

teachers' handbook

November 2011

ENTRY LEVEL CERTIFICATE IN **DESIGN AND TECHNOLOGY**

R364

For teaching from September 2010

www.ocr.org.uk/entrylevel



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1. Introduction

1.1 What is the purpose of this handbook?

Our Design and Technology Entry Level qualification is being redesigned for first teaching in September 2010. It will sit with the new GCSEs in Design and Technology, enabling us to offer you a coherent package for you and your learners.

This is an exciting, broad-based specification for you and your learners which aim to bring Design and Technology to life engage learners and encourage them to achieve more. The practical possibilities have no limit.

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 it.

It is important to make the point that this Teacher Handbook plays a secondary role to the specification itself. The Entry Level Certificate in Design and Technology 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.

1.2 Overview of OCR Entry Level Certificate in Design and Technology

| Design and Technology (R371 – R375) | |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| One internally assessed task | <p>60 marks 100% of the qualification 20-25 hours supervised assessment</p> <p>Candidates produce a portfolio in one of the following material areas:</p> <ul style="list-style-type: none">• Electronics• Graphics• Industrial Technology• Resistant Materials• Textiles <p>Candidates select one task from a range of themes set by OCR. The task can be adapted in order to suit centre specific circumstances. Alternatively, a task that is not listed in this specification may be chosen, as long as it falls under one of the themes.</p> <p>The task will focus on the design, development and making of one product that is capable of being tested and evaluated.</p> <p>The task is internally assessed and externally moderated.</p> |

2. Curriculum guidance

Within the curriculum, Entry Level Design and Technology can be used alongside more traditional routes such as GCSE and also as a discreet stand alone qualification.

For candidates who may find a GCSE course too demanding, Entry Level can be used as a means of motivating students who will appreciate the shorter tests which can be taken at any time during the course. This flexibility can help teachers in the planning of the curriculum, giving them control of when assessments take place. Entry Level can be used as an alternative for candidates who may be finding the GCSE assessment too difficult. The general content of Entry Level and the assessment objectives, mirror the OCR GCSE qualification, making it easy for candidates, and teachers, to move from one to the other.

For students in years 7 to 9, Entry Level Design and Technology can be used as an introduction to the subject, giving a clear framework for delivery and a recognised qualification to motivate those involved.

Entry Level Design and Technology is a popular subject in other institutions for instance where candidates may have earlier fallen out of mainstream education. It gives them some sense of achievement which can then be used as a springboard for further qualifications such as GCSE and vocational courses.

3. Subject specific guidance – Electronics R371

In this section, specification content applicable to the material area of Electronics is outlined.

- It should be noted that only knowledge, skills and understanding as applicable to the Internal Assessment Task selected are assessed through evidence presented in a portfolio.
- Some of the content in this section will **not** be applicable to the task the candidate selects; as there is no written examination, this content will not be assessed. However the fact that it is there allows the teacher to plan a course that gives the opportunity for breadth and depth in the study of the chosen area.
- The content should be covered with emphasis on practical activities to encourage the application of knowledge and understanding.
- Design and make tasks and 'project' work are encouraged as a means of covering areas of the specification content.

Materials

- Candidates should have the opportunity to explore a range of materials in common use in the workshop. This should include aluminium, copper, acrylic and plastics materials such as HDP and ABS used for vacuum forming. Candidates should also be familiar with composite materials such as glass reinforced epoxy resin used for PCB substrates.
- Candidates should have a basic understanding of the physical and electrical properties of the above materials including insulation and conducting properties, e.g. how both copper and aluminium can be used as thermal as well as electrical conductors.
- Candidates should be aware of the aesthetic qualities of materials used for project casings.
- Practical work with thermoplastics materials should be carried out to show the effects of heating and how forming can be controlled, e.g. strip heater or vacuum forming.
- Smart and Modern materials. Candidates should have an awareness of materials such as QTC which can be used in switching applications and memory metals such as nitinol wire which can be made to return to its original shape when heated by passing a current through the wire.
- Candidates should have an awareness of the types, forms and uses of commonly used electronic components. Practical tasks or project work should be carried out using both real components and simulation software to build simple circuits.
- Candidates should be aware of the benefits and simple applications of integrated circuits e.g. using a timer IC in a circuit.

Tools and Equipment

- Candidates should have knowledge of tools and equipment that are commonly used in the making of electronic products; this will include wire cutters, wire strippers and soldering equipment in addition to the tools used for shaping and finishing project casings.
- Candidates should be able to select and use safely a range of tools which are appropriate to electronics work. Emphasis should be given to the health and safety issues involved, in particular the risks involved with heat processes and power tools.

Processes

- Candidates should have a basic working knowledge of a range of practical processes, which are commonly used in the making of electronic products.
- Processes should include preparation of wires for soldering; correct orientation and placement of components; soldering components to a PCB; connection of remote components e.g. LED or potentiometer on leads.
- Candidates should have an awareness of quality control, testing and fault finding procedures that can be applied to their own projects.

Computer Applications

- Candidates should have knowledge and understanding of how computer and digital applications can be used in the making of quality electronic products. Simulation software should be used where possible for developing circuit ideas and candidates should be aware of how printed circuits can be designed using an autorouting facility.
- The use of digital and computer applications should be encouraged, especially when candidates are working on their Internal Assessment project in order to present the evidence for assessment.

3.1 Frequently Asked Questions – Electronics R371

Can my students use a commercially manufactured circuit?

Commercial circuits or modules can be used as a part of the project but should not make up the complete project. In many cases a small ready made module can allow the project to have a more realistic output. This applies particularly with sound production. Integrated circuits that produce siren sounds or animal noises can easily be added as an output to a student circuit but would be beyond the skill of most candidates to design and make from separate components. The important thing is that any commercial items like this should be recognised in the folio; with sources being given credit.

Does the candidate have to design all parts of the circuit?

The same answer applied here as is given to the above question. If parts of the circuit are not designed or made by the candidate it should be clearly stated in the folio with reasons given. It is rare for a circuit to be a totally new design; it will normally be a mix of tried and tested sections of circuit that are brought together to produce the desired effect.

How complex should the circuit be?

The highest marks can be obtained with a relatively straightforward circuit that is well made and is suitable for the purpose. There is no hard and fast rule for the number of elements that a circuit must contain; only that it should do the job required.

Does the circuit have to work in order to access all of the marks?

For the top mark band the requirement is that the project is mainly complete, so it would be possible for a well made circuit that is almost complete to attain a high mark.

How can the project be evaluated if the circuit does not work?

There are always elements of a circuit that can be evaluated; starting with the PCB, quality of tracks and drilling can be assessed and the quality of soldered joints can be commented on. Tests using a multimeter can be used to show continuity in sections of the circuit. Jump leads can be used to test individual sections of a circuit.

Can my candidates use commercially made cases for their circuits?

The casing for a project should be appropriate; in many cases it is more economical and will result in a better finish if a commercial case is used. What is important is that the circuit is properly fitted into the case and that thought has been given to location and fitting of the battery and exterior controls. Simple labelling can be carried out using transfers or vinyl cut lettering. It is also possible to include laser cut lettering on a package. Laser cutting, if available, can result in excellent results for cases fabricated from acrylic sheet.

Do candidates have to use CAD when designing the circuits?

It is not essential to design circuits using CAD; indeed suitable software has not been available until recent years. It is however an advantage to use specialist software; the results will be more professional and have more chance of working as intended. It will also give confidence to candidates as they can test their work during design and make late changes. Most electronics software has the facility for converting circuits from a working schematic circuit to a printed circuit. This has the advantage that a working result, particularly with less complex circuits can almost be guaranteed.

I have not got facilities for making PCBs. Is there any other method that can be used?

A circuit board can be made using a range of methods, most of which have been used for commercial circuits in past years. At the simplest level, using wooden board with steel pins nailed in as soldering points can result in a working circuit. A more viable solution is to use either self adhesive copper tape which can be stuck onto a suitable backing, e.g. thin acrylic sheet, or matrix board such as 'Veroboard'. This type of board is easy to use for the simplest circuits but will cause problems in fault finding for more complex circuits. The best and most reliable method is to use photoetch board.

Can a candidate 'copy' a circuit?

In many cases the initial circuit idea will come from a book or magazine or has been downloaded from a website. It is quite justifiable for a candidate to use such a design but it is important that the circuit is fully understood by the candidate. Another important point is that components should be sourced before starting the project as it is not unknown for older circuits to use obsolete and unobtainable components.

4 Subject Specific Guidance – Graphics R372

In this section, specification content applicable to the material area of Graphics is outlined.

- It should be noted that only knowledge, skills and understanding as applicable to the Internal Assessment Task selected is assessed through evidence presented in a portfolio.
- There will be content in this section that will **not** be applicable to the task the candidate selects; there is no written examination to assess these areas of the content. However it allows for the teacher to plan a course that allows the opportunity for breadth and depth in the study of the material chosen.
- The content should be covered with emphasis on practical activities to encourage the application of knowledge and understanding.
- Design and make tasks and 'project' work is encouraged as a means of covering areas of the specification content.

Materials

- Candidates should have the opportunity to work with a variety of materials used in the production of high quality graphic products.
- Candidates should be aware of the physical and aesthetic properties of materials and use this knowledge in the production of simple practical tasks.
- There should be a basic understanding that different materials can be combined to produce a material that is more suited to a specific task.
- Candidates should understand that materials can be deformed in such a way as to improve their visual quality and to produce 3D effects.
- Smart and Modern materials. Candidates should have an awareness of modern materials and smart materials (which respond to changes in light, temperature and pressure). The practical uses of these materials and finishes can be studied, such as in advertising, promotional items and educational products.
- Candidates should have an awareness of the types and uses of commonly used pre-manufactured components. Practical tasks or project work could be carried out on this aspect of the specification. Candidates enjoy investigating and using items such as stickers, stencils and rubber stamps.

Tools and Equipment

- Candidates should have knowledge of tools and equipment that are commonly used in the making of graphic products.
- Emphasis should be on the selection of the tools and equipment appropriate to the task, correct use of tools and equipment, health and safety issues and awareness that there are sometimes alternative tools and equipment which could be used for the same task.

Processes

- Candidates should have a basic working knowledge of a range of practical processes, which are commonly used in the design, modelling and manufacture of graphic products.
- Processes should range from the application of finishes to enhance and protect products through to methods of folding, cutting and joining materials using adhesives and flat-pack joints.
- Candidates should be able to understand the need for, and be able to produce different types of drawings used during the design and manufacture of products, i.e. isometric presentation & orthographic working drawings.
- Candidates should have an awareness and understanding of the importance of accuracy and quality in the manufacture of graphic products.
- Candidates should be able to recognise, name and draw basic geometric shapes.
- Candidates should be able to use graphical methods as a means of communicating information and data in a simple to understand format, i.e. pictograms & data graphics such as pie charts.

Computer Applications

- Candidates should have knowledge and understanding of how computer and digital applications can be used in the making of quality graphic products. This emphasis should be on practical activities and application of knowledge and understanding.
- The use of digital and computer applications should be encouraged especially when candidates are working on their Internal Assessment project in order to present the evidence for assessment.

4.1 Frequently Asked Questions – Graphics R372

Do we need any specialist equipment for this component of the specification?

No. It is possible to produce work that meets the assessment criteria for the coursework project using basic equipment found in the D&T area, such as paper, card, pencil crayons, glue and scissors.

Do candidates need to have had practical experience of using the materials listed in the Graphics content section of the specification?

This would be advisable and is easily achieved with only a small amount of the specific materials, the majority of which can be found in most D&T areas. Quick, simple projects can be developed around each material. These can be used as the focus to develop a candidate's knowledge of each material and its uses in the world of graphic design. Possible projects could be: a flat-pack foam board brochure holder or a corriflute mobile phone holder.

Can we use pre-prepared templates to aid candidates?

Absolutely, anything that enables candidates to gain confidence in their work and enables them to make positive achievements is to be commended.

What sort of templates can we use?

There are numerous templates available on the internet which can be adapted to suit your needs. Developments/nets for a wide range of shapes can be easily found through internet search engines and are useful for the teaching of packaging design. You can also produce generic templates that meet the demands of your candidates, but still allow for individual achievement, i.e. a research template on packaging that has all the relevant areas to be researched where candidates find their own type of package to work from.

Do pupils need to use or have access to CAD/CAM?

Not really, although the opportunity to witness CAD/CAM at first hand can be beneficial, especially when it can be used to enhance their portfolios. Cutting a simple vinyl sticker can show them the principles of CAD/CAM and give them the encouragement to use the process in the production of their work.

I'm not a graphics specialist, is there anywhere I can get guidance?

Yes, there are a wide range of excellent DVD's and websites concerned with Graphic Design. OCR will be producing a list of websites, DVD's and publications that can enhance your knowledge of the subject and enable your candidates to meet the demands of the course.

Do we have to send you the finished practical work?

No. What is required is photographic evidence of the finished product. A couple of clear photos showing different views of the product are needed. These can be sent as part of the portfolio.

5. Subject Specific Guidance – Industrial Technology R373

Industrial Technology

In this section, specification content applicable to the material area of Industrial Technology is outlined.

It should be noted that only knowledge, skills and understanding as applicable to the Internal Assessment Task selected are assessed through evidence presented in the portfolio.

Some of the content in this section will **not** be applicable to the task the candidate selects; as there is no written examination, this content will not be assessed. However the fact that it is there allows the teacher to plan a course that gives the opportunity for breadth and depth in the study of the chosen area.

The content should be covered with emphasis on practical activities to encourage the application of knowledge and understanding.

Design and make tasks and project work are encouraged as a means of covering areas of the specification content.

Materials

Awareness of industrial applications of supply, storage and handling of bulk materials, standard stock sizes and the availability for small industrial concerns and/or for the 'D.I.Y. person' doing jobs at home, for the most commonly used materials.

Performance Characteristics of Materials

The understanding of the performance characteristics of the more common materials would be made more relevant to the candidates if they were aimed at the range of applications within the likely experience of the candidates, e.g. why a drill is not made of mild steel, and why tipped drills are needed for masonry, or why a chisel designed for cutting wood should not be used as a screwdriver.

Pre-manufactured components

Candidates should be aware why industry uses components from other suppliers, especially for common and standardised components in mass production processes. B They should be aware of how they could apply readily available components from D.I.Y. outlets to their own 'one-off' projects. E.g. corner connector blocks in 'knock-down' box construction.

Tools and Equipment

The use of tools, especially power tools, is strictly controlled in Industrial and School workshops. Students should be made aware of Health and Safety issues and the care needed to keep such equipment in good working order for maximum efficiency and quality of outcome. Particular emphasis should also be applied to tools outside a controlled environment to make them aware of their own and others' safety with 'on-site' tools and with the proliferation of power tools to the D.I.Y. person and 'home' worker.

Emphasis should be applied to practical applications of jigs and templates that could be used within candidates' experiences, e.g. for holding an awkward shape or a simple drilling template for quality control in quantity production, especially if it could be shown to be relevant to their own projects.

Processes

To make processes more relevant, it could be delivered to show how processes will/can influence their product design.

Computer Applications

Candidates should be aware of the diversity of computer applications in industry and how they relate to each other, and therefore what they might expect to come across after leaving school.

Quality

Candidates should be aware of the **need** for quality, accuracy and consistency for industrial applications, not only for production control but the effects on the customer/user/client base. Quality is equally relevant to the 'one-off' outcomes of their own projects.

5.1 Frequently Asked Questions – Industrial Technology R373

With increasing awareness of recycling being a major part of Industrial Practices, Can we use recycled materials and/or components in the submission for assessment?

Yes, if the materials fulfil the requirements necessary as specified in the portfolio. Often recycled materials are easier and cheaper to obtain.

Candidates should be able to show an awareness of why they have used such materials. (For years re-conditioned parts have been available for the motor industry.)

Would a lot of extra equipment be required to recycle materials?

No, because all design situations have to work within certain constraints and those constraints can include the available facilities, but most facilities found in most D & T departments can be used for some recycling processes, provided the normal health and safety requirements are met there should be few problems and little major investment.

Are there any restrictions to what materials can be used?

No, provided that suitable health and safety requirements are met. Some of the outcome, for example, of a project on recycling paper, could be used in the submission of the portfolio providing evidence is shown that the candidate has fulfilled the requirements of the design brief. H.I.P. flashing from vacuum forming machines can often create larger percentages of 'waste' than other materials. Cut it into pieces and put into an aluminium tray from the local take-away and heat until it fuses together. It makes blocks of a good engineering material that needs little finishing, can be machined, drilled and takes screw threads well.

Much of Industrial Technology is more than just making a finished product but there is a whole industry in Jig and Tooling. Does the candidate's project have to produce a finished artefact?

It depends on how the candidate defines what a finished artefact is. If the jig and tooling is a process in the production then yes, but the jig and tooling could be the finished artefact in itself and what it produces is secondary. For example, a former for vacuum formed jelly moulds is part of the process and it might be expected to produce at least one mould because the outcome would be the marketable product, whereas, a drinks can crusher/compactor for aluminium cans is a tool that would be the marketable product and therefore the tool can be defined as the finished artefact, although the outcome from the tool is the crushed can.

Research and Development are major factors considered in industrial situations, can proof of concept prototypes be submitted for final assessment?

It depends on the design brief and situation and what is defined to be the aim and outcome. As long as the candidate can show an understanding of what is being done and show the necessary skills to fulfil the design brief, then yes.

Much of Industry is mechanised and the amount of hand made artefacts is diminishing, can modern 'automatic' machines be used in the production of the final outcome?

Increasingly more schools are obtaining laser cutters and rapid prototyping machines and the major skills therefore are with the setting and programming. At the end of the day these machines are only tools and therefore there is a place for them, but there is still very much a place for hand made outcomes. Ideally if these machines are to be used then a balance between them and hand crafted outcomes should be used. Again, a candidate should be able to show that they are responsible for the manipulation of such machines and that centres can authenticate as such and that help given by others, (staff/technicians etc.) should be acknowledged in the submission.

6. Subject Specific Guidance – Resistant Materials R374

In this section, specification content applicable to the area of Resistant Materials is outlined.

- It should be noted that only knowledge, skills and understanding as applicable to the Internal Assessment Task selected is assessed through evidence presented in a portfolio.
- The content should be covered with emphasis on practical activities to encourage the development of skills and application of knowledge and understanding.
- It is anticipated that candidates will require varying levels of support in order to complete the manufacture of resistant material products. It is acceptable for teachers to support the students and make reference to the level of support given when assessing the candidate's work.
- Design and make tasks are encouraged as a means of covering areas of the specification content.

Materials

- Candidates should have the opportunity to investigate a wide range of commonly used resistant materials and how they are used in the manufacture of products.
- They should be encouraged to investigate how these materials can be shaped and formed and how this shape and form can be used to enhance the quality of products.
- There should be an understanding of the constructional techniques that can be applied to materials to enable complete products to be produced.
- Smart and Modern materials. Candidates should have an awareness of modern materials and smart materials (which respond to environmental changes). Practical activity linked to these materials is encouraged.
- Candidates should have an awareness of the types and uses of pre-manufactured components. Candidates should be encouraged to identify these components in existing products and to use them in their focused practical tasks.
- Candidates should have an understanding of how the finish of the product will affect its quality and how the use of an applied finish will change its aesthetic appeal. They will need to investigate different types of finish applicable to the product being made and be able to justify the final choice.

Tools and Equipment

- Candidates should have knowledge of basic hand tools and their use in the processing of resistant materials. They will have some understanding of maintenance requirements applicable to these tools.
- Candidates should have experience of using common workshop machine tools and understand the health and safety issues associated with the use of these tools. They will have an understanding of the maintenance requirements.

- There should be understanding of the checks and set up procedures that need to be applied to these machine tools before they can be used.
- Emphasis should be on the selection of appropriate tools, equipment and processes for a specific task. An awareness that there are sometimes alternative tools, equipment and processes that could be used to complete the same task.
- It is expected that evidence will be presented in the portfolio to show the level of candidate's involvement in the use of tools and equipment to complete the practical assessment task.

Processes

- Candidates should have a basic working knowledge of how to prepare, measure and mark out materials using appropriate tools safely.
- They should demonstrate understanding of the processing and fabrication of materials in order to produce complete products that meet the requirements of the specification.
- Candidates should have some understanding of the importance of accuracy and quality of finish in making products.

Computer Applications

- Candidates should be encouraged to demonstrate understanding of the use of CAD packages in the presentation of their design solutions. This can be extended to include appropriate CAM in their product manufacture.
- Candidates should have an awareness of how the use of CAD and CAM can be used in the effective production of quality products using resistant materials.

Quality:

- It is expected that candidates will have some understanding that the quality of a finished product will be affected by a number of things including materials, components, applied processes and finish.
- Candidates will be able to identify aspects of a design which will lead to a quality product being produced.
- Candidates should be able to evaluate products manufactured from resistant materials and make comment related to the quality of the product and how improvements could be made.

6.1 Frequently Asked Questions – Resistant Materials R374

My candidates have difficulty presenting design ideas on paper

Candidates can present their ideas using a range of different techniques. It is envisaged that the use of simple models to test and trial designs will be encouraged for candidates at entry level, although they will need to present evidence of this in the portfolio presented for assessment.

Can candidates use CAD/CAM to manufacture their designs?

Candidates are encouraged to use modern manufacturing processes to make their products although they will need to present evidence of their contribution within the assessment portfolio.

Will products need to be made from more than one material?

Although products made from multiple materials are to be encouraged to give candidates a wider experience, it is acceptable to present products made from a single material for assessment.

Our centre has limited access to machine tools. Will candidates be disadvantaged by our lack of equipment?

The use of a wide range of equipment will give candidates a more valuable experience in the processing of resistant materials. For the purposes of assessment, hand made products will be acceptable and candidates will not be disadvantaged.

We usually buy in components to use in our projects. Are candidates penalised for this?

No, candidates are encouraged to use pre-manufactured components within their assignments, for example: clock mechanisms, door handles, hinges etc.

Our candidates require a high level of support when using machine tools, is this acceptable?

It is anticipated that candidates involved in this specification will need to have varying levels of support. It is expected that account will be taken of the level of help and support given to candidates when the centre assesses the candidates work. Annotation notes will help the moderator in the assessment process.

Will candidates be penalised if they copy existing products?

Candidates are encouraged to present designs that show individual creativity. If they use existing designs they should try to adapt and personalise these designs, perhaps by changing the shape, applying different surface finishes or adding additional features to them.

Can candidates work together on one project?

It is important for assessment purposes that the work of individual candidates is clearly identified. Candidates should be encouraged to complete their own work portfolio, although this could be done under a common theme approach.

If candidates have only produced practical work can they still be entered for this specification?

All work submitted will be appropriately assessed against the specification criteria. If only practical work is submitted this will limit the marks they are able to access.

How will the practical work be assessed?

Candidates will have to present evidence of the practical work completed within their portfolio, usually as photographs of the completed product. The photographs should show, as a minimum, the front and back of the product but centres are encouraged to show as much detail as possible to support the assessment given.

7. Subject Specific Guidance – Textiles R375

In this section, specification content applicable to the material area of Textiles is outlined.

- It should be noted that only knowledge, skills and understanding as applicable to the Internal Assessment Task selected is assessed through evidence presented in a portfolio.
- There will be content in this section that will **not** be applicable to the task the candidate selects, there is no written examination to assess these areas of the content. However it allows for the teacher to plan a course that allows the opportunity for breadth and depth in the study of the material chosen.
- The content should be covered with emphasis on practical activities to encourage the application of knowledge and understanding.
- Design and make tasks and 'project' work is encouraged as a means of covering areas of the specification content.

Materials

- Candidates should have the opportunity to find out about a variety of natural, manufactured and regenerated fibres, where they come from, their characteristics and what they are used for.
- Candidates should have a basic understanding that fibres can be made into fabrics and how this can be done. There is the opportunity for candidates to involve themselves in practical activities involving spinning, weaving, knitting and felting.
- There should be a basic understanding that fibres and yarns can be mixed and blended together and that methods such as laminating and coating of fabrics can change and improve the qualities of fabrics.
- Smart and Modern materials. Candidates should have an awareness of modern materials and smart materials (which respond to changes in light, temperature and pressure). The practical uses of these fabrics can be studied, such as for fashion, environmental and medical purposes.
- Candidates should have an awareness of the types and uses of commonly used pre-manufactured components. Practical tasks or project work could be carried out on this aspect of the specification. Candidates enjoy investigating and using decorative items such as appliqué motifs, sequins, ribbon and lace.

Tools and Equipment

- Candidates should have knowledge of tools and equipment that is commonly used in the making of textile products.
- Emphasis should be on the selection of the tools and equipment appropriate to the task, correct use of tools and equipment, health and safety issues and awareness that there are sometimes alternative tools and equipment which could be used for the same task.

Processes

- Candidates should have a basic working knowledge of a range of practical processes, which are commonly used in the making of textile items.

- Processes should range from the use of patterns and templates, methods of joining fabric, methods of adding pattern and colour to fabric, the use of a sewing machine and hand stitching.
- Candidates should have an awareness and understanding of the importance of accuracy and quality in making and finishing of textile products.

Computer Applications

- Candidates should have knowledge and understanding of how computer and digital applications can be used in the making of quality textile products. Emphasis should be on practical activities and application of knowledge and understanding.
- The use of digital and computer applications should be encouraged especially when candidates are working on their Internal Assessment project in order to present the evidence for assessment.

7.1 Frequently Asked Questions – Textiles R375

I am concerned that my candidates will not be able to understand and retain knowledge about areas of the specification content such as the ‘origin and performance characteristics of fibres’.

Candidates will only be assessed on those aspects of the specification content as they use them in a practical context when working on the design and make task selected. There is no written examination.

Do candidates have to know and use technical terms?

There are some technical names and terms such as ‘regenerated cellulose fibres’, Kevlar, ‘ Smart and Modern materials ‘ which some candidates may have difficulty understanding. They are best introduced to candidates in a practical or mini project context. Candidates do not have to recall facts and data but to apply knowledge and understanding as applicable to their design and make task.

Some of the candidates are not able to use a sewing machine. Could their practical work be completed using hand skills only?

Yes this is possible. A good range of practical textile items can be made using hand skills only.

The Centre is not very well equipped with computerised sewing machines or design software. Will this place the candidates at a disadvantage?

No it will not disadvantage the candidates, however candidates should be given the opportunity and be encouraged to use a range of ICT in their coursework.

Would it be possible for example for a candidate to use a pre-bought textile item such as a T-shirt, print a design onto it and submit it for their coursework?

The textile product which the candidate submits with their coursework should satisfy the requirements of the theme selected.

Candidates should be encouraged to work to the best of their ability and demonstrate their skills, therefore in this type of circumstance they could be encouraged to add to and embellish their design with decorative components.

If the practical work is not completed can the candidate still enter for the examination?

Yes, as long as the candidate has produced some work that can be assessed against the assessment criteria.

8. Resources

Applicable for all of the material areas;

Hodder Education publishes the following books that support the OCR GCSE Design and Technology new suite of specifications.

OCR Design and Technology for GCSE : Resistant Materials
Authors, Dave Carlson, Harry King, Steve Pinnock
ISBN 9780340981962

OCR Design and Technology for GCSE ; Industrial Technology
Authors ; Dave Carlson, Harry King, Steve Pinnock
ISBN 9780340982020

OCR Design and Technology for GCSE ; Textiles Technology
Authors ; Jayne March, Maria James, Carey Clarkson
ISBN 9780340981993

OCR Product Design for GCSE
Authors ; Austin Strickland, Bob White, Geoff Hancock, Phillip Clarke

The following organisations and websites may be useful sources of teaching and learning resources, including video clips. Many resources are free.

- The Standards Site. www.standards.dfes.gov.uk
- National Association of Advisers and Inspectors in D&T. www.naaidt.org.uk
- Teachers tv. www.teachers.tv
- Teacher Net. www.teachernet.gov.uk
- The Design and Technology Association – DATA
- D&T Online
- T E P www.tep.org.uk a range of resources and project ideas, catalogue.
- www.helenhudspith.com free resources to share and adapt.
- How Stuff Works – www.howstuffworks.com - some good videos and animation to help explain how machines work.
- www.flying-pig.co.uk downloadable resources for Graphics
- Centre for Alternative Technology. www.cat.org.uk - books, kits and components, solar toys etc.
- Northumberland Education Authority <http://ngfl.northumberland.gov.uk> very good for resources, ideas about projects applies to all material areas. Has a link to useful websites.

- www.bpf.co.uk British Plastics Federation: select 'plastipedia' for a wide range of information relating to manufacture in plastics. The link to 'Plastic processes' give clear animated images explaining all moulding processes for plastics.
- www.technologystudent.com Site gives wide range of information relating to all aspects of design and technology
- <http://www.designandtech.com/>
- <http://www.teaching-resources.org.uk/HTML/dt.htm> - a list of DT websites including some of the ones mentioned above.

Graphics specific resources:

Useful websites:

Pizza box history and simple packaging net -

http://www.correllconcepts.com/Pizza_Packaging/history.htm

A variety of packaging nets -

<http://www.xltblog.net/2008/04/21/free-packaging-templates>

BBC Bitesize:Graphics –

<http://www.bbc.co.uk/schools/gcsebitesize/design/graphics/> - superb for revision and knowledge testing.

<http://www.technologystudent.com/> - excellent website with lots of information about graphics techniques and practice exercises.

OCR Design and Technology for GCSE : Graphics
 Authors, Kevin Crampton, Paul Brannlund, John Rolfe
 ISBN 9780340981986

Electronics specific resources:

Websites

Kitronik – www.kitronik.co.uk - free resources for Electronics, projects and components to buy.

Doctronics

Very good basic circuit information and clear explanations

www.doctronics.co.uk

Rapid Electronics

Good project ideas and low cost components

www.rapidonline.com

Picaxe

Picaxe project ideas and documentation

www.picaxeforum.co.uk

PIC resources

www.rev-ed.co.uk/picaxe

Project ideas

www.electronics-lab.com/projects

Hobby Projects

Project ideas and circuit explanations

www.hobbyprojects.com/

Books

Electronic Products

Collins Real-World Technology

ISBN 0 00 3200124

Starting Electronics

by Keith Brindley

ISBN 9780750663861

OCR Design and Technology for GCSE : Electronics and Control Systems

Authors; Terry Bream, John Drury

ISBN 9780340982013

CD

Rapid Electronics Image Gallery

CD with component images for project folios

Order number 94-0670

9. Guidance on downloading internally assessed tasks from Interchange

Before you start

Any necessary Controlled Assessment materials will be available to download from OCR Interchange from June 2010.

In order to use Interchange for the first time, you just need to register your centre by returning the Interchange Agreement. This can be downloaded from the OCR website at <http://www.ocr.org.uk/interchange>

If your centre already has an Interchange user account, you will need to be assigned the 'Tutor/teacher' Interchange role to access Controlled Assessment materials. Your Interchange Centre Administrator can assign this for you.

www.ocr.org.uk

OCR customer contact centre

General qualifications

Telephone 01223 553998

Facsimile 01223 552627

Email general.qualifications@ocr.org.uk

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