AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

Paper 1	Paper 2
What's Assessed: • Technical Principles • Designing & Making Principles • Specialist Knowledge	**What's Assessed:** • Technical Principles • Designing & Making Principles • Specialist Knowledge
How it's assessed: • Written exam: 2.5 hours • 120marks • 30% of A-Level	**How it's assessed:** • Written exam: 1.5 hours • 80 marks • 20% of A-Level
Questions: • Mixture of short answer, multiple choice and extended response questions.	**Questions**: **Section A:** Product Analysis • 30 marks • up to 6 short answer questions based on visual stimulus of products **Section B:** Commercial Manufacture • 50 marks • Mixture of short and extended response questions.

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.1 Materials & Their Applications		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
1	Can you name specific materials? Can you provide detailed & justified explanations of why specific materials and combinations are suitable?				
	• physical and mechanical properties and working characteristics				
	• product function				
	• aesthetics				
	• cost				
	• manufacture and disposal				
2	Can you understand the appropriate use of these materials, based on their physical and working characteristics?				
	• malleability				
	• toughness				
	• hardness				
	• resistance to corrosion and degradation				
	• thermal conductivity				
	• electrical conductivity				
3	Can you calculate quantities of material sizes and costs?				
Classification of materials					
4	Do you know and understand the classifications of these materials? Can you name examples of each?				
	metals (ferrous, non-ferrous, alloys)				
	woods (hardwoods, softwoods, manufactured boards)				
	polymers (thermoplastics, thermoset polymers, elastomers)				
	• papers and boards				
	• Composites				
	• smart materials				
	• modern materials				
Methods for investigating and testing materials					
5	Can you describe how workshop and industrial tests are set up? Can you describe what will be tested/ measured/ compared?				
	• tensile strength				
	• toughness				
	• hardness				
	• Malleability				
	• corrosion				
	• conductivity				
6	Can you analyse data obtained from testing?				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.2 Performance Characteristics of Materials		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
Performance characteristics of papers and boards					
1	Can you name different types of papers & boards? Can you describe the performance characteristics of papers & boards?				
	• the ability to be scored				
	• cutting				
	• folding				
	• surface qualities for printing				
	• impact resistance				
	• recyclability and/or biodegradability				
2	Can you explain why different papers & boards are suitable for different applications?				
	• layout paper: sketch pads				
	• cartridge paper: printing				
	• tracing paper: copying images				
	• bleed proof paper: marker rendering				
	• treated paper: photographic printing				
	• watercolour paper: painting				
	• corrugated card: packaging				
	• bleached card: greeting cards and high quality packaging				
	• mount board: modelling				
	• duplex card: food packaging				
	• foil backed and laminated card: drinks packaging				
	• metal effect card: gift packaging				
	• moulded paper pulp: eco-friendly packaging				
3	Can you explain which would be the most suitable in the construction of containers through 2D net design?				
4	Can you effectively select materials based on recyclability, biodegradability and stability?				
Performance characteristics of polymer based sheet and film					
5	Can you name different polymer based sheet & film?				
6	Can you describe the performance characteristics of polymer based sheet & film?				
	• the ability to be scored				
	• cutting				
	• folding				
	• moulding				
	• transparency				
	• translucency				
	• flexibility				
	• recyclability and/or biodegradability				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

7	Can you explain why different polymer based sheet & film are suitable for different applications?				
	• foam board: model making				
	• fluted polypropylene: signs and box construction				
	• translucent polypropylene sheets: packaging				
	• Styrofoam: modelling and formers				
	• low density polyethylene sheet: wrapping, • packaging and bags				
	• plastazote foam: protective packaging				
	• cellulose acetate: packaging				
	• polyactide sheet and film: biodegradable packaging.				
Performance characteristics of woods					
8	Are you aware of different stock forms of timber?				
	• rough sawn				
	• planed square edge (PSE)				
	• planed all round (PAR)				
	• natural timber				
	• manufactured boards				
	• mouldings				
9	Can you describe the performance characteristics of woods?				
	• grain pattern				
	• grain direction				
	• surface defects				
	• warpage				
	• shrinkage				
	• splitting				
	• joining				
	• forming				
	• steam bending				
	• laminating				
	• machining qualities				
	• resistance to decay				
	• moisture resistance				
	• toxicity				
10	Are you familiar with the following woods and their products?				
	SOFTWOODS:				
	• pine				
	• spruce				
	• douglas fir				
	• redwood				
	• cedar				
	• larch				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

	HARDWOODS:				
	• oak				
	• ash				
	• mahogany				
	• teak				
	• birch				
	• beech				
	MANUFACTURED BOARDS:				
	• plywood				
	• marine plywood				
	• aeroply				
	• flexible plywood				
	• chipboard				
	• medium density fibreboard (MDF)				
	VENEERS & MELAMINE FORMALDEHYDE LAMINATES:				
Performance characteristics of metals					
12	Are you aware of the different stock forms of metals?				
	• sheet				
	• Plate				
	• Bar: flat, round, square, hexagonal				
	• Tube: round, square, rectangular, hexagonal				
	• Structural: H-beam, I-beam, tee, channel, angle				
13	Can you describe the performance characteristics of metals?				
	• hardness				
	• toughness				
	• malleability				
	• elasticity				
	• tensile strength				
	• density				
	• resistance to corrosion				
	• thermal conductivity				
	• electrical conductivity				
	• melting points				
	• ability to be alloyed				
	• ability to be joined with heat processes				
	• ability to take applied coatings and finishes				
14	Are you familiar with the following metals?				
	Ferrous:				
	• low carbon steel				
	• stainless steel				
	• high speed steel (HSS)				
	• medium carbon steel				
	• cast iron				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

	Non-ferrous:				
	• aluminium				
	• copper				
	• zinc				
	• silver				
	• gold				
	• titanium				
	• tin				
	Ferrous Alloys:				
	• stainless steel				
	• die steel (tool steel)				
	Non-Ferrous Alloys:				
	• bronze				
	• brass				
	• duralumin				
	• pewter				
Performance characteristics of polymers					
15	Are you aware of different stock forms of polymers?				
	• sheet				
	• film				
	• granules				
	• rod and other extruded forms				
	• foam				
	• powder				
16	Can you describe the performance characteristics of polymers?				
	• toughness				
	• elasticity				
	• insulation (thermal and electrical)				
	• UV resistance				
	• ability to be moulded				
	• resistance to chemicals and liquids				
	• melting points				
	• suitability for food packaging applications				
	• biodegradability				
	• recyclability				
	• self-finishing				
	• ability to be combined with other polymers and/or additives				
17	Can you describe these polymers?				
	THERMOPLASTIC:				
	• low density polyethylene (LDPE)				
	• high density polyethylene (HDPE)				
	• polypropylene				
	• high impact polystyrene (HIPS)				
	• acrylonitrile butadiene styrene (ABS)				
	• polymethylmethacrylate (PMMA)				
	• nylon				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

	• rigid and flexible polyvinyl chloride (PVC)				
	THERMOSETS:				
	• urea formaldehyde (UF)				
	• melamine formaldehyde (MF)				
	• polyester resin				
	• epoxy resin				
Elastomers					
18	Can you explain the suitability of elastomers? Can you explain their suitability based on their physical or mechanical properties?				
	• ability to be stretched and then return to original shape				
	• texture				
	• self-finishing				
	• non-toxic				
19	Do know hoe elastomers are used to enhance products?				
20	Are you familiar with these?				
	• natural rubber				
	• polybutadiene				
	• neoprene				
	• silicone				
Biodegradable polymers					
21	Can you explain the suitability of biodegradable polymers relevant to physical and mechanical properties?				
	• ability to be moulded into 3D products or film				
	• Ability to degrade with the action of UV rays (sunlight), water or enzymes present in soil				
22	Can you explain how biodegradable polymers degrade?				
23	Are you familiar with these biodegradable polymers?				
	• corn starch polymers				
	• potatopak				
	• biopol (bio-batch additive)				
	• polyactide (PLA)				
	• polyhdroxyalkanoate (PHA)				
	• water soluble: lactide, glycolide (Lactel and ecofilm)				
Composites					
24	Do you know how materials are combined to make composites?				
25	Can you explain the suitability of composites, referring to their physical and mechanical properties?				
	• ability to be moulded into a variety of 3D forms				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

	• enhancement of physical and/or mechanical properties				
	• ease of manufacture for some uses against traditional materials				
	• improved product performance				
26	Are you familiar these composites?				
	• carbon fibre reinforced plastic (CFRP)				
	• glass reinforced plastic (GRP)				
	• tungsten carbide				
	• aluminium composite board				
	• concrete, including reinforced concrete				
	• fibre cement				
	• engineered wood, e.g. glulam (glued laminated timber)				
27	Can you describe smart material and give examples?				
28	Can you explain when smart materials are suitable based on how they respond to external stimuli?				
	• changes in temperature				
	• changes in light levels				
	• changes in pressure (force)				
29	Can you describe these smart materials?				
	• shape memory alloys (SMA), eg Nitinol				
	• thermochromatic pigment				
	• phosphorescent pigment				
	• photocromic pigment				
	• electroluminescent wire				
	• piezo electric material				
Modern materials					
30	Do you know what modern material is? Can you give an example?				
31	Can you describe when modern material is suitable and why?				
32	Can you describe and give an example of these?				
	• Kevlar				
	• precious metal clay (PMC)				
	• high density modelling foam				
	• polymorph				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.3 Enhancement of Materials		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
Can you describe the methods used to enhance materials and why it is suitable for that material?					
Polymer enhancement					
1	Can you describe when additives are used?				
	• UV stabilisers to prolong the life of polymers				
	• bio-batch materials to encourage biodegradability				
	Are you familiar with how additives are used in specific polymer products, eg patio furniture, food packaging and carrier bags				
Wood enhancement					
2	Can you describe when to combine of natural timber with resins and lamination to give enhanced properties, e.g. Increased strength and stability				
3	Can you describe how to enhance timber products with preservatives, finishes and coatings				
Metal enhancement					
4	Can you describe heat treatment methods of enhancing metals?				
	• case hardening				
	• hardening and tempering				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.4 Forming, redistribution & addition processes		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
Paper and board forming processes					
1	Can you describe all the different ways that paper and board products can be shaped?				
	• die cutting				
	• laser cutting				
	• creasing				
	• bending				
Polymer processes					
2	Can you describe how polymers are shaped into 3D products?				
3	Can you describe the different forming methods?				
4	Can you explain the suitability of different forming methods and scales of production?				
	• vacuum forming				
	• calendering				
	• thermoforming				
	• line bending				
	• laminating (layup)				
	• injection moulding				
	• blow moulding				
	• rotational moulding				
	• extrusion				
	• compression moulding				
Metal processes					
5	Can you describe how metal is shaped into 3D products?				
6	Can you describe different forming methods?				
7	Can you explain the suitability of different forming methods and scales of production?				
	• press forming				
	• spinning				
	• cupping				
	• deep drawing				
	• forging				
	• drop forging				
	• bending				
	• rolling				
	• casting: sand, die, investment and low-temperature (pewter)				
8	Can you explain how to temporarily and permanently join metals?				
9	Can you explain the suitability of different joining methods for a range of methods and scales of production?				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

	• metal inert gas (MIG) welding				
	• tungsten inert gas (TIG) welding				
	• spot welding				
	• oxy-acetylene welding				
	• soldering (soft & hard)				
	• brazing				
	• riveting				
	• temporary joining methods & fasteners: self-tapping screws, machine screws, nuts & Bolts				
10	Can you describe the different wasting processes?				
11	Can you explain the suitability of different wasting processes for a range of components and products?				
	• milling				
	• turning				
	• flame cutting				
	• plasma cutting				
	• laser cutting				
	• punching/stamping				
The use of adhesives and fixings					
12	Can you describe when the most suitable time is to use these adhesives?				
	• PVA				
	• Contact adhesives				
	• UV hardening adhesive				
	• Solvent cements such as Tensol or acrylic cement				
Wood processes					
13	Can you describe the different joining methods of timber?				
14	Can you explain the suitability of the different methods and scales of production?				
	• addition/ fabrication processes				
	• traditional wood joining: dovetail joint, comb joint, housing joint, half-lap joint, dowel joint, mortise and tenon				
	• component jointing: knock down (KD) fittings, wood screws, nuts & bolts, coach bolts				
15	Can you describe the different methods timber can be formed into 3D shapes?				
16	Can you describe the suitability of the different wasting processes for a range of specific products?				
	• laminating				
	• steam bending				
	• machine processes: turning between centre, use of the chuck & faceplate, milling, routering to produce slots, holes & profiles				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

17	Can you describe when the most suitable time is to use these adhesives?				
	• PVA				
	• Contact adhesives				
	• UV hardening adhesive				
	• Solvent cements such as Tensol or acrylic cement				
Jigs and fixtures					
18	Can you describe how jigs & fixtures can be used to aid manufacture of products?				
19	Can you explain their suitability for accurate and repeated manufacture of products?				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

	3.1.5 The Use of Finishes	**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
Paper and Board Finishes					
1	Can you describe how paper and board can be finished to enhance their appearance or improve their function?				
	• laminating				
	• embossing				
	• debossing				
	• varnishing, UV varnishing & spot varnishing				
	• foil blocking				
2	Can you describe what potential corrosion might occur due to environmental factors?				
Paper and board printing processes					
3	Can you describe the different types of printing processes for specific products and their scales of production?				
	• screen printing				
	• flexographic and offset lithographic printing				
	• digital printing				
Polymer finishing					
4	Can you describe the ways that polymers can be finished to enhance their aesthetics or improve their function?				
5	Can you explain which polymers are self-finishing and why it should be considered?				
	• acrylic spray paints				
	• thermoplastic elastomer				
6	Can you describe how pigments are added to polymers in the moulding process?				
	• gel coats when laminating GRP				
	• smart pigments such as thermochromic or phosphorescent				
Metal finishing					
7	Can you describe the ways that metals can be finished to enhance their appearance or prevent corrosion?				
	• cellulose paint				
	• acrylic paint				
	• electro-plating				
	• dip coating				
	• powder coating				
	• galvanising				
	• sealants				
	• preservatives				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

	• anodising				
	• plating				
	• coating				
	• cathodic protection				
Wood finishing					
8	Can you describe the methods/ ways used to finish woods to enhance their appearance and prevent decay?				
	• applied finishes: polyurethane varnish, acrylic varnish, water based paints, stains, colour wash, wax finishes, danish oil, teak oil				
	• pressure treating with chemical preservatives				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

	3.1.6 Modern Industrial & Commercial Practice	**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
Scales of Production					
1	Can you describe the different scales of production? Can you give examples of products and specific manufacturing methods?				
	• one-off, bespoke				
	• batch production				
	• mass/line production				
	• unit production systems (UPS)				
	• quick response manufacturing (QRM)				
	• vertical in-house production				
Efficient use of materials					
2	Can you describe the relationship between material cost, form, manufacturing processes and scale of production?				
3	Can you explain how you will develop your designs so that you use your materials economically?				
4	Can you explain which manufacturing processes will increase accuracy and reduce waste?				
5	Can you explain what savings you will make when switching from bespoke one-off production to bulk produced items?				
6	Can you explain all the advantages associated with just in time (JIT) production?				
The use of computer systems					
7	Can you describe how computer systems are used to plan and control manufacturing, reduce waste and respond quickly to changes in consumer demand?				
8	Can you explain the characteristics of industrial manufacturing systems and their use in the production of given products?				
	• modular/cell production				
	• just in time (JIT)				
	• quick response manufacturing (QRM)				
	• flexible manufacturing systems				
9	Can you explain the use of computer controlled systems in production, distribution and storage?				
10	Can you explain when the use of standardised and bought-in components made by specialist manufacturers?				
Sub-assembly					
11	Can you explain sub-assembly as a separate line of manufacture for certain parts of a product?				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.7 Digital Design & Manufacture		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
Computer aided design (CAD)					
1	Can you describe:				
	• the advantages and disadvantages of using CAD compared to a manually generated alternative				
	• the use of CAD to develop and present ideas for products, including: the use of 2D CAD for working drawings, the use of 3D CAD to produce presentation drawings				
	• how CAD is used in industrial applications				
2	Can you use datum points and geometry when setting out design drawings?				
3	Can you use tolerances in dimensioning?				
Computer aided manufacture (CAM)					
4	Can you describe how CAM is used in the manufacture of products?				
	• laser cutting				
	• routing				
	• milling				
	• turning				
	• plotter cutting				
Virtual modelling					
5	Can you describe how virtual modelling/testing is used in industry prior to product production?				
	• simulation				
	• computational fluid dynamics (CFD) as used for testing aerodynamics and wind resistance, and flow of liquids within/ around products				
	• finite element analysis (FEA) as used in component stress analysis				
6	Can you interpret data from CFD or FEA testing?				
Rapid prototyping processes					
7	Can you describe rapid prototyping processes, including 3D printing?				
8	Can you explain the benefits to designers and manufacturers?				
Electronic data interchange					
9	Can you describe the use of electronic point of sales (EPOS) for marketing purposes and the collection of market research data?				
	• the maintenance of stock levels				

	• the capture of customer data, eg contact details				
Production, planning and control (PPC) networking					
10	Can you describe the role PCC systems in the planning and control of all aspects of manufacturing?				
	• availability of materials				
	• scheduling of machines and people				
	• coordinating suppliers and customers				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.8 The Requirements for product design & development		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
Product development and improvement					
1	Do you understand why the design, development and manufacture of products needs to meet specification criteria?				
2	Do you understand why products need to be fit for purpose?				
3	Do you understand why production must be accurate?				
4	Do you understand how the critical assessment of products can lead to the development of new designs?				
5	Can you critically assess products and develop new design proposals?				
6	Have you developed your ability to work with a variety of materials, including two and three-dimensional forms, to produce creative and original products which satisfy the demands of the target market, and consider accurate and efficient manufacture?				
7	Have you considered aesthetics, ergonomics and anthropometrics when designing your products?				
Inclusive design					
8	Can you explain the development of products that are inclusive in their design so that they can be used by a wide range of users including the disabled, children and the elderly?				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.9 Health & Safety		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
Safe working practices					
1	Can you explain the health and safety procedures, including the following:				
	• knowledge of the Health and Safety at Work Act (1974), and how it influences the safe manufacture of products				
	• control of Substances Hazardous to Health (COSHH) and safety precautions that should be taken with relevant materials				
	• safe working practices and identifying potential hazards for the school or college workshop and industrial contexts				
	• safety precautions that should be taken with specific manufacturing processes				
	• the concept of risk assessment and its application to given manufacturing processes				
Safety in products and services to the customer					
2	Can you explain how designers and manufacturers ensure products are safe for consumers to use?				
	• legislation used to protect consumers and its impact on product design, e.g. Consumer Rights Act (2015), Sales of Goods Act (1979)				
	• the British Standards Institute (BSI), and how specific products might be tested to meet safety standards				
	• measures to ensure the safety of toys, e.g. Lion Mark				
	• advice to consumers: manufacturer's instructions, safety warnings, aftercare advice				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.10 Protecting designs and intellectual property		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
1	Can you explain why these are important to the designer?				
	• copyright and design rights				
	• patents				
	• registered designs				
	• trademarks				
	• logos				
2	Can you explain the concept of 'open design'?				
3	Can you refer to the development of products for the common good of society, including potential use?				
4	Can you give examples of this in practice?				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.11 Design for manufacturing, maintenance, repair and disposal		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
Manufacture, repair, maintenance and disposal					
1	Can you explain why designs need to be modified in order to make them more efficient?				
	• reducing the number of manufacturing processes				
	• how the choice of materials affects the use, care and disposal of products: labelling of materials to aid separation for recycling, making products easy to disassemble or separate				
	• application of the six Rs of sustainability: reduce the quantity of materials, of toxic materials, of damaging materials and associated energy use, reuse components and parts, rethink by using eco-friendly alternative materials, recycle materials and/or components into new products				
	• maintenance: temporary and integral fixings, use of standardised parts, allowing for service and repair/ replacement of parts, ability to upgrade with software downloads				
Ease of manufacture					
2	Can you explain the different ways in which a product can be designed to allow for more efficient manufacture, including:				
	• ribs and webbing to reduce material thicknesses				
	• snap fittings to remove the need for fixings/ adhesives				
	• internal moulded screw posts for use with self-tapping screws				
	• use of pre made components				
	• use of standardised patterns and sizes				
	• addition of texture in moulding to reduce number of manufacturing processes				
	• self-finishing				
Disassembly					
3	Can you explain how a product can be designed and manufactured with disassembly in mind, including integral fixings and active disassembly using smart materials such as SMA and biodegradable parts				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.12 Feasibility Studies		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
1	Can you explain the use of feasibility studies to assess the practicality for production of proposed designs, including the testing of prototypes with potential consumers?				
2	Can you interpret statistical analyses to determine user needs and preferences?				
3	Can you use data related to human scale and proportion to determine product scale and dimensions?				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.13 Enterprise and Marketing in the Development of Products		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
1	Can you explain the importance of marketing and brand identity, including:				
	• customer identification				
	• labelling				
	• packaging				
	• corporate identification				
	• concept of global marketing: the promotion and advertisement of products including the use of new technologies, e.g. social media, viral marketing				
	• product costing and profit				
	• awareness of the role of entrepreneurs				
2	Can you explain the collaborative working of designers in the development of new and innovative products, including virtual and face-to-face collaborative working systems?				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.14 Design Communication		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
1	Can you explain and demonstrate the skills, in a range of communication and presentation techniques for conveying proposals and intentions to clients, potential users and manufacturers, including:				
	● report writing				
	● the use of graphs				
	● tables and charts				
	● 2D/3D sketching				
	● the use of mixed media and rendering to enhance drawings				
	● dimensioning and details for manufacture				
2	Can you draw to scale?				
3	Can you use datum points and geometry when setting out design drawings?				
4	Can you represent data used to inform design decisions and evaluation of outcomes				
5	Can you present market data, user preferences and outcomes of market research?				

AQA A-Level Design & Technology: Product Design (7552)

Technical Principles: ***Exam: June 2019***

3.1.15 Modern Manufacturing Systems		**Power Point (Student Notes)**	**Notes & Independent Research**	**Q&A**	**Exam Revision**
1	Can you use computer systems to plan and control manufacturing, reduce waste and respond quickly to changes in consumer demand?				
2	Can you describe how computers are used in modern manufacturing?				
3	Can you describe the specific industrial examples and their use in the manufacture of given products?				
	• modular/cell production				
	• just in time (JIT)				
	• flexible manufacturing systems and the use of computer numerically controlled production, distribution and storage				
4	Can you use standardised and bought-in components made by specialists?				