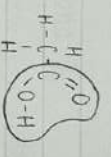
Trentham were to improve their website, they can keep regularly updated information on there which can attract more people who are interested in their club. As of right now, it looks very old and it doesn't really get the viewers attention in comparison to other Golf websites for example, Golf Digest, it's more enticing and it catches my attention a lot more and it looks more advanced than Trentham's. Another way they can improve their digital media with this £10,000 grant is by buying a high end drone and collaborate with big golf stars such as Tiger woods or Rory McIlroy and film the Trentham golf course with them playing on it id expect this to cost a lot more money with the likes of Tiger Woods and Rory Mcilroy however if they can get a god sports star in golf to make a collaboration they'll definitely see massive progress in their medias. If Trentham Golf Club had this, it's inevitable that they'd have more people viewing their website and have more engaged members. Through these improvements, they can also attract sponsors as well and gain more money through them and get their members sponsors through it too.



# Triple Science - Chemistry

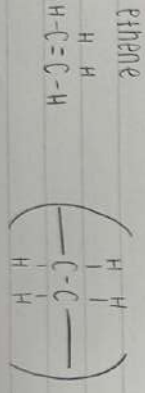
Carboxylic acid -  $C_nH_{2n}COOH$   
 functional group containing 'COOH'

- ① methanoic acid -  $HCOOH$
- ② ethanoic acid -  $CH_3COOH$
- ③ propanoic acid -  $C_2H_5COOH$
- ④ butanoic acid -  $C_3H_7COOH$



polymers - chain of many small repeating units

monomer 1 small unit  
 O-amino acid (monomer)  
 O-O-O-O-protein (polymer)



Thursday 23<sup>rd</sup> October

group 1, 7, 0 elements

Lithium - effervescent, moves until dissolved ✓  
 Sodium - orange flame, moves, dissolved fast movement, molten ball ✓  
 Potassium - lilac flame, small explosion ✓

larger atoms more shells, more shielding, nucleus and outer electron is far apart

diatomic - they come as pairs ✓

Fluorine - pale yellow bromine - brown X displacement when a more reactive halogen takes place of a less reactive halogen

less reactive because they gain 1 electron as you go down  
neg charge outer electron less easy to gain

inert because they don't react - full outer shell ✓

helium - balloons ✓

when more reactive substance overpowers the other one.

test for Cl - blue litmus red ⇒ white.  
indicator

increase ✓

$$\frac{8}{10}$$

# Triple Science - Biology

Thursday 21<sup>st</sup> January 2020

Endpoint test.

## RECALL

Describe the process of natural selection (use an animal to help you)  
 Give the advantageous characteristic for the following examples: a) giraffes, b) moths in polluted areas, c) finches (birds) foraging for food on different islands, d) bacteria

- Give 2 pieces of evidence of human evolution.
- What is genetic engineering?
- Give an advantage of using genetically modified organisms
- Give a disadvantage of using GMOs
- Describe how to selectively breed a chicken to lay more eggs
- What are the disadvantages of selective breeding?
- Higher: what are restriction enzymes used for?
- Higher: name the strands of complementary base pairs found on the end of the cut gene
- Higher: name the enzyme that attaches the foreign gene into the host DNA


- There are 2 types: small neck giraffes and long neck giraffes  
 This is caused by differences in genes  
 They will compete  
 The giraffe with a longer neck is more likely to survive because it has a better adaptation. The giraffe with a small neck is more likely to become extinct.
- Giraffes - longer neck  
 moths - darker wings so they are easier to be seen  
 finches - bigger beak  
 bacteria - antibiotic resistant
- Aids, Turkana boy
- To fix and repair damaged genes
- Can be used to treat genetic diseases
- Very expensive
- Chose the chickens that lay more eggs  
 Breed them  
 Repeat over multiple generations until all show the desired characteristics

Tuesday 13<sup>th</sup> January

## What determines your characteristics?

Recall

- Genomes: all of the DNA that codes for an organism  
 Gene: part of your DNA
- can conduct when <sup>molten</sup> ~~solid~~ because ions are free to move and carry charge  
 cannot conduct when solid because ions are not free to move and cannot carry charge



$$2 \cdot 8 \cdot 1$$

- 3
4. Density =  $\frac{\text{mass}}{\text{volume}}$
5. Density =  $\frac{\text{mass}}{\text{volume}}$
6.  $320 \div 32 = 10$

## New information: Inheritance

- Allele - an alternative copy of a gene.
- Homozygous - when an organism has 2 copies of the same allele
- Heterozygous - when an organism has different alleles
- Genotype - the genetic makeup of a cell/what alleles it has
- Phenotype - the appearance of an organism
- Dominant - only one copy of the allele needed for that feature to be expressed.
- Recessive - two copies of the allele needed for that feature to be expressed.

Last lesson/week

# Triple Science - Physics

**INDEPENDENT TASK - Acceleration EQUATIONS**

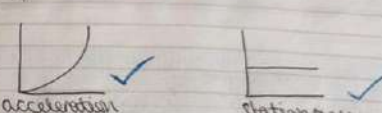
**DO YOUR TEACHER EXAMPLE**  
 Calculate the acceleration of a car that moves from rest (0 m/s) to 10 m/s in 5 seconds.  
 Calculate the acceleration of a train that moves from rest (0 m/s) to 20 m/s in 80 seconds.  
 Calculate the acceleration of a bus that moves from rest (0 m/s) to 12 m/s in 6 seconds.  
 Calculate the acceleration of a car that moves from rest (0 m/s) to 10 m/s in 5 seconds.

**WE DO CLASS EXAMPLE**  
 Calculate the acceleration of a car that moves from rest (0 m/s) to 10 m/s in 5 seconds.  
 By how much does the velocity of a car change in 5 seconds when accelerating at 4 m/s<sup>2</sup>?  
 Calculate the acceleration of a rocket that moves from 200 m/s to 3000 m/s in 7 seconds.

**INDEPENDENT PRACTICE**  
 Calculate the acceleration of a rocket that moves from 200 m/s to 3000 m/s in 7 seconds.  
 How long does it take a train to increase in velocity by 20m/s when accelerating at 2 m/s<sup>2</sup>?  
 What is the final velocity of a cyclist after 2 seconds if he/she accelerates at -3m/s<sup>2</sup> from 10 m/s?  
 How long, in seconds, should a train take to stop when accelerating at -2 m/s<sup>2</sup> from 30m/s?

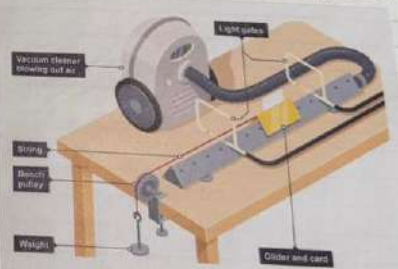
**Recall**

LM 1)  $\frac{10}{4} = 2.5 \text{ m/s}^2$  ✓

LM 2) 

LM 3) Vector - weight, force, velocity, displacement, momentum. ✓

4) Scalar - mass, distance, temperature ✓



1. Cut an interrupt card to a known length (such as 10 cm) and attach it to an air track glider.
2. Set up the equipment as shown in the diagram. Make sure that the air track is level, and that the card will pass through both gates before the masses strike the floor.
3. Set the data logging software to calculate acceleration.
4. Use scales to measure the total mass of the glider, string and weight stack. Record this value.
5. Attach the full weight stack (6 x 10g masses) to the end of the string.
6. Make sure the glider is in position and switch on the air blower. The glider should accelerate.
7. Remove one weight and attach it to the glider using blu-tack. This will keep the total mass constant. (The weight stack is being accelerated too.)
8. Repeat steps 6-7 removing one weight from the stack each time. Remember to attach each weight to the glider as it is removed from the weight stack.

**Handwritten calculations:**

- 1)  $a = \frac{\Delta v}{t} = \frac{10}{5} = 2 \text{ m/s}^2$
- 2)  $a = \frac{\Delta v}{t} = \frac{20}{80} = 0.25 \text{ m/s}^2$
- 3)  $a = \frac{\Delta v}{t} = \frac{12}{6} = 2 \text{ m/s}^2$
- 4)  $a = \frac{\Delta v}{t} = \frac{10}{5} = 2 \text{ m/s}^2$
- 5)  $a = \frac{\Delta v}{t} = A = \frac{\Delta v}{5} \Rightarrow 4 \times 5 = \Delta v = 20 \text{ m/s}$
- 6)  $a = \frac{\Delta v}{t} = \frac{2800}{7} = 400 \text{ m/s}^2$
- 7)  $a = \frac{\Delta v}{t} = 2 = \frac{20}{t} = 20 \div 2 = t = 10 \text{ s}$
- 8)  $-3 = \frac{\Delta v}{2} = \Delta v = -6 = 4 \text{ m/s}$
- 9)  $-2 = \frac{30}{t} \Rightarrow 30 \div 2 = 15 \text{ s}$

$fv - 10 = -6$   
 $fv = 4$

**Energy**

**RECALL**

1. Name the 5 main stores of energy
2. Name the 4 main transfers of energy
3. State what is meant by conservation of energy
4. Energy is measured in...
5. What kind of energy is often lost as wasted energy?
6. Give the equation of: a) KE, b) GPE
7. Describe the energy transfers in an object projected upwards (e.g. a ball thrown up)
8. In a rollercoaster GPE is converted to KE and back, but eventually the rollercoaster stops. Why?
9. What is meant by non-renewable?
10. Name some sources of energy that produce pollution
11. Name some sources of energy that are not always available
12. How does a Sankey diagram show you how efficient an energy transfer is?
13. How do you calculate efficiency?

1. Chemical, Electrical, Mechanical, Nuclear, Gravitational  
 2. Few main transfers of energy: Heating, Electrically, Radiation, Mechanically  
 3. The amount of energy before = the amount of energy after  
 4. Energy is measured in Joules  
 5. Kinetic energy  
 6.  $KE = \frac{1}{2} \times m \times v^2$   
 $GPE = m \times g \times \Delta h$   
 7. Chemical energy is transferred to kinetic store  
 8. Dissipation - energy is transferred to the surroundings  
 9. Non-renewable - will eventually run out  
 10. Energy source that produces pollution: carbon dioxide, nuclear waste, nuclear waste  
 11. Energy source that isn't always available: Wind, solar, wave  
 12. Compare the width of the arrows - wider arrows = more energy transferred  
 13. Efficiency =  $\frac{\text{useful energy out}}{\text{input energy}}$  you can x100 for a percentage

**Application (H)**

17 = 10 + 7  
 $v^2 - u^2 = 2ax$

**Application Part 2 (H)**

$\Delta h = \frac{GPE}{m \times g} = \frac{11}{0.42 \times 9.8}$   
 $\Delta h = \frac{11}{4.116} = 2.67$  height = 2.67 m

(i) Calculate the kinetic energy of the football when it is moving at a velocity of 12 m/s.  
 $KE = \frac{1}{2} \times 0.42 \times 12^2$   
 Use the equation = 30.24  
 $KE = \frac{1}{2} \times m \times v^2$   
 kinetic energy = 30.24

(ii) Describe the energy transfers that happen when the ball hits the wall.  
 Kinetic energy transfers to thermal energy to the surroundings.

10/13