

# teachers' handbook

Version 2 April 2010



## GCSE

### Manufacturing

J505 – Single Award

J510 – Double Award

This handbook is designed to accompany the OCR GCSE Manufacturing 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.

# Contents

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# 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 student's 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 Manufacturing 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.

# Subject specific guidance

## Unit B232: Manufacturing Processes

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1 hour written examination or computer-based test.

The examination will include a range of different styles of questions and will be designed for students of all abilities. It will require candidates to demonstrate an understanding of the practical application of knowledge related to products and manufacturing environments they have studies. An example of typical question styles that will be employed is listed below.

### Example 1

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Questions where the candidate is asked to match things together:

For each product listed below select the correct sector.

#### **Sectors:**

Chemical and Pharmaceutical

Clothing and Textiles

Motor manufacturing

Food and Drink

Furniture

Machinery and Equipment

Packaging

Electronic and Communications

#### **Product:**

Mobile phone

Biofuel

Egg box

Corporate wear

Lawnmower

Mirror

Pizza

## Example 2

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Questions where the candidate is asked to provide short, open ended answers to questions relating to areas they have studied.

Describe **two** ways to protect production workers from injury when manufacturing products.

## Example 3

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Questions that require candidates to place things in the correct order:

Complete the box below ('Manufacturing stages in correct order') by selecting the stages of manufacture in the correct order from the bulleted list.

### **Stages of Manufacture:**

- Packaging
- Material supply and control
- Despatch
- Processing and production

### **Manufacturing stages in correct order:**

Production planning

.....

.....

Assembly

Finishing

.....

.....

## Example 4

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Longer, open-ended questions that require the candidate to discuss and/or compare, giving reasons and justification:

Discuss how ICT can be used for communication when designing a manufactured product.

Describe **one** way you could research existing products to find out about manufacturing processes used in their production.

## Example 5

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Questions relating to specific products from an area the candidate has studied:

Tick **one** of the following products which you will use to answer the following questions.

- Mobile phone casing
- Biofuel
- Burger packaging
- Corporate wear shirt or blouse
- Rotary lawnmower body
- Mirror surface
- Sports drink
- Electric kettle body
- Birthday card
- Car door

For the selected product name one **material** from which it is made:

For the material chosen, name the **form** in which it is supplied.

Describe why using materials in their standard market form is important to manufacturers

# Unit B234: Impact of modern technologies on Manufacturing

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1 hour written examination or computer-based test.

The examination will include a range of different styles of questions and will be designed for students of all abilities. It will require candidates to demonstrate an understanding of the practical application of knowledge related to products and manufacturing environments they have studies. In particular, they should focus on designing products for manufacture and sustainability. An example of typical question styles that will be employed is listed below.

## Example 1

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Questions where the candidate is asked to match things together:

For each products listed below select the correct sector they are manufactured in.

### **Sectors:**

Chemical and Pharmaceutical

Clothing and Textiles

Motor manufacturing

Food and Drink

Furniture

Machinery and Equipment

Packaging

Electronic and

Communications

### **Products:**

Gluten free ready meal

Lipstick

Outdoor sportswear

Touch screen

Vacuum cleaner

Sandwich carton

Child's cot

## Example 2

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Questions where the candidate is asked to provide short, open ended answers to questions relating to areas they have studied.

Describe **two** features of a product you have studied that show it has been designed for manufacturing assembly.

Name of product 1:

Name of product 1:

## Example 3

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Questions that require candidates to select issues according to their importance:

Tick the **two** most important issues to consider when deciding whether to buy in pre-processed materials rather than to process them on site.

- Marketing
- Packaging costs
- Space requirements
- Machinery costs
- Material properties
- Assembly methods
- Quality

## Example 4

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Longer, open-ended questions that require the candidate to discuss and/or compare, giving reasons and justification:

Discuss the importance of Just In Time (JIT) in reducing costs and improving manufacturing efficiency.

Discuss how and why production plans may need to be modified following a new product launch.

## Example 5

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Multi-choice questions requiring candidates to select the correct answer from a number of alternatives:

Part of a flow process chart is shown. Tick the correct meaning of the two symbols below.

### Symbol 1

- Operation
- Delay
- Transport
- Storage

### Symbol 2

- Delay
- Transport
- Storage
- Inspection

# Resources

## Useful Reference Books

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Askin, Ronald D and Standridge, Charles R (1993) *Modeling and Analysis of Manufacturing Systems* John Wiley & Sons 0471514187

Bickerstaffe, Jane (1993) *About Packaging (Finding Out...)* Hobsons Publishing PLC 1853247383

Cushing, Steven (2004) *GCSE Manufacturing* Hodder & Stoughton Ltd 0340814098

Dept. for Education and Skills Great Britain and Centre for Education and Industry University of Warwick (2005) *Manufacturing: Support Materials for Gcses in Vocational Subjects* Department for Education and Skills 1845721098

Cresswell, Lesley (2001) *Textiles at the Cutting Edge* Forbes Publications 1899527176

Godfrey, Neil and Wallis, Steve (2005) *GCSE Manufacturing* Nelson Thomas 0748793747

Griffiths, Brian (2002) *Engineering Drawing for Manufacture* Butterworth-Heinemann 185718033X

Hannam, Roger (1997) *Computer Integrated Manufacturing: From Concepts to Realisation* Addison Wesley 0201175460

Hill, John (2009) *OCR Manufacturing for GCSE (CD Rom)* Hodder Arnold 0340985097

Jones, G. (1990) *Finding Out About Textiles* Nelson Thornes Ltd 0748701796

Knapp, Brian (2002) *World Industry and Making Goods (World Geography)* Atlantic Europe Publishing Co Ltd 1869860632

Lifetime Careers (1997) *Manufacturing and Production (Just the job!)* Hodder Arnold H&S 0340687886

Ridgwell, Jenny and Smith, David (1996) *Food Product Development: Scones* Ridwell Press 190115100X

Timings, Roger (2000) *Basic Manufacturing* Newnes 0750648805

## Useful Websites

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<http://virtualskies.arc.nasa.gov/research/youDecide/smartMaterials.html>

[www.berr.gov.uk/whatwedo/sectors/manufacturing/index.html](http://www.berr.gov.uk/whatwedo/sectors/manufacturing/index.html)

[www.bola.biz/quality/pfc.html](http://www.bola.biz/quality/pfc.html)

[www.emsstrategies.com/dm090203article2.html](http://www.emsstrategies.com/dm090203article2.html)

[www.advancedmanufacturing.com/](http://www.advancedmanufacturing.com/)

[www.dtonline.org](http://www.dtonline.org) (Manufactured Products)

Manufacturing Resources, LSDA,

[www.vocationallearning.org.uk/teachers/subjectspecific/KS4/manufacturing.asp](http://www.vocationallearning.org.uk/teachers/subjectspecific/KS4/manufacturing.asp)

[www.ciwem.org.uk/publications/risk.asp](http://www.ciwem.org.uk/publications/risk.asp) (Risk assessment, Chartered Institute of Water and Environmental Management: Risk Assessments for Environmental Professionals)

<http://gcsemanufacturing.com/default.aspx>, (SEMTA)

[www.rewardinglearning.org.uk/microsites/manufacturing/index.asp](http://www.rewardinglearning.org.uk/microsites/manufacturing/index.asp)

## Useful General Material

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OCR Website, [www.ocr.org.uk](http://www.ocr.org.uk)

OCR micro-site, [www.gcsechanges.com](http://www.gcsechanges.com)

Customer Contact Centre (General) Tel: 01223 553998 Fax: 01223 552627

[www.gcseinManufacturing.com](http://www.gcseinManufacturing.com)

[www.bbc.co.uk/schools/gcsebitesize/](http://www.bbc.co.uk/schools/gcsebitesize/), (Revision Guide)

# Other forms of Support

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

## OCR Training

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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](http://www.ocreventbooker.org.uk) or view our new training e-books at [www.ocr.org.uk/training](http://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](mailto:training@ocr.org.uk) or telephone 02476 496398.

## e-Communities

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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

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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 free access to candidate information at your convenience. Sign up at <https://interchange.ocr.org.uk>

# Frequently Asked Questions

## B321 1A/B: Study of a Manufactured Product and Manufacturing a Product

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### **Can I make anything I like?**

No, you have to respond to one of the given Customer Design Briefs provided by OCR. You select a brief, come up with a solution and then make the solution.

### **Can I make what someone else has designed?**

No. You have to come up with the idea or solution yourself.

### **Can I make it and then do the folio?**

No. you have to do things in the correct order. If you don't then you will not be able to gain all the marks available.

### **How do I know what I have to do to get good marks?**

Your teacher will explain everything as you go along. Also the "Assessment Criteria" is printed in the specification on page 58

### **Can I submit part 1A of this unit at a different time to part 1B?**

No, you have to submit them both at the same time.

### **Can I link part 1A of this unit to part 1B of this unit?**

Yes. But it will depend on the product you look at for part 1A and the customer brief you select in Part 1B.

### **Can I do work at home for this unit?**

Yes and No. All the work you **submit for assessment** has to be undertaken in what is called "Controlled Conditions". This means your teacher should supervise you for all of your work that you submit for assessment. However, there is nothing to stop you practicing at home and improving your skills so that when you do them with your teacher they are the best you can possibly achieve.

### **Can I take as long as I like making something?**

No, there is a time limit to your Controlled Assessment for this unit and it is suggested that you spend about 6 hours on part 1A and 14 on part 1B

### **Will I have homework to do?**

Yes. Homework is a very effective way of helping to learn and remember things.

### **Can I do homework as part of my folio?**

No homework is great but only to support your learning. It cannot be submitted as evidence for your assessment.

### **Can I work as part of a team and make something jointly with my friend.**

Yes and No. You must have your own folio containing your own evidence of designing, making and evaluation for the work you submit for assessment.

But, your teacher may allow you to undertake group work or work in pairs during your course on work which is **not** submitted for assessment.

### **Will I have every lesson to do the folio work?**

No. There is a strict time limit set and you must not exceed this. You might do it bit by bit so that it spans a period of time but your actual working time is limited to 20 hours for this unit and around 14 hours for B1.

### **Can I get help from my parents?**

Yes. You can always ask your parents to explain and show you things **but** the work you submit for assessment must be all your own.

### **Can my folio be done using ICT?**

Yes. There are several ways you can do this and your teacher will explain them all to you.

### **Can I share work with other people?**

A difficult one. Sharing when you are learning is really important and a brilliant thing to do. You can explain things to others and also learn from them **but** you cannot share anything when you are doing your controlled assessment. Your folio that has your designing, evidence of your making and your evaluation in it has to be your very own work.

### **What if someone copies my work?**

You need to be very careful about letting anyone copy your work. It can be difficult to decide who's work is the original work and both of you could be penalised.

### **Will I have chance to practise things before I do my designing and making?**

Yes. The “Controlled Assessment” is only a small part of your Manufacturing course. You will be given lots of new information, shown new skills and be able to practice them before you start your folio.

### **What is “Controlled Assessment”?**

Controlled Assessment used to be called coursework and is really much the same. However there are now tighter “controls” on the work you do and the evidence you submit to OCR for assessment.

### **If I don’t do very well can I redo the folio?**

Yes. But even better than that you can “re-sit” the unit and just improve your folio rather than start all over again.

### **If I did a re-sit and my marks were worse the 2<sup>nd</sup> time would I lose out?**

No. In the case of a re-sit your best mark always counts.

### **What is coursework?**

Coursework has changed its name and the rules are much tighter now. You still do the work “during your course” but the way in which you do it has to be “controlled” more tightly now and so it is called “Controlled Assessment”

### **Can I submit my folio for assessment in year 10?**

Yes. You can submit work whenever you like (in what is called the January or June examination windows). **But** you will always be assessed using the National Standards expected to be achieved by someone at the end of year 11.

### **I’m doing the Single Award GCSE Manufacturing - can I do B231 and B234?**

No. If you are just doing the single award you must do B231 and B232.

### **I am doing the Double Award in Manufacturing - can I do B234 first?**

Yes. You can do the units in any order **but** you must be entered for at least **two** of them at the end of your course.

### **I am doing Engineering and Manufacturing can I submit the same work for both.**

No. Apart from B231A, all the units are so different anyway that the work would not be suitable for assessment for a different qualification. But even if some bits were suitable you are not allowed to submit it for two different qualifications.

If you do the 1<sup>st</sup> unit A621A and A 621B Engineering and B231 1A and B231 1B Manufacturing you **must** choose different products and customer briefs.

## **What does “Plagiarism” mean?**

Plagiarism is when work is copied from someone else or from another source for example the internet. If you submit work which has been plagiarised you could get disqualified from the Manufacturing examination completely. In serious cases you could be disqualified from **all** of your GCSE examinations.

## **If I needed some welding done and my school does not have the facilities can I get it done elsewhere?**

Yes. This often happens **but** you must declare this very clearly in your portfolio giving full details of what has been done and by whom. You cannot be given credit for the welding (or any other process in similar circumstances) and must not expect it. But it may enable you to get the other parts of your making completed.

## **I am not very good at finishing things off. Will I fail if my product is not finished?**

No. Not necessarily. You will gain some credit but you will obviously not gain as many marks for incomplete work.

## **What happens if I am ill and cannot complete my folio?**

If you are seriously ill and have a doctor's note the examination boards have different procedures to take this into account and you could still get your qualification. But if you just miss time from school or don't turn up to lessons that will not count and you will lose out.

## **What happens if I change schools during my course?**

Your work can be submitted by your new school even if they do not teach OCR Manufacturing. You will need to make sure that your new school knows the details of the specification you have been studying and that they have proof that all the work is your own. Your teacher from your old school would normally send your work to your new school with a covering note.

## **I started studying for the Double Award but I have fallen behind. Can I be entered for the Single Award instead?**

Yes. This is possible providing you have work for B231A and B231B and take the written examination B232. None of the work you have done for B233 or B234 will be of use to you if this happens.

# B232/B234: Manufacturing Processes and the Impact of Modern Technologies on Manufacturing

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## **How do I know what I have to do to get good marks?**

Your teacher will explain everything as you go along. Good general advice is to always ensure you carefully read the examination question and make sure you answer what is being asked for.

## **Can I do work at home for this unit?**

Yes. In fact you may well do much better in the final examination if you spend some time at home carefully reading through what you have been taught.

## **How many examinations will I have to do?**

You will have to sit one examination for the single Award and two examinations for the Double Award.

## **How long is the exam**

Each examination lasts 1 hour.

## **Will I have homework to do?**

Yes. Homework is a very effective way of helping to learn and remember things.

## **Can I get help from my parents?**

Yes. You can always ask your parents to explain and show you things

## **Can my folio be done using ICT?**

Yes. There are several ways you can do this and your teacher will explain them all to you.

## **What is the “Computer Based Test”?**

Instead of sitting a written paper you can do the examination on-line. Your teacher will be able to explain more about this and will be able to tell you if your school has the facilities to allow you to take the exam in this way.

## **If I don’t do very well can I redo the exam?**

Yes.

## **If I did a re-sit and my marks were worse the 2<sup>nd</sup> time would I lose out?**

No. In the case of a re-sit your best mark always counts.

## **Can I sit the examination in year 10?**

Yes. You can sit the exam whenever you like (in what is called the January or June examination windows). **But** you will always be assessed using the National Standards expected to be achieved by someone at the end of year 11.

## **I'm doing the Single Award GCSE Manufacturing - can I do B231 and B234?**

No. If you are just doing the single award you must do B231 and B232.

## **I am doing the Double Award in Manufacturing - can I do B234 first?**

Yes. You can do the units in any order **but** you must be entered for at least **two** of them at the end of your course.

## **What happens if I am ill and cannot take the exam?**

If you are seriously ill and have a doctor's note the examination boards have different procedures to take this into account and you could still get your qualification. But if you just miss time from school or don't turn up to lessons that will not count and you will lose out.

## **What happens if I change schools during my course?**

You can be entered for the exam by your new school even if they do not teach OCR Manufacturing. You will need to make sure that your new school knows the details of the specification you have been studying. Your teacher from your old school would normally send your work to your new school with a covering note.

## **I started studying for the Double Award but I have fallen behind. Can I be entered for the Single Award instead?**

Yes. This is possible providing you have work for B231A and B231B and take the written examination B232. None of the work you have done for B233 or B234 will count if this happens.

## **How much should I write for each question?**

It is not possible to give an exact answer for this. Generally speaking, the amount you write should be based on the marks available. These are shown in [square brackets] at the end of the question.

## **Will I lose marks for bad spelling?**

You must make sure that your spelling, punctuation and grammar is accurate so that the meaning is clear. However, you will not lose marks for small spelling errors that do not affect the meaning of your answer.



# Manufacturing J510: Study of a Manufactured Product and Manufacturing a Product B233 A/B

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## **Can I make anything I like?**

No, you have to respond to one of the given Products from a list provided by OCR. In a team, you select a product and produce a batch of finished items.

## **Can I make what someone else has designed?**

No. You have to come up with the idea or solution yourself.

## **Can I make it and then do the folio?**

No. you have to do things in the correct order. If you don't then you will not be able to gain all the marks available.

## **How do I know what I have to do to get good marks?**

Your teacher will explain everything as you go along. Also the "Assessment Criteria" is printed in the specification on pages 59 and 60

## **Can I submit part 1A of this unit at a different time to part 1B?**

No, you have to submit them both at the same time.

## **Can I link part 1A of this unit to part 1B of this unit?**

Yes. But it will depend on the product you look at for part 1A and the customer brief you select in Part 1B.

## **Can I do work at home for this unit?**

Yes and No. All the work you **submit for assessment** has to be undertaken in what is called "Controlled Conditions". This means your teacher should supervise you for all of your work that you submit for assessment. However, there is nothing to stop you practicing at home and improving your skills so that when you do them with your teacher they are the best you can possibly achieve.

## **Can I take as long as I like making something?**

No, there is a time limit to your Controlled Assessment for this unit and it is suggested that you spend about 6 hours on part A and 14 on part B

## **Will I have homework to do?**

Yes. Homework is a very effective way of helping to learn and remember things.

### **Can I do homework as part of my folio?**

No homework is great but only to support your learning. It cannot be submitted as evidence for your assessment.

### **Can I work as part of a team and make something jointly with my friend.**

Yes and No. You must have your own folio containing your own evidence of what you did in the team. Further details are on page 60 of the specification. However, 233B requires you to work in a team to produce a batch of items so you must also show how you can work well with others.

### **Will I have every lesson to do the folio work?**

No. There is a strict time limit set and you must not exceed this. You might do it bit by bit so that it spans a period of time but your actual working time is limited to 20 hours for this unit and around 14 hours for B1.

### **Can I get help from my parents?**

Yes. You can always ask your parents to explain and show you things **but** the work you submit for assessment must be all your own.

### **Can my folio be done using ICT?**

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### **Can I share work with other people?**

Sharing when you are learning is really important and a brilliant thing to do. You can explain things to others and also learn from them. Your folio has to be your very own work but you will be expected to share ideas with your team members when planning and monitoring the batch production work.

### **What if someone copies my work?**

You need to be very careful about letting anyone copy your work. It can be difficult to decide who's work is the original work and both of you could be penalised.

### **What is “Controlled Assessment”?**

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[www.ocr.org.uk](http://www.ocr.org.uk)

OCR customer contact centre

**General qualifications**

Telephone 01223 553998

Faxsimile 01223 552627

Email [general.qualifications@ocr.org.uk](mailto:general.qualifications@ocr.org.uk)

*For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored.*

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