

ENTER NUMBER OF QUESTION		DO NOT WRITE IN THIS MARGIN
	<u>Section 1</u>	
	1a) <u>Collapsible wheelbarrow</u>	
	Tubular mild steel is a suitable material for this product because it has a good strength to weight <del>ratio</del> ratio. This means that it is very light weight but also very strong. <del>This is a good thing</del>	
	UV protected waterproof cloth is a suitable material because it is a strong material. It will also prevent anything from leaking out of it because it is water tight. As it is UV protected, the colour will not fade away from it so the wheelbarrow will always look Brand new.	
	Nylon is a suitable material for the wheel because it is very rigid and it is difficult to crack or break. It is a suitable	



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	material to use in injection moulding which	
	is the <del>the</del> process that was likely to be	
	used <del>to</del> to make the wheel.	
	<u>Endurance wheel Barrow</u>	
	Galvanised steel is a suitable material <del>for</del> because	
	it is strong and also the galvanised coating	
	acts as a barrier to any Rust or corrosion	
	that may try to form on the mild steel.	
	<del>This</del> This means that the metal will last longer	
	because it cannot rust easily.	
	Polypropylene is suitable for the handles	
	because it provides the user with a firm	
	but comfortable grip on the wheel barrow.	
	Rubber is a suitable material for the <del>tyre</del>	
	tyres because it is a very tough and durable	



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material and it will not wear away very easily. This is a good thing if the wheelbarrow is being used alot because it is able to withstand constant use.

b) Extrusion

An ~~ex~~ extrusion process will have been used in order to make the tubular steel frames. This is a suitable process because it allows long lengths of tubing to be produced to the exact same diameter and cut to exactly the same size. It is a fast process so it makes mass production easier.



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	<u>Press Forming</u>	
	Press forming is the process used to make the steel tray for the endurance wheelbarrow. This is a suitable process because identical steel trays can be produced continuously. <del>Also since</del> Since there are no joins in the metal, the overall structure will be very strong.	
	<u>Injection Moulding</u>	
	This process would have been used to manufacture the Nylon wheels. It is suitable because it is a low cost process because only a few moulds have to be made and there is not <del>not</del> a lot of waste material left over at the end.	



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c)	<p>Physiology has influenced the design of the wheelbarrows because they must be easy to pick up. To make this easy the wheelbarrows have been made from lightweight materials and have been fitted with handles to give the user something to hold. The wheelbarrow must also have good manoeuvrability. In order to do this, the wheelbarrow only has one wheel. This allows it to move back and forwards and it can also pivot on the wheel to change direction.</p> <p>Psychology has influenced the design because it must look safe to the user. Therefore the wheelbarrow has been designed with not visible sharp edges or corners that the user could cut themselves on. The product</p>



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	<p>must also look well put together so that the user feels comfortable when using it.</p>	
	<p>To do this, the manufacturer has build a strong, tubular steel, frame to make the wheel barrow stable. The trays have also been made from one part so that there is no joins in the material that may weaken it.</p>	
	<p>d) The wheel barrows have been designed so that they are easy to load. They aren't <del>to</del> very high of the ground so anything that is being put in to it doesn't have to be lifted far. The trays are also wide, this makes loading easier because there is not a confined space to put anything into.</p>	
	<p>The wheel barrow has been designed to be easily moved. To do this <del>they</del> <del>are</del> a big wheel has been fitted which allows the wheel-</p>	



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	barrow to move and it also keeps it stable.	
	The wheel easy wheel barrow has been designed so that it can fold up. This makes storage easier because less space is required for it.	
	The endwane wheel barrow has been <del>z</del> designed so that it is easy to unload. The slope bit in the tray allows for anything in the wheel barrow to be tipped out by simply lifting up the wheelbarrow.	
	Both wheelbarrows have been <del>es</del> designed so that they can withstand constant use. Strong materials have been used and protective coatings have been applied so that the materials do not rust and rot away.	



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e)	The benefits of using standard	
	components is that they are readily	
	available to the manufacturer, all	
	they have to do is order them.	
	Another Benefit is that it saves	
	the manufacturer money because they don't	
	have to <del>buy</del> buy machines and moulds to	
	make them themselves.	
	A third advantage is that <del>may</del> the	
	manufacturer knows that they are good	
	quality. If the manufacturer uses the same	
	supplier all the time then they know it is a	
	reliable source and the parts will be	
	good quality.	
	A fourth advantage is that there is a	
	wide variety of standard components, so	



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	the manufacturer has a choice on	
	what parts they want to use	
	<u>Section 2</u>	
	2a) A benefit of using laminated wood	
	is it is cheaper than <del>the</del> solid timber	
	so the manufacturing company can	
	save money when producing the chair.	
	<del>Another benefit is that it is a sustainable</del>	
	<del>source and</del>	
	Another benefit is that it can be made to	
	look like any kind of wood. This done by	
	putting a veneer on the laminate. This makes	
	the laminate look like high quality timber	
	when it is really not.	
	A third benefit is that is a strong and	



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	durable material so it will last a long	
	time.	
	b) Die-casting was used to make the	
	base because creates the part as	
	one complete piece. This makes it	
	stronger because <del>it</del> there are no weak	
	places. <del>There</del> Die-casting also allows	
	for mass production because the same mould	
	can be used over and over again.	
	c) Production and Planning systems like a	
	Gantt chart could be used to ensure the	
	product is being manufactured efficiently because	
	it allows <del>what</del> the workers to see what	
	part of the design has to be started on	
	what day and how long they have to	
	complete.	



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3a)	<p>The benefits of using Rotational moulding is that it cost less money than other process because less material has to be used because the product is hollow and also, the same mould can be repeatedly used. Another benefit is that the product can be mass produced because rotational moulding is a quick and easy process. A third benefit is that it allows for complex shapes to be accurately made.</p>
b)	<p>ABS is a suitable material to use because it is strong and durable and it is also water and scratch resistant which is good for a kids toy. ABS can also come in different colours so different colours of toys can be made which will be appealing to the children.</p>



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c)	<p>A safety issue that would need to be required is that there is nothing sharp or pointy that the child may hurt themselves on. There must also be no small parts that can break off that the child could then swallow and choke on. Another issue is, there must be no chemicals in the material that could be hazardous to children.</p>	
d)	<p>One way the manufacturer could be environmentally friendly is by using re-cycled materials instead of using new materials. Another way of being environmentally friendly is by using less chemical in the manufacturing process. A third way which the company could be environmentally friendly is by using less, <del>more</del> unnecessary,</p>	



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	padding packaging for the product.	
4a)	The needs of the target market have	
	influenced this design because they builders	
	may want to listen to the radio	
	while working, so a radio <del>was</del> was designed	
	so that it could be used on a building	
	site and <del>to</del> withstand being knocked over	
	and dropped. Another way which it has	
	been influenced by the needs of the target	
	market is, the designer realised that builders	
	use alot of power tools so they <del>incorporated</del>	
	incorporated a charger into the design so that	
	the power tools can be charged.	



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b)	<p>Anthropometrics has <del>the</del> influenced the design of the radio because the buttons have been made to a size that makes it easy for people from the 5<sup>th</sup> to the 95<sup>th</sup> percentile to use them. The handle has also been influenced by anthropometrics because it has been made <del>to</del> to fit comfortably into the palm of the users hand.</p>	
c)	<p>A method the designer could use to test if the radio is fit for purpose, could be a users trial. The radio could be given to some builders for a week <del>to</del> so that they can try it out and at the end of the week they can feedback to the designer and tell them what they thought about it.</p>	



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d)	<p>A benefit of having a strong Brand image is that the company will get more customers because people will <del>not</del> recommend the <del>to</del> company to their friends and they will go buy one of their products. Another Benefit is that the company can charge more money for their products because the customers believe they are paying for the best quality item.</p>
5a)	<p>A survey could be carried out to gather information about the target market. The public <del>is</del> can be asked what they would like to have and what they do not want in a game. A product comparison could also be done. This would let the designer see what things they could have in their product and also things that they could develop.</p>



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b)	One advantage of an external designer	
	could be that they have more unique	
	ideas that may benefit the company.	
	One disadvantage is that they may charge	
	a lot of money compared to <del>a</del> a designer	
	that works for <del>the</del> company.	
c)	A spider diagram or bubble chart could be	
	used to develop new ideas. This is when	
	the designer writes or draws the product <del>s</del> in	
	the centre of the page then draws <del>some</del> branches	
	off of it that each have something at the end of	
	them that the product must have or do. Another	
	generation technique could be a morphological	
	analysis. This is when several ideas are	
	written down and then they are ticked to	
	determine what ones are most suitable.	



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question6a) Phones

Phones have been heavily influenced by aesthetics. They are being designed to look modern and futuristic as this is appealing to the target market. Common colours ~~are~~ are Black or silver as this ~~make~~ makes the phone look more modern to the customer.

Cars

Cars are influenced by aesthetics because ~~the~~ sports cars are designed to look fast. They are ~~very~~ very streamline and curvy, not square. They are also painted with bright colours like red, orange and yellow because the colours are associated with speed.

Kitchen utensils

Aesthetics influences the design of kitchen utensils because they are designed to look modern. They are usually finished with a



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metallic or chrome coating to make them look futuristic and appeal to the target market.