OCR
RECOGNISING ACHIEVEMENT

teacher's handbook

GCSE
Design and Technology: Product Design

J305 – Full Course
J045 – Short Course

This handbook is designed to accompany the OCR GCSE Design and Technology: Product Design specification for teaching from September 2009. This booklet contains the following support materials:

Subject specific guidance

Resource list

Publisher partner resources

Frequently asked questions

Other forms of support.

OCR GCSE
DESIGN AND
TECHNOLOGY

www.ocr.org.uk/productdesign/newgcse
www.ocr.org.uk/productdesign/newgcsesc
www.ocr.org.uk/innovatorsuite/newgcse

Contents

Introduction

OCR is offering new GCSEs for first teaching in September 2009.

We've taken this opportunity to improve the quality of our GCSEs for teachers and students alike.

We've made improvements in three key areas: updated and relevant content, a focus on developing students personal, learning and thinking skills, and flexible assessment, so you can choose the best learning approach for the job.

We want to make the introduction of these new GCSEs as easy for you to manage as possible.

The main changes are:

• Controlled assessment will be introduced for most subjects

• The opportunity will be taken to bring course content up to date

• Examinations should provide opportunity for extended writing and more varied question types

• All GCSEs will meet the requirements of the Disability Discrimination Act.

Our approach is to provide consistency across all our GCSEs by offering the flexibility that unitised qualifications bring, allowing teaching and assessment to be either a linear or unitised fashion.

OCR offers a range of support materials, developed following extensive research and consultation with teachers. We've designed them to save you time when preparing for the new specification and to support you while teaching them.

It is important to make the point that this Teacher Handbook plays a secondary role to the specifications themselves. The GCSE Design and Technology: Product Design specification is the document on which assessment is based: it specifies what content and skills need to be covered. At all times therefore, the Teacher Handbook should be read in conjunction with the Specification. If clarification on a particular point is sought, then that clarification must be found in the Specification itself.

Guidance on how to use the Mark Scheme

Qualification Title: OCR GCSE in Design and Technology: Product Design J305; Unit A552 Design and Making Innovation Challenge.

A specimen mark scheme for this unit be found on the OCR website.

Development of Design Evolution through making (22 Marks)

Initial thoughts can range from predictable and worthy of one mark, to what might be considered 'wacky' or creative worthy of three or four marks. Notes, sketches and annotations can all be considered. Evidence for this can be found on page 3 of the work booklet and in additional spaces if the student has indicted so.

Design briefs should be short to the point and open enough to allow for creativity. A common mistake is for students to write a closed brief and in some cases a specification which allows no room for creative opportunity. The evidence for this can be found under 'Decision Time' on page 12 of the work booklet.

To gain the full marks available for **use/client/users** it is necessary to identify reference elsewhere in the work booklet beyond page 12. References can be found in annotations accompanying design ideas and also under 'Question Time' on page 7.

Specifications that state the obvious and include information already given or that are vague and generic should not be given more than one mark. To gain full marks for a specification it should be detailed and should clearly identify the key features of the product.

Predictable **ideas** or ones where there is limited evidence of creative thinking are worthy of one or two marks. To gain three or four marks ideas need to show detail and show clear evidence of creative thinking. To gain six marks ideas must be innovative, be creatively sustained, be fully explained and show details of construction/materials.

Where no reference to the **supplementary information** is made then no marks should be awarded. Some consideration is worthy of one mark, a more positive response especially where it is reflected in the design work can be rewarded with two or three marks. To gain the full five marks the information must be fully incorporated into the design and must demonstrate innovation and creativity.

Communicating information through sketches, writing and photographs (10 marks)

Sketches and images and written communication should be considered in their own right. Both can gain up to four marks each. Limited evidence should be given at least one mark. To gain the final two marks in this section evidence should include rendering, swatches, overlays etc and should be used extensively throughout the work booklet.

Materials, Components, Processes, Techniques, and Industrial practice (12 Marks)

Evidence for **material selection** can be found on page nine of the work booklet (Your Model) as well as in the photographs and references made with any notes or labels supporting the sketches or design ideas. Up to two marks may be awarded here.

Use of materials will range from basic constructions (one mark) to adept and creative use (two or three marks).

Making skills will include models that are poorly made or incomplete (one mark). Models, which show evidence of a reasonable standard of making skills and that are completed, are worthy of two marks. Models that are complete with a good standard of making skills and accuracy should be rewarded with three marks. To gain four marks models need to be completed to a high standard. To gain six marks models should accurately reflect the design and should demonstrate a range of techniques and complexity.

Analysis of ideas, models and prototypes (12 Marks)

Where **analysis and evaluation** is limited and/or confined to boxes 18, 19 and 20 on page 11 of the work booklet it is only worthy of one mark. Where the response is satisfactory and evident throughout the design work as well as boxes 18, 19 and 20 then this should be rewarded with two marks. Good analysis and evaluation along with justification and clear information about the future product (Fast Forward Box page 11) should be rewarded with three marks. To gain four marks evidence of a detailed analysis and evaluation with justification combined with suggested improvements and the use of technical terminology needs to be shown.

Clear plan for **reflect and record** (one mark). Records peer feedback and possible modifications (one mark). To gain both marks box 9 (Reflect and Record) and box 10 (Green Zone) on page 7 of the work booklet must be completed.

Evidence for the **development of ideas** can be found, but not confined to) page 7 of the work booklet (one mark) where thoughts have been expanded two marks may be given. Clear development of ideas and discrimination between good and poor ideas are worthy of a further two marks. Rejection of ideas in preference to ones suitable for further development and where there are no outstanding design issues having developed their ideas should gain up to six marks.

Where the reflection consists of basic comments or observations are worth one mark. Two further marks can be gained for identifying specific strengths and weaknesses (one mark) and suggesting alterations or improvements to the design (one mark). To gain the full four marks the reflection needs to include quality analysis with creative design improvements suggested.

Notes and sketches can be used for the reflection. Where students refer to the process they have been through this should not be rewarded.

The following items can be downloaded from the OCR website at www.ocr.org.uk

Specimen assessment materials - Unit A552 - Teacher script

The teacher script contains details of timings, organisational instructions, what must be said to the candidates and what the teacher can say in their own words for purposes of clarity.

Specimen assessment materials - Unit A552

This consists of the following:

- specimen of the pre release material outlining the topic of the challenge

- specimen of the examination paper which would be opened on the day of the examination stating the supplementary information relating to the challenge

- specimen copy of the candidate work booklet

- specimen mark scheme.

Candidate work booklet and the use of 'additional space'

When preparing candidates for the test they should be encouraged to make use of the additional space available in the booklet. This allows them to use their notes and sketches to thoroughly develop their thoughts and ideas. In order to access the higher marks it is important that candidates include written analysis throughout the booklet rather than just the evaluation page.

The focus of the 'Time to Reflect' session

The reflection should focus on design issues rather than the process. Failure to achieve high marks in this section is due to focussing purely on the modelling process. To access the higher marks available students must clearly identify design problems based upon their testing of the prototype and make suggestions for altering and improving the design. These alterations can be shown through the use of text and drawing.

Attaching photographs in the work booklet

Care should be taken not to stick pages of the work booklet together.

Resources

A resource list for teachers

Abbott, EA and Mansfield, ED (1995) *A Primer of Greek Grammar* Bristol Classical Press 0715612581

Design and Technology.   Product Design - Making, Testing and Marketing Unit A553

For inspiration:

Harper Design International *Product Design Now* ISBN-10: 0060859652

Laurence King Publishing *1000 New Designs and Where to Find Them: A 21st-Century Sourcebook* ISBN-10: 1856694666

Rockport publications *Design Secrets: Products* ISBN 1-56496-476-0

Brown Ref Group *Classics of design* ISBN 1 84044 101 1

Rolovision *Designs of the times* ISBN 12 88046 816 7

Cassell *The Dream catalog* ISBN 0 304 35903 3

Weidenfield & Nicolson *Century Makers* ISBN 0 297 82435 X

(Alessi) Konemann *The Dream Factory* ISBN 3 8290 1377 9

Useful Websites

www.technologystudent.com

www.designandtech.com

www.design-technology.info

www.design-technology.org

www.lboro.ac.uk/departments/cd

www.ergonomics4schools.com

www.designmuseum.org

www.coolest-gadgets.com

http://en.wikipedia.org/wiki/Famous_industrial_designers

http://directory.designer.am/

http://www.flos.com

http://www.designdirectory.co.uk/ind.htm

For technical knowledge and course understanding:

Thames & Hudson Ltd *The Eco-Design Handbook: A Complete Sourcebook for the Home and Office* ISBN-10: 0500285217

Quadrille Publishing Ltd *Eco: An Essential Sourcebook for Environmentally Friendly Design and Decoration* ISBN-10: 1844001083

RotoVision *Materials for Inspirational Design* ISBN-10: 2940361509

Laurence King Publishing *Making it: Manufacturing Techniques for Product Design* ISBN-10: 1856695069

Crowood press *Model making. Materials and Methods* ISBN 878 1 84787 0176

Oxford Uni Press *Product Modelling* ISBN 13 978 0198327615

Rotovision *Materials* ISBN 978 2 940361 50 2

Many of the resources/materials referred to below can be found on the OCR website - www.ocr.org.uk

- Specimen assessment materials (specimen challenge, specimen candidate booklet, specimen mark scheme and teacher script) can be found on the OCR website. Four different challenges based on the theme of School Sports Day are included to provide opportunities for students working in different material areas.

- The examiners report can be found on the OCR website. Reports contain a section relating to this unit and should be seen as an essential tool for teachers who are preparing students to take the Innovation Challenge exam.

- On the day of the test access is needed to a design room, studio or workshop. Equipment and materials normally associated with the teaching of design and technology should be available. However, it should be remembered that the emphasis is on using modelling materials.

- A handling collection consisting of products relating to the theme and images (PowerPoint presentation on a loop for example) and video if available is required for the actual test.

- A collection of inspirational products, linked to the theme, which show products with interesting features or capabilities needs to be available for the test.

- Drawing and communicating media and easy-to-handle modelling materials. For example, depending upon the activity, choices could include paper, card, thin plastics, fabric, wire, foil, thin metal sheet, clay, polymorph, foam board, food ingredients, components, gaffer tape and other joining methods and devices.

- Digital camera and access to a colour printer capable of producing good quality prints.

- Pre-release material outlining the themes will be sent to centres in advance of the examination. OCR will provide the teacher script, supplementary information and answer booklets for the day of the examination.

GCSE Design and Technology: Product Design J305 (Full Course) J045 (Short Course)

Inspiration:

www.productdesignlab.co.uk - Product design and development consultancy specialising in developing innovative consumer products. Website includes case studies for inspirational products that meet a specific need and design opportunity.

www.seymourpowell.com - Product design and development consultancy specialising in developing familiar and innovative consumer products. Website includes access to case studies for everyday inspirational products.

www.huddersfield3d.co.uk - Student gallery from the University of Huddersfield. An online student web gallery and information centre. You can browse hundred of items of design work as well as link to relevant web sites.

www.designcouncil.org.uk - Official website for National Strategic body of design. Helping people do what they do, better. Good source for information and up to date information on Product Design concepts, ideas and thinking.

Information:

D Norman, The MIT Press, 1998 *The Design of Everyday Things* ISBN 0262640376

C McDermott, Rotovision 1999 *The Product Book* ISBN 2880463947

G Marcus, Harry N Abrams *What is Design Today?* ISBN 810990814

C & P Fiell, Taschen *Designing for the 21st Century* ISBN 3822858838

Quality websites for students:

www.designandtech.com - Modern up to date website that covers a range of material areas, providing information and inspiration for students.

www.msn.com - Click Tech and Gadgets tab for up to date information on Product Design developments and innovative and inspirational technology. Archive of articles very useful.

www.ergonomics4schools.com - promotes the teaching and learning of ergonomics.

www.coolest-gadgets.com - examples and links to innovative products.

Other forms of Support

In order to help you implement the new GCSE Design and Technology Product Design Specification effectively, OCR offers a comprehensive package of support. This includes:

Published Resources

OCR offers centres a wealth of quality published support with a fantastic choice of 'Official Publisher Partner' and 'Approved Publication' resources, all endorsed by OCR for use with OCR specifications.

Publisher partners

OCR works in close collaboration with three Publisher Partners; Hodder Education, Heinemann and Oxford University Press (OUP) to ensure centres have access to:

- Better published support, available when you need it, tailored to OCR specifications

- Quality resources produced in consultation with OCR subject teams, which are linked to OCR's teacher support materials

- More resources for specifications with lower candidate entries

- Materials that are subject to a thorough quality assurance process to achieve endorsement

Hodder Education is the publisher partner for OCR GCSE Design and Technology: Product Design.

Hodder Education is producing the following resources for OCR GCSE Design and Technology: Product Design for first teaching in September 2009, which will be available in Spring 2009.

OCR Product Design for GCSE Student's Book
Philip Clarke, Geoff Hancock, Austin Strickland, Editor: Bob White
ISBN: 978 0340 98200 6
29/05/2009.

OCR Design and Technology for GCSE Dynamic Learning Network Edition CD-ROM
ISBN: 978 0340 98203 7
(Available April 2009).

Approved publications

OCR still endorses other publisher materials, which undergo a thorough quality assurance process to achieve endorsement. By offering a choice of endorsed materials, centres can be assured of quality support for all OCR qualifications.

Endorsement

OCR endorses a range of publisher materials to provide quality support for centres delivering its qualifications. You can be confident that materials branded with OCR's "Official Publishing Partner" or "Approved publication" logos have undergone a thorough quality assurance process to achieve endorsement. All responsibility for the content of the publisher's materials rests with the publisher.

These endorsements do not mean that the materials are the only suitable resources available or necessary to achieve an OCR qualification. Any resource lists which are produced by OCR shall include a range of appropriate texts.

OCR Training

A full range of training events provide valuable support, for the delivery and assessment of OCR qualifications:

Get Ready…

An overview of new OCR specifications

Get Started…

For teachers preparing to deliver or already delivering OCR specifications

Get Ahead…

For teachers wanting to improve delivery and assessment of a current OCR specification

Lead the way…

To encourage creativity and innovation

View up-to-date event details and make online bookings at www.ocreventbooker.org.uk or view our new training e-books at www.ocr.org.uk/training. If you are unable to find what you are looking for contact us by e-mail training@ocr.org.uk or telephone 02476 496398.

e-Communities

Over 70 e-Communities offer you a fast, dynamic communication channel to make contact with other subject specialists. Our online mailing list covers a wide range of subjects and enables you to share knowledge and views via email.

Visit https://community.ocr.org.uk, choose your community and join the discussion!

Interchange

OCR Interchange has been developed to help you to carry out day to day administration functions online, quickly and easily. The site allows you to register and enter candidates online. In addition, you can gain immediate a free access to candidate information at you convenience. Sign up at https://interchange.ocr.org.uk

Frequently Asked Questions

Unit A551 Developing and Applying Design Skills

How long should candidates spend on Unit A551 work?

Centres are advised that candidate work submitted for this unit should represent no more than 20 hours for both the Full Course and Short Course option of entry.

How is Unit A551 graded and assessed?

Unit A551 will go to form part of either a Short Course or Full Course examination. Centres will internally assess candidate work and award a mark in line with the marking criteria for this unit, out of 90 (120 UMS) against the Internal Assessment Objectives 1, 2 and 3. A sample of this work will then be selected for external postal moderation. As this is initially an internally assessed unit centres should apply the principles of controlled assessment and undertake the necessary standardisation of marking within the centre. Please refer to section 5.1 to 5.5 and 6.5 to gain an understanding as to what is meant by controlled assessment, grading and task marking. Guidance on the mark criteria for the controlled assessment and Internal Assessment Objectives 1, 2 and 3 for this unit can be found in Appendix B and B3. Appendix A will provide a detailed breakdown of grade descriptors.

Should all candidates submit A551 work if they are on a Short of Full Course?

Yes. Unit A551 is a mandatory controlled assessment that should be submitted as part of either the Short Course or Full Course option. It is important to note that the weighting for Unit A551 will depend upon which qualification the centre is offering (Short or Full Course). For a Short Course entry, Unit A551 will have a weighting of 60% and for a Full Course entry it will have a weighting of 30% but the time allowance or 20 hours for completion of this unit is the same for both.

Can a centre submit both Paper Portfolios and Electronic Portfolios?

Yes. Centres are able to make a reasoned decision based upon available resources and candidate need as to how Unit A551 work will be submitted for marking and assessment to the exam board. Centres are advised to verify in section 6.1 of the specification for specific entry codes for paper based and electronic portfolio submission and liaise with the EO or dedicated colleague within the centre who is responsible for examination entries. Extra guidance and support can be found in the accompanying teacher guide to this specification and in Appendix C of the specification.

Can a candidate use a mixture of both electronic and paper based portfolios to submit Unit A551 work?

No. Centres are advised that single candidates should be entered for either a postal (A551/02) OR OCR Repository (A551/01) format. For example: a candidate should not submit a Paper Portfolio with other work to be found for A551, electronically on a CD.

How would a candidate entered for a paper portfolio submit work done using ICT?

Work completed electronically using ICT should be printed off and presented on A3 paper.

Can pupils change how they present their work after being entered?

No. Centres are advised that once a candidate has been entered for either a Paper Portfolio (A551/02) or an Electronic Portfolio (A551/01) this is the registered entry for either the January or June examination session and work should be submitted appropriate to the method of entry stated by the centre. However, should the candidate wish to submit their Unit A551 work again in a re-sit situation, it may be possible for the candidate to submit the work in another format as this will effectively be a new examination entry, at the centres discretion.

Should Unit A551 be attempted before A553 as part of the Full Course J305?

Not necessarily. The Product Design specification has been developed to enable the centre flexibility in the creative delivery and organisation of the GCSE units: A551, A552, A553 and A554 for the Full Course qualification in particular. Centres following the Full Course are able for example to undertake Unit A553 before Unit A551. However, centres must follow the Terminal Rules (6.2) of entry as outlined in the full specification documentation.

Does work completed as part of Unit A551 need to then follow the same theme onto Unit A553?

No. As the specification for both the Short Course and Full Course are unitised, each unit is classed as a separate examination entry. The specification has been developed to help support and develop opportunities for creativity and the innovative approach to problem solving of each candidate as fully as possible. Unit A551 and Unit A553 do not need to follow on as a linear framework. The focus for each unit can be totally unique to each other.

Are there any project choices candidates should avoid for Unit A551?

Yes. Centres should be advised that stimulus themes for Unit A551 can be found in Appendix B2 of the specification for use as a starting point. These are available for adaptation by the centre in order to provide the opportunity to develop individual creativity and innovation amongst the candidates. Centres are advised to support candidates in the careful choice of their project focus to enable the most effective response to the Internal Assessment Objectives, enabling candidates to develop thoughts and ideas through effective communication and evaluation. For example, projects that can be considered unsuitable, restrictive and in cases too general for this activity are: designing a football stadium, buildings, cars, boats etc. as they do not allow the candidate the best opportunity to respond the Internal Assessment Objectives. OCR Controlled Assessment consultants are available for advice if required.

Can Unit A551 work be submitted for a re-sit?

Yes. Unit A551 can be submitted as a re-sit once before entering for certification for a GCSE (Full Course) or GCSE (Short Course) in line with the January or June examination sessions. It is advised that centres plan carefully their unit delivery and re-sit arrangements for candidates, based upon individual centre timetables and schedules and candidates needs.

Could candidates consider the Design Influences in their work?

Yes. In order to support the response to the Internal Assessment Objectives, centres might consider using the relevant aspects of the Design Influences 3.4 to assist candidates with the project focus or theme, development of research and specifications, the generation and evaluation of ideas.

Do candidates have to produce a working product?

No. Candidates have to develop a range of ideas through to a final solution and modelling forms an integral part of this. Centres are advised to read carefully the Internal Assessment Objectives in particular AO3. Candidates are required to demonstrate their ideas through the use of modelling and should use a wide variety of communication methods in order to achieve this. Candidates should be encouraged to use a number of different materials, fabrics, ingredients or components to explore and develop their ideas. In particular, the effective and appropriate use of ICT, as a design and development tool should be positively encouraged in both a Paper and Electronic Portfolio and in all material areas.

Is there a particular material focus for Unit A551?

No. The Product Design specification has been specially developed to help support centres in the delivery of a common Design and Technology GSCE, across a range of material areas to include Electronics, Food, Graphics, Resistant Materials and Textiles. Candidates should be encouraged where possible to explore their ideas in a wide range of media that best supports the resources, tools, equipment and facilities that are internally and externally accessible to the centre.

Unit A552 Design and Making Innovation Challenge

Where does unit A552 fit in?

Unit A552 is mandatory for both the short course (J045) and the full course (J305). For the short course, Unit A552 needs to be combined with Unit A551.

At what stage of the course should Unit A552 be attempted?

Candidates can be prepared for Unit A552 at any stage during the course. The Product Design specification has been developed to enable centre flexibility in the creative delivery and organisation of the GCSE. The test can be taken at a time convenient for the centre during either the January or June examination series. However, centres must follow the Terminal Rules (6.2) of entry as outlined in the full specification documentation.

Can candidates re-sit Unit A552?

Yes. Candidates may re-sit the unit once before entering for certification. See Unit and Qualification Re-sits (6.3) as outlined in the full specification documentation.

Where should the test take place?

Unit A552 should take place in a design room, studio or workshop under examination conditions (not the centre's examination room/hall). It should be noted that the 'Time to Reflect' session is taken in the centre's examination room/hall under examination conditions. This should be completed during the period 24 hours after and within 72 hours of the completion of the challenge.

How should the test be supervised?

The centre should provide an invigilator to ensure the proper conduct of the examination including starting and ending the sessions. A teaching colleague needs to be available to facilitate access to materials, monitor health and safety and read the teacher script to candidates. A technician can also provide support as a facilitator and to assist with photographs. No advice must be given to candidates about the design or manufacture of their product or cut materials to correct shape or dimensions.

Can a break be built into the exam session?

Yes. A break of approximately 15 minutes is suggested.

Do centres need to inform OCR when they plan for the test to take place?

Centres are required to submit details of the dates of the innovation challenge to OCR using the VAF form. The form can be obtained from the OCR website.

How is Unit A552 assessed?

This unit is externally examined.

Are the timings stated in the teacher script flexible?

No. It is the responsibility of the centre to ensure that arrangements are in place to ensure that the timings are adhered to.

What materials can be used for the Innovation Challenge exam?

Suitable materials can include foam, foam board, card, balsa, modelling clay, mechanism kits, polymorph, polypropylene, etc.

What materials should be avoided?

Materials such as pine, MDF, plywood and acrylic sheet are not appropriate.

What writing and drawing equipment is needed for the examination?

Candidates need to use a black or blue pen for written responses. Drawings need to be done using a sharp pencil which isn't too hard. Pencil crayons can be used for rendering as well as other recognised means of enhancing drawings. Candidates should be encouraged to write legibly.

What is required for the Handling collection and Inspirational Table?

The 'handling collection', may consist of existing products or pictures, video, etc relating to the theme, and an 'inspirational table' which shows examples of products with interesting features or capabilities. It is useful to build up a bank of resources over time.

How many photographs are needed?

Four "teacher" photographs is the minimum required. Additional photos can be added to the workbook. This is particularly important if it is necessary to show other parts or views of an artefact to fully illustrate the final outcome.

What size and quality should photographs be?

It is important that colour images of a good quality are provided. Photographs should be of an appropriate size to fit into the space provided. The addition of a card with the candidates name within the photo aids the return of photos to students.

Is it advisable to run a full scale 'mock' Innovation Challenge?

This is up to the individual school. However, the challenge can lose its 'sparkle' if it is over rehearsed. Schools may find it more practical to focus on a particular element of the Challenge in order to give their students some idea of what to expect.

Will the themes change?

The themes supplied in the pre release material will change over time. The supplementary information to be considered along with the theme will be different for each sitting of the exam. Supplementary information will be supplied on the day of the examination.

Unit A553 Making, testing and marketing products

How long should candidates spend on Unit A553 work?

Centres are advised that candidate work submitted for this unit should represent no more than 20 hours.

How is Unit A553 graded and assessed?

Unit A553 will form Full Course examination. Centres will internally assess candidate work and award a mark in line with the marking criteria for this unit, out of 90 (120 UMS) against the Internal Assessment Objectives 4 and 5. A sample of this work will then be selected for external postal moderation. As this is initially an internally assessed unit centres should apply the principles of controlled assessment and undertake the necessary standardisation of marking within the centre. Please refer to section 5.1 to 5.5 and 6.5 to gain an understanding as to what is meant by controlled assessment, grading and task marking. Guidance on the mark criteria for the controlled assessment and Internal Assessment Objectives 4 and 5 for this unit can be found in Appendix B. Appendix A will provide a detailed breakdown of grade descriptors.

Should all candidates submit A553 work if they are on a Short Course?

No. Unit A553 is a mandatory controlled assessment that only forms part of the Full Course.

Can a centre submit both Paper Portfolios and Electronic Portfolios?

Yes. Centres are able to make a reasoned decision based upon available resources and candidate need as to how Unit A553 work will be submitted for marking and assessment to the exam board. Centres are advised to verify in section 6.1 of the specification for specific entry codes for paper based and electronic portfolio submission and liaise with the EO or dedicated colleague within the centre who is responsible for examination entries. Extra guidance and support can be found in the accompanying teacher guide to this specification and in Appendix C of the specification.

Can a candidate use a mixture of both electronic and paper based portfolios to submit Unit A553 work?

No. Centres are advised that single candidates should be entered for either a postal (A553/02) OR OCR Repository (A553/01) format. For example: a candidate should not submit a Paper Portfolio with other work to be found for A553, electronically on a CD.

Can pupils change how they present their work after being entered?

No. Centres are advised that once a candidate has been entered for either a Paper Portfolio (A553/02) or an Electronic Portfolio (A553/01) this is the registered entry for either the January or June examination session and work should be submitted appropriate to the method of entry stated by the centre. However, should the candidate wish to submit their Unit A553 work again in a re-sit situation, it may be possible for the candidate to submit the work in another format as this will effectively be a new examination entry, at the centres discretion.

Should Unit A553 be attempted before A551 as part of the Full Course J305?

Not necessarily. The Product Design specification has been developed to enable the centre flexibility in the creative delivery and organisation of the GCSE units: A551, A552, A553 and A554 for the Full Course qualification in particular. Centres following the Full Course are able for example to undertake Unit A553 before Unit A551. However, centres must follow the Terminal Rules (6.2) of entry as outlined in the full specification documentation.

Does work completed as part of Unit A553 need to then follow the same theme onto Unit A551?

No. As the specification for both the Short Course and Full Course are unitised, each unit is classed as a separate examination entry. The specification has been developed to help support and develop opportunities for creativity and the innovative approach to problem solving of each candidate as fully as possible. Unit A553 and Unit A551 do not need to follow on as a linear framework. The focus for each unit can be totally unique to each other.

Are there any project choices candidates should avoid for Unit A553?

Yes. Centres should be advised that stimulus themes for Unit A553 can be found in Appendix B2 of the specification for use as a starting point. These are available for adaptation by the centre in order to provide the opportunity to develop individual creativity and innovation amongst the candidates. Centres are advised to support candidates in the careful choice of their project focus to enable the most effective response to the Internal Assessment Objectives, enabling candidates to develop thoughts and ideas through effective communication and evaluation. For example, projects that can be considered unsuitable, restrictive and in cases too general for this activity are: designing a football stadium, buildings, cars, boats etc. as they do not allow the candidate the best opportunity to respond the Internal Assessment Objectives. OCR Controlled Assessment consultants are available for advice if required.

Can Unit A553 work be submitted for a re-sit?

Yes. Unit A553 can be submitted as a re-sit once before entering for certification for a GCSE (Full Course) or GCSE (Short Course) in line with the January or June examination sessions. It is advised that centres plan carefully their unit delivery and re-sit arrangements for candidates, based upon individual centre timetables and schedules and candidates needs.

Could candidates consider the Design Influences in their work?

Yes. In order to support the response to the Internal Assessment Objectives, centres might consider using the relevant aspects of the Design Influences 3.4 to assist candidates with the project focus or theme, development, modification or improvements.

Can you make a model for Unit A553?

No, the product has to be a working prototype that can be evaluated in context.

Do candidates have to produce a working product?

Yes. The product must be completed to a high quality and function as intended. The product should have working features that allows it to be tested in context.

Is there a particular material focus for Unit A553?

No. The Product Design specification has been specially developed to help support centres in the delivery of a common Design and Technology GCSE, across all material. Candidates should be encouraged where possible to explore their ideas in a wide range of media that best supports the resources, tools, equipment and facilities that are internally and externally accessible to the centre.

It is allowed that staff may take the photos for Unit A553?

Yes, with these alone they will only achieve the lower marks, because candidates need to take ownership of their own work, explaining in detail the techniques and processes they have undertaken to construct the product. The final images of the finished product should be annotated, showing the quality of the product.

Where is the starting point for A553?

You can start from anywhere for A553, that is the attraction. It could be from A551 or A552. It could even to continue from a KS3 project. Any product students have seen and would like to have a go at making.

Unit A554 Design influences

What is the difference between ergonomics and anthropometrics?

The answer is that they are two entirely different but related disciplines.

In many ways, ergonomics can be considered as 'Human centred designing'.

The word Ergonomics was formed in 1949 after a government adviser joined to two ancient Greek words **ergo** (work) with **nomos** (laws). Ergonomics is a study of how to make humans work more efficiently in their environments. It is therefore in essence work study, (formerly known in industry as time and motion studies).

In order to apply ergonomics to products that interact with humans, designers need to draw upon the tables of human measurement (anthropometric tables). The word anthro comes from the Greek word for human and obviously metrics means measurement, thus, human measurement.

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