

Candidate 3 evidence

ENTER NUMBER OF QUESTION	DO NOT WRITE IN THIS MARGIN
1(a)	<ul style="list-style-type: none"> Stainless steel is suitable for the shelves of the medical trolley as it is easy to clean. This is suitable as the medical shelves will have to be kept clean and sanitary for patients, making stainless steel suitable as it will make cleaning the trolley easier.
	<ul style="list-style-type: none"> Nylon has been used for the wheels wheels of the medical trolley. Nylon is suitable as it is hardwearing. This is suitable as it will prevent the wheels from being being scratched on from the floor and will keep the wheels therefore smooth when rolling around on the floor for longer.
	<ul style="list-style-type: none"> Stainless steel is suitable for the shelves ^{of the medical trolley} as it is corrosion resistant. This is suitable as this will prevent the shelves from rusting or and corroding when over time and after being cleaned down with water making stainless steel suitable.
	<ul style="list-style-type: none"> ABS is suitable for the shelves ^{and handles} of the trolley which is suitable as ABS is a durable material. This is suitable as this will allow the trolley to be knocked around and handle misuse in a workshop from tools

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1a)	and general misuse without much damage
	making ABS useful as the shelves and handles
	Can handle rough use for a project in a workshop
	<ul style="list-style-type: none"> • Polypropylene has been used for the tool hooks
	which is on the tool trolley which is suitable
	as polypropylene has excellent fatigue strength.
	This is suitable as this means the hooks can be
	repeatedly pulled on up and down by the weight
	of tools on and off the tools without snapping
	or breaking.
	<ul style="list-style-type: none"> • Polypropylene is suitable for the tool hooks on
	the tool trolley as it comes in many colours
	which is suitable as this will allow the best
	colour of the hooks to be achieved.
1b)	<ul style="list-style-type: none"> • Extrusion has been used for the tubular
	stainless steel frame of the medical
	trolley as the extrusion creates long tubular
	shapes with a uniform cross-section which
	will make the frame strong and making extrusion
	suitable
	<ul style="list-style-type: none"> • Vacuum forming has been used in the tool
	trolley's shelves to create the containers at
	the front. This is suitable as vacuum forming can

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1b)	Create the tray like shapes and Containers
	on a sheet piece of material such as the
	shelves, making vacuum forms suitable as
	these containers can be adhered on the
	shelves.
	• Injection moulding has been used on the
	tool trolley's handles as injection moulding
	is suitable as it can create complex
	shapes and patterns such as the grip texture
	on the handles and the curve shape of the
	handles.
	1c) • function has influenced the tool trolley as
	the 360° swivel wheels have been used. This
	is functional as it will allow the user to
	rotate and control the trolley in any
	direction, making it easier to move and use.
	• function has influenced the design of the
	tool trolley as standard components have
	been used to assemble it. This is functional
	as it will allow the product to be
	disassembled for storage or transport
	when not being used, making it easier to store
	and stack. Pull away.

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110	<p>Function has influenced the design of the mental trolley as a wire has been used around the shelves. This is functional as it will prevent any large items from falling off of the trolley when moving it around and will help secure make the handles more stable when being pulled around making the product easier to pull around.</p>
	<p>Function has influenced the design of the tool trolley as the shelves have trays built into them. This is functional as trays will allow the user to store smaller parts that may be easily lost when building something making the trolley more functional as it helps organise and retain the items usually stored and lost in a workshop.</p>
	<p>Function has influenced the design of the tool trolley as hooks have been built on the side of the trolley. This is also functional and useful as it will help store provides alternative storage for tools other than the shelves, making the design more useful and functional as there are multiple ways to store achieve the function of holding and storing tools.</p>

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1d)	<ul style="list-style-type: none"> • A benefit of using standard components in the trolley's is that the using standard components will cut down of the potential cost of manufacturing components for your ^{the} trolley's design yourself as you can buy them in bulk cheaper from an outside source. 	
	<ul style="list-style-type: none"> • Another benefit is that standard components allow the design to be also disassembled and re-assembled which is helps store the design ^{trolley's} away or ship it to the stores and customers. 	
	<ul style="list-style-type: none"> • A drawback of using standard components in the assembly of the trolley's is that this means that your the assembly of your design will rely on an outside source which may cause delays in assembly time and efficiency of the trolley's. 	
	<ul style="list-style-type: none"> • Another drawback is that standard components may cut down of the creativity of the design as the design must accommodate for the standardised to standard components in order for them to fit and work with the design of the trolley's. 	

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De)	<ul style="list-style-type: none"> • A benefit is that physical models such as sketch models can be used to generate ideas in the design process of the trolleys which helps to quickly come up with ideas for the design of the trolleys. • Another benefit is that physical models such as a scale model can help test out and communicate sizes of the design of the trolleys, allowing the designer to see if ^{allowing the designer to see if} the sizes determined with for the design of the trolleys and if they are correct for the user to use and interact with the trolleys as you can see the real size of the model in relation to a person. • Another benefit is that physical models such as block models can be used to test the ergonomics of the trolleys to test if for example the the design of the handles on the trolleys is comfortable to use and works with the anthropometrics of a person's hand, or how much force is needed • Another benefit is that physical models such as block ^{prototype} models allow the designer to present the final visualise the final product

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1e)	<p>and its parts to test if it achieves its function and can be used to present to the client to see if any final changes need to be made to the design of the hollers before its sent to manufacture.</p>
2a)	<p>Polystyrene</p> <ul style="list-style-type: none"> Polypolyene may have been used in the design of the safety helmet. It is suitable as it has excellent fatigue strength which is useful as this will allow the helmet to be pulled back and forth by the adjustable size piece and be pulled to be smaller or larger for long periods of time without snapping or breaking. Its also suitable as polypolyene is lightweight which is suitable as this means it won't be too heavy on the users head allowing them to comfortably wear it for long periods of time.
2b)	<ul style="list-style-type: none"> The needs of the target group has influenced the child's safety helmet through the fact that the design is adjustable. This then meets the needs of the target market ^{of kids}

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2) b)	
<p>as children are constantly growing so this allows the consumer to keep and use the design for longer as it can be adjusted as the child grows.</p>	
<ul style="list-style-type: none">• The market market needs have also influenced the child's safety helmet as they feature bright colours which may appeal to children who will be attracted to and want to wear a design with bright and fun colours, showing the design appeal 'appeal' attention to appeal to children.	
<ul style="list-style-type: none">• The market needs have also influenced the child's helmet as it has foam padding which may appeal to the target market needs as they want the design to be comfortable easy to use and wear for long periods of time, which the foam may help achieve.	
<ul style="list-style-type: none">• The market needs may have also influenced the design of the helmet as the the strap which is adjustable and will make the wearer fit the helmet more securely which shows that the needs of the target market are being considered as the strap can be tightened	

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2/b)	<p>or loosened as the child grows and will also put the child security which parents or kids may want in a safety helmet for their child.</p>	
2/c)	<p>Stress • Stress ^{and evaluations} the rigs could be used on the safety helmet to test how it performs</p> <p>• A crash simulation could be practiced on the helmet to see how it would respond in a crash to test its fitness for purpose of protecting the child. This would involve using the the helmet on a dummy and simulating a crash or fall to see how the helmet's materials and overall shape and design respond.</p>	
3a)	<p>• An advantage of an open brief brief is that it allows the designer to explore and use their creativity to create innovative ideas.</p> <p>• A disadvantage is that the designer may lose focus or get distracted as their brief is less strict and specific.</p>	

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30b)	<p>A Product design specification is used to help the designer in the design process with what the final design must contain and achieve. This often contains information about all of the design factors such as ergonomics and aesthetics. It may also contain anthropometrics and potential sizes, a budget or a potential selling price.</p>	
c)	<p>Brainstorming is an an idea generation technique. Its key stages include getting people together in a room, sharing ideas, all ideas are accepted and all ideas are written down. This helps to produce initial ideas as it encourages designers to collaborate and allows many creative ideas to be heard that could be combined to create an effective design that would not be as effective if collaboration was not used.</p>	

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	<p>3)d) sketch drawings are used in the design process to generate initial ideas and help visualise initial design ideas in the initial ideas stage of the design process.</p> <ul style="list-style-type: none">• sketch ^{sectional} drawings can be used in the development stage of the design process to show detailed parts of a design that may not be seen in other sketches such as hidden joints or parts parts of the design. will help communicate and show the inside of a part of the design where and the parts of the design that may not be seen in other sketches such as hidden joints or parts of the design.• Exploded drawings may be used in the development or refinement stage of the design process to show assembly methods of the design such as dowel joints or hidden screws that may not usually be seen as well as all of the parts and components of a design needed to manufacture it.	

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3)d)	<ul style="list-style-type: none">• Working drawings can be used in the refinement or plan for manufacture stage of the design process to communicate size to the and the extent to show and visualise the overall final design.
4)a)	<ul style="list-style-type: none">• Celebrity endorsement could be used to launch a product as loyal fans of the celebrity will trust your product and purchase it as they trust the celebrity's opinion.
	<ul style="list-style-type: none">• Sales or special offers such as coupons could be used to launch a product as this will encourage consumers to buy it at a time where they think it will be cheaper and will encourage them to purchase it immediately as it is seen as a limited offer.
	<ul style="list-style-type: none">• Advertisements such as billboards, posters, tv adverts etc.. could be used as they are presented in public places where everyone sees them making the range of people aware of your product larger, increasing potential sales.

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5) a)	<ul style="list-style-type: none">• Physiology has influenced the design as the temperature dial has red and green colours on the temperature text to signal heat, helping to signify to the user how to increase or decrease the heat clearly.• Physiology has influenced the design as a lightbulb symbol has been used to signify the brightness of the oven^{fridge} which can helps to clearly communicate to the user how to change the brightness as the light bulb symbol is universal and will be understood by all languages.• then physiology has influenced the design of the handle as the force needed to push and pull the door of the oven^{fridge} should be the smallest amount of force by the weakest user to allow all users to comfortably use the oven^{fridge} air fryer.• Physiology has influenced the design of the trays as the amount of force needed to pull and push the trays into and out of the fryer will need to be the smallest force by the weakest user to allow all users to complete this motion and comfortably

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5a)	Use the Ergo trays.
	<ul style="list-style-type: none"> ◦ anthropometrics have influenced the Ergo as the thickness of the handle will need to fit the grip diameter of the 50% tile user to ensure as many users as possible as many users as possible can use the handle and grip it comfortably. ◦ anthropometrics have influenced the Ergo as the length of the trays will have to fit the best hand width of the 50% tile user to ensure as many users as possible as many users as possible can comfortably pick up and hold the trays.
	5)b). Market Pull can influence the colours of a design such as the Lego Friends sets that were created in response to the market wanting a Lego set in colours for girls such as Pink and Purple.
	<ul style="list-style-type: none"> ◦ Market Pull can also influence the Market Pull can also influence topics and features of the design such as the orientation, style and overall

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	<p>aesthetics of the Lego Friends Lego set for girls has heavily influenced and directly designed from Jules grows with Jules girls and their parents who where its a target market demands this product.</p>
5c)	<p>Trademarks can help to protect differentiate your product from other companies through slogans, logos, and more to separate your product from competitors.</p> <ul style="list-style-type: none"> • Patents can help protect technology of your product to prevent other companies from using it and this can therefore help to secure more market share.
6a)	<ul style="list-style-type: none"> • Flame tests can be used to identify the chemical contents of a metal such as the chemicals in the metal will create a different colour flame depends on its colour which will help to determine its chemical contents based on the flame colour. • Magnet tests can help to determine whether a metal contains iron as if it does it will be attracted to the magnet and won't if it doesn't.

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5a)	<p>Materials can be identified by looking at their colour and shade such as woods where woods such as mahogany can be identified by their redish colour.</p> <p>Scratch tests can be used to identify materials as the materials will show that ^{show} scratch will help that tell that its a hardwearing material and how it does scratch if it does can help determine the material as certain materials are more prone to scratching than others.</p>
6b)	<p>Blow moulding has two draw a hollow stroke and would split lines.</p>
c)	<p>JIT Production can be used to optimize cut down on manufacturing time as no store stock is held in factories so its efficient to manufacture as parts are ordered when needed.</p> <p>JIT is also used to cut down on costs of manufacture as no material is wasted as it is only ordered when needed.</p>

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c)	<ul style="list-style-type: none">• Gantt Charts can be used to keep the workers in manufacturing on track as as they are aware of what comes next and the knows who they rely on and who relies on them to finish in the manufacturing process.• Gantt charts can also help to keep the manufacturing process on time and efficient as it communicates deadlines to the workers so they know how much time they have.	
7)	<p>Consideration for the environment has influenced the design of a ^{product} product. This is seen seen through the design where actions as they attempt to create a design with as little impact on the environment as possible. This could be achieved through being choosing recycled or recyclable materials, also using durable materials to increase the product life span and prevent it from being thrown away as fast, using standard components to in the design to make sure that the design</p>	

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7)	<p>Can be broken down and recycled at the end of its life and not practising in Planned obsolescence to ensure that the product has a reasonable and sustainable lifespan, prioritising the effect on the environment over increasing potential sales for profit, sacrificing the environment in the process.</p>	
	<p>The manufacturing and manufacturers of a product must take responsibility and take into consideration the effects of the product on the environment too. They will do this by ensuring that the process of the manufacturing the design inflicts as little damage on the environment as possible. This could be achieved through things such as getting actions such as getting sources of wood from sustainable sources such as sustainable wood. (tree farms where trees are replanted, ensuring forests aren't destroyed in order to manufacture the product) they could also</p>	

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7)	<p>Reduce waste material as much as possible to ensure the material used is all or mostly used and the waste in order to make the product isn't large or heavy effect damaging to the planet. This could be achieved through using manufacturing processes that use the total or most of the material to make the design, or reusing waste material by recycling or melting it down such as reusing washed thermo plates or cutting carefully and mindfully out of sheet material to utilize as much of it as possible from one sheet. Manufacturing can also get materials from local sources in order to cut down on potential CO₂ emissions generated by cars, trucks or planes transporting materials to factories.</p>	
	<p>The type of user Product should ensure that the user can use the product sustainably too, ensuring that once the product is sold to the market they are inspired to use it be environmentally</p>	

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7	<p>conscious too and use the product responsibly, this can be done through making the product self-assembling through knock-down fittings and screws seen in companies such as IKEA who allows products to be assembled and disassembled at home providing instructions and parts in order to do so and who are famous for being environmentally responsible in the design of their products and their business model. As well as this, the user can also be encouraged to be environmentally conscious and responsible with the product, once they have it, by the design and manufacture company and design and manufacturing team by making clear, simple and universal symbols to communicate to the user how to recycle the product at the end of its life such as the symbols used on plastic bottles and food packaging containers which communicate what types of plastics have been</p>	

