Y13

Revision Olympics

A Level Product Design

Revision Guide

December 2024–May 2025

Exam Specification and General Support

Exam specification and exam board	Design & Technology: Product Design – AQA
Past paper questions	Past papers & mark schemes
Useful revision websites	Revision Olympics Resources
Exam info	Paper 1: 2/6/24 AM 2h 30M Paper 2: 10/6/24 AM 1H 30M

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Week	Weekly topic followed by an in-class exam question linked to the topic.
1 2.12.24	Review your mock and then plan out your own revision timetable, focus on the topics and areas you struggled with.
2 9.12.24	**Materials and their applications** **Physical and mechanical properties**
3 16.12.24	**Classification of materials** • metals (ferrous, non-ferrous, alloys) • woods (hardwoods, softwoods, manufactured boards) • polymers (thermoplastics, thermoset polymers, elastomers) • papers and boards • composites • smart materials • modern materials.
4 6.01.25	**Investigating and testing materials** • tensile strength • toughness • hardness • malleability • corrosion • conductivity.
5 13.01.25	**Performance and characteristics of Papers and Boards**
6 20.01.25	**Performance and characteristics Polymers INC Biodegradable Polymers**
7 27.01.25	**Performance and characteristics Woods**
8 3.02.25	**Performance and characteristics of Metals**
9 10.02.25	**Performance and characteristics of Elastomers**
HALF TERM	**Composite, Modern and Smart Materials**

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10 24.02.25	**Polymer, wood and Metal Enhancement**
11 3.03.25	**Forming, redistribution and addition processes** **Paper and board forming processes** Specific process to include: • die cutting • laser cutting • creasing • bending.
12 10.03.25	**Forming, redistribution and addition processes** **Polymer processes** Specific process to include: • vacuum forming • thermoforming • calendaring • line bending • laminating (layup) • injection moulding • blow moulding • rotational moulding • extrusion • compression moulding.
13 17.03.25	**Forming, redistribution and addition processes** **Metal processes** Specific processes to include: • press forming • spinning • cupping • deep drawing • forging • drop forging • bending • rolling • casting: • sand casting • die casting • investment casting • low temperature casting (pewter). Including addition/fabrication processes: • metal inert gas (MIG) welding • tungsten inert gas (TIG) welding • spot welding • oxy-acetylene welding • soldering (soft and hard) • brazing • riveting • temporary joining methods and fasteners: • self tapping screws • machine screws • nuts and bolts Specific processes to include: • milling • turning • flame cutting • plasma cutting • laser cutting • punching/stamping.
14 24.03.25	**Forming, redistribution and addition processes** **Wood processes** Including: • addition/fabrication processes • traditional wood jointing: • dovetail joint • comb joint • housing joint • half-lap joint • dowel joint • mortise and tenon • component jointing: • knock down (KD) fittings • wood screws • nuts and bolts • coach bolts. Specific processes to include: • laminating • steam bending • machine processes: • turning between centre • use of the chuck and faceplate • milling • routering to produce slots, holes and profiles.

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15 31.03.25	**Manufacture, repair, maintenance and disposal** • 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** • 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. **Product Disassembly**
EASTER BREAK (week 1)	**Iterative design process** • designing to meet needs, wants or values • investigations to inform the use of primary and secondary data: • market research • interviews • human factors • focus groups • product analysis and evaluation • the use of anthropometric data and percentiles • the use of ergonomic data • the development of a design proposal • the planning and manufacture of a prototype solution • the evaluation of a prototype solution to inform further development. **Design communication** • 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.
EASTER BREAK (week 2)	**Social, moral and ethical issues** • products are made using sustainable materials and ethical production methods • the development of products that are: • culturally acceptable • not offensive to people of different race, gender or religious belief • the development of products that are inclusive • the design and manufacture of products that could assist with social problems, eg poverty, health and wellbeing, migration and housing • the impact of Fairtrade on design and consumer demand • designing products
16 21.04.25	**Health and safety** Safe working practices Safety in products and services to the customer **Protecting designs and intellectual property** • copyright and design rights • patents • registered designs • trademarks • logos.

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17 28.04.25	**Design styles and movements** • arts and craft movement • Art Deco • Modernism, eg Bauhaus • Post modernism, eg Memphis **Designers and their work** • Phillipe Starck • James Dyson • Margaret Calvert • Dieter Rams • Charles and Ray Eames • Marianne Brandt.
18 5.05.25	**Socio economic influences** • post WW1: the Bauhaus and development of furniture for mass production • WW2: rationing, the development of 'utility' products • contemporary times: • fashion and demand for mass produced furniture • decorative design. **Major developments in technology** • micro electronics • new materials • new methods of manufacture • advancements in CAD/CAM. **Social, moral and ethical issues** • products are made using sustainable materials and ethical production methods • the development of products that are: • culturally acceptable • not offensive to people of different race, gender or religious belief • the development of products that are inclusive • the design and manufacture of products that could assist with social problems, eg poverty, health and wellbeing, migration and housing • the impact of Fairtrade on design and consumer demand • designing products to consider the six Rs of sustainability.
19 12.05.25	**Quality assurance** **Quality control** **National and international standards in product design** • British Standards Institute (BSI) • International Organisation for Standardisation (ISO) • Restriction of Hazardous Substances (ROHS) directive • battery directive • polymer codes for identification and recycling • packaging directives • WEEE directives • energy ratings of products • eco-labelling: • the Mobius Loop • the European Eco-label • the EC energy label • the Energy Efficient label and logo • Forest Stewardship Council (FSC) • EPA energy star.
20 19.05.25	**The use of a design process** • those used in the NEA • investigations and analysis • use of inspiration materials, eg mood boards • ideas generation • illustration • development of a design specification • modelling • planning • evaluating and testing
HALF TERM	**Enterprise and marketing in the development of products** • customer identification • labelling • packaging • corporate identification • concept of global marketing: • the promotion and advertisement of products including the use of new technologies, eg social media, viral marketing • product costing and profit • awareness of the role of entrepreneurs.
21 2.06.25	Paper 1
22 9.06.25	Paper 2