

## Candidate 5 evidence

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1a)	Stainless steel has been used for the shelves which is corrosion resistant making it suitable so it won't rust or corrode <del>allowing</del> allowing it to stay sterile in a medical environment.
	nylon castor wheels have been used on the medical trolley which are durable making them resistant to wear and tear from rolling about.
	ABS shelves and handles have been used on <del>the</del> the tool trolley which are chemical resistant making them easy to clean <del>with</del> <sup>off</sup> the dirt from the tools
	A mild steel side panel has been used on the tool trolley which is tough and impact resistant so it won't break with the hanging tools hitting and swinging off it when moved and stopped.
	polypropylene tool hooks have been used which have a good strength to weight ratio so they won't snap whilst holding up tools.

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	galvanised mildsteel wheel brackets have been used on the tool trolley which are hard making them scratch resistant and during they look pristine with the occasional bumpy off walls and terrain.
b)	The tubular stainless steel frame has been extruded which is suitable because it has a uniform cross section.
	The ABS shelves and handles have been injection moulded which is suitable because injection moulding allows for mass production of the shelves and handles, so it can supply the demand.
	The galvanised mildsteel wheel brackets have been diecast which is suitable because die casting is highly accurate and has a good surface finish.
c)	<del>There</del> A function of the medical trolley is the 360° swivel function in the wheels allowing for easy movement and versatility.

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c)	<p>Another function is with the peg board on the tool trolley so loads of small things can be hung or changed so it can be a few larger tools</p>
	<p>A function of the medical trolley is the border around the shelves so that the smaller objects don't roll off when moving and becoming contaminated</p>
	<p>A function of the tool trolley is the indented screw holders which allow for smaller objects which can be easily lost to be securely stored in the cap like gaps.</p>
	<p>Another function of the tool trolley is its handles on both sides allowing for easier transport and a way the user can safely move their tools without it slipping away</p>
d)	<p>A benefit of using standard components is that the consumer can easily fix and replace parts as they can be easily sourced from DIY</p>

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d)	Shops (ease of maintenance).
	Another benefit of using standard components
	<del>is</del> is that they don't require specialist tools
	to assemble and considering the tool trolley is a
	self assembly it would be better if the
	consumer would already have the tools to
	assemble.
	Another benefit of using standard components
	is that they can be easily sourced in bulk
	from places like china so there will
	be a constant supply and no shortages
	A drawback of using standard components
	is that there is no assurance of the
	level of quality assurance as they are
	outsourced so they may come defected
	e) physical modelling can help to give
	ergonomic (Anthropometric) data about the
	products design if made to scale so that
	it can be made at the correct size

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e)	Another benefit of physical modelling is that it can give a sense of a design's stability e.g. if it will fall over or have a design flaw.
	Physical modelling also allows for aesthetics to be looked at whether it is a desirable shape, style, theme etc...
	Physical modelling also aids the design by showing the proportion of it e.g. is this part too small compared to another.
1/6	<del>Reasons</del> Physical modelling will benefit because it allows for testing with the products for example tools can be put on the model to see if they fit or sit on it well
	ABS ↓
2/a)	<del>Polycarbonate</del> could have been used because ABS is impact resistant so it will be able to resist knocks and falls that the helmet will withstand. ABS is also durable making it resistant to wear and tear from

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	overtime allowing it to stay in a good condition.
b)	The target market may have needed an adjustable fastener as children grow at different paces so age <del>was</del> size may not be true.
	The target market needed an adjustable size due to the range of sizes with children's heads so an adjustable strap has been added so it will stay secure.
	The target market (children) have very delicate heads not to the full strength of an adult's therefore additional red padding has been added to ensure safety.
	The target market may use it in a warm weather therefore it has influenced the addition of ventilation holes to allow for coolness and comfortability.

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C)	A user trial could be conducted to help evaluate the helmet's design/sizes and comfortability for when riding getting back feedback on the design of the product.	
3a)	An advantage of an open brief is that it gives a designer freedom to be creative and come up with new ideas  However an open brief may lead to a design that is disliked by clients and not what they are looking for causing a design to be changed, or not taken forward.	
b)	A product design specification is a specification including many details about the product including function like it must do. Or it could include info about the product that it for example seats 4, has a microphone or <del>the</del> how big it is dimensionally and how it performs, and ergonomic details	

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C)	<p>Take a pencil for a walk where a designer draws one continuous line overlapping itself and goes back to it and outlines unique interesting shapes and turns them into a design being inspired by the shape. This <del>class</del> helps to produce initial ideas efficiently as they are one to one and each is different and most likely never seen before giving fresh unseen ideas.</p>
D)	<p>Graphic techniques are used constantly during the design process like initially quick oblique sketches which have 2d shapes with 45° lines projected back to create depth which allow for quick experimentation of ideas.</p>
	<p>As it develops techniques like one point perspective and isometric are often used for their accuracy in proportion and ease to do allowing for ideas/designs to be</p>

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3d	
<p>has easily experimented on with many made to compare with projection from a point or vertical and 30° views</p>	
<p>Then As it is taken to manufacturing oblique drawings and exploded isometric views are drawn to show more technical details and inner parts/assemblies giving technical details.</p>	
<p>At the end when it comes to presentation 3D cad rendered graphics can be done to show materials, colours and easy to understand details and even sited environments</p>	
4d	
<p>Marketing techniques that could be used could be a promotion like Buy one get one free or a discount for first sales.</p>	
<p>A celebrity promotion could be done where a celebrity will endorse the product and tell their fans to buy it so sales are high</p>	
<p>Marketing additionally on social media with a suspended launch date builds tension and sense of urgency to buy it when it drops increasing sales.</p>	

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4a)	Running giveaways for customers e.g people who buy will be entered into prize drops making people buy to enter also.
	Companies can also heavily advertise by putting up posters, signs, billboards for the launch of a new product generating recognition
b)	They could launch a new updated version with more additional functions <del>so that</del> and features making people want to buy the new version, or even a software update.
	They could release a new product which coincides with the existing one creating a product ecosystem making consumers buy the first product so they can use the new partner product
	Could do a collaboration with brands for example many companies collaborate with maverick to inject more sales into a product benefiting from their successful brand and identity.

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5/a)	

The diameter/thickness of the handle has been influenced by a persons grip diameter ~~or~~ <sup>so</sup> they can grab the handle comfortably

The size of the settings buttons have been influenced by the width of a persons finger tip so they can click the buttons easily

The height of the scroll wheel from the air trigger has been influenced by a persons finger width so they can fit their ~~hands~~ <sup>fingers</sup> around the wheel and turn it easily.

The buttons must be easy enough to press with a finger without causing strain to a persons finger

The door must be light enough to pull open easily for a persons arm strength without causing strain to their arm.

The button pad uses symbols like a light bulb which psychologically cause <sup>a persons</sup> ~~people~~ mind to know its for the light inside the

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5/15	
b)	

5/15 air fryer

b) Market pull is when there is a gap in the market for a new product needed for the target market. For example when apple introduced their wireless air pods they were really expensive which caused other companies to design cheaper versions taking advantage of the market's needs. Or when energy costs ~~were~~ are high air fryers came about which were very energy efficient especially compared to an oven causing the market to buy them as it was a need of the market

c) Intellectual property rights like patents, copyright, design right and trademarks prevent design ideas from being stolen and used to make money by companies and other people. They also allow for products to be bought in trust as people will see trademarked branding and trust the quality of

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5f)	
<p>Using Patents also publish ideas into a library so people can use them to come up with new ideas saving them in R&amp;D.</p> <p><u>• Extra Point at end</u></p>	
6)	
<p>magnets can be used to test metals as metals not include iron ore magnetic which would help to determine whether it was ferrous or non ferrous</p>	
<p>A flame test could be conducted as different metals burn at different colours like copper would be green or iron would be orange-red colour helping determine their material</p>	
<p>A float test could be conducted on metals as metals like iron would sink whereas metals like Aluminium would stay afloat.</p>	
<p>A scratch test could be done on metals as metals like iron scratch easily whereas metals like aluminium do not, and the shine from scratches are identifiably different.</p>	

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	You could reheat a plastic in an oven as thermoplastics like polypropylene will bend back into its original form whereas thermosets like urea formaldehyde will not bend back to an original form and will maintain shape	
	On woods you could check the grain to see how tight or wide the gaps are as hardwoods like oak and beech have tighter grains than softwoods like red pine and pine and even some woods like beech have specific grain patterns like beech being full of many little dashes	
	b) blow moulding will have mould split lines,	
	blow moulding will have a hollow inside with a hole on the top,	
	blow moulding will have a uniform wall thickness throughout,	

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6) d)	<p>Grant charts are used to show organisation in a time frame like a schedule of what and when it gets done. For example the production of cars the chassis team will have to build the chassis before the interior team come to fit an interior so it keeps organisation. It often reduces production time with less wasted hours. And Grant charts save money with people not being paid extra days work because they are waiting on something to be completed.</p>
	<p>Jits are used in the development and manufacture of products and they aid the efficiency of production often making it easier and quicker to complete. So that products can be <del>also</del> produced using the time limit.</p>

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7	<p>During the design of products design teams could work remotely from home so they don't need to take transport to work and back. Also when coming up with ideas environmentally friendly ideas/commitments can be made for example one bin if it is on a larger scale with detailed organised recycling instead of one bin that heads for a landfill. Designers could also do their work digitally on digital sketchbooks instead of tearing through paper and ink when coming up with ideas having a paperless office reducing paper and ink waste.</p> <p>During the manufacture of products manufacturers could use recyclable materials in their products so they can be recycled after use instead of ending up in a landfill.</p> <p>Manufacturers could also make use of recycled materials that have already been recycled before so they are not producing more plastic/materials and using existing ones.</p> <p>Manufacturers could use less materials for</p>

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→	Example when manufacturing a product use only one or two material types instead of like B or 7.
	Manufacturers could make use of more durable materials that can be re used a good example of this is washable metal straws instead of plastic straws where the metal straws have a longer lifespan than the plastic single use ones so that there is less waste when using a product.
	Manufacturers could also source parts/materials from local industries instead of overseas in places like china where shipping would cause a lot of pollution sourcing through planes, and boats.
	<del>Manufacturers could also improve</del> Manufacturers may also run on different energies rather than coal power making use of solar power to run their operation.

