
Reference Guide to Corus Curriculum Support Material for new GCSEs

Applied Science / Engineering / Manufacturing

Reference Guide to Resources for Applied GCSEs

CONTENTS	Page
How to use This Guide	2
Resource Items	3
GCSE Unit Titles and Topic Headings	4
Summary Charts:	
Applied Science	6
Engineering	7
Manufacturing	8
New Resource Items:	
Making Tracks	9
Minelifta	9
On Your Mettle	10
Some Like it Hot	10

How to use this Guide

This reference guide suggests which Corus publications are relevant to the GCSE specifications (introduced from September 2002) in three vocational subject areas:

- Applied Science
- Engineering
- Manufacturing

The guide relates to all three units for each subject. The content of these units, detailed in the Specifications as 'What You Need to Learn', is the same for all four Awarding Bodies (AQA, Edexcel, OCR and WJEC).

To identify resources for an Applied GCSE unit:

Use the Summary Charts on pages 7 to 9 that provide an overview for each subject. They indicate which resources are relevant to particular sections of each unit. The degree of relevance is indicated as follows:

- ✓ of some relevance, but limited
- ✓✓ provides useful background information
- ✓✓✓ directly relevant to the specifications

This guide covers 29 resource items, grouped under 19 titles in the Summary Charts. The items are listed on page 4.

Resources marked 'Internet only' can be accessed at www.coruseducation.com

To assess the suitability of a resource:

For outlines of these items

(and other Corus educational resources) refer to the Corus catalogue of Curriculum Support Materials:

"Partnerships in Learning" (order code RG004)

For more detailed descriptions of each item refer to:

"Reference Guide to GNVQ and VCE Resources" (order code RG003)

A list of the items, with the relevant page numbers in the 2003 GNVQ Guide, is shown overleaf.

New items, not included in the 2001 GNVQ Guide, are described on pages 10 and 11 of this GCSE Guide.

Both the above publications are obtainable free of charge from:

Corus Education Service, PO Box 10, Wetherby LS23 7EL
Tel: 01937 840243 Fax: 01937 845381 E-mail: corus@twoten.press.net

An up-to-date list of Corus resources, together with an electronic order form, is also accessible at: www.coruseducation.com
General information about Corus is available on the main website: www.corusgroup.com

Resource Items

Page in GNVQ Guide*		Corus Catalogue Number
12	A Canny Design	S015
13	Chemistry of Steelmaking	Internet Only
15	Coating Steel	S009
15	Coating Steel poster	CSP
17	Continuous Casting poster	SCCP
18	Corus Environment Report	S017/B
20	Engineering Steels poster	ESP
21	GCSE Science Pack	S004
23	Making Steel	S003
23	Making Steel (CD-Rom version)	S003/CD
23	Making Steel poster	S001
23	Making Steel video	SV002
24	Making Tracks	Internet Only
25	Managing Health and Safety - A Quality Approach	T100/4
26	Materials Database	S014
29	Minelifta	Internet Only
30	On Your Mettle	Internet Only
31	Physics in Steelmaking	Internet Only
33	Shaping Metals	S008
33	Shaping Steel poster	SSP
34	Some like it Hot	Internet Only
37	The Steel Story	S020
37	The Steel Story - Place of Work Booklet	S020/A
37	The Steel Story video	SV001
39	Using Steel	S021
39	Using Steel poster	USP

* Corus Reference Guide to GNVQ and VCE Resources -Third Edition, 2003

GCSE Unit Titles and Topic Areas

The unit titles and topic headings for each GCSE are shown below.

The Summary Grids indicate the relevance of resource items to each topic.

Applied Science

Unit 1: Developing Scientific Skills

- Working safely in science
 - Hazards and risks
 - First aid
 - Fire prevention
- Carrying out practical tasks
 - Following standard procedures
 - Handling scientific equipment and materials
 - Recording and analysing scientific data
- Investigating living organisms
 - Microscopy
 - Micro-organisms
- Chemical analysis
 - Qualitative analysis
 - Quantitative analysis
- Investigating materials
 - Electrical properties
 - Other physical properties

Unit 2: Science for the Needs of Society

- Living organisms
- Obtaining useful chemicals
- Materials for making things
- The importance of energy
 - Energy resources
 - Energy efficiency
 - Heating systems at work

Unit 3: Science at Work

- Science in the workplace
- Making Useful products
- Instruments and machines
- Monitoring living organisms

Engineering

Unit 1: Design & Graphical Communication

- Design briefs
- Design specifications and solutions
- Engineering drawings
- Choosing engineering drawing techniques
- Presenting a design solution

Unit 2: Engineered Products

- Using a product specification
- Production planning
- Choosing materials, parts and components
- Using processes
- Quality control techniques
- Tools and equipment
- Health and safety

Unit 3: Application of Technology

- Manufacturing and engineering sectors
- New technology
 - Information & Communications Technology
 - Modern and smart materials
 - Systems and control technology
- Stages in engineering and manufacturing a product
- Investigating products

GCSE Unit Titles and Topic Areas (continued)

Manufacturing

Unit 1: Designing Products for Manufacture

- Design briefs
- Product design specifications
- Material details and constraints
- Production details and constraints
- Quality standards
- Developing design ideas
- Presenting your design solution
- Modifying design solutions

Unit 2: Manufactured Products

- Production plans and schedule for manufacture
- Teamwork
- Preparing materials, components, ingredients, tools, equipment and machinery
- Processing materials and components
- Combining, assembling and finishing materials and components / ingredients
- Applying Quality and Production Control Techniques during manufacture
- Health, safety and hygiene

Unit 3: Application of Technology

- Manufacturing and engineering sectors
- New technology
 - Information & Communications Technology
 - Modern and smart materials
 - Systems and control technology
- Stages in engineering and manufacturing a product
- Investigating products

Summary Chart - Engineering

Catalogue Number & Title		Resource type							Unit 1						Unit 2						Unit 3				
		Booklet	Activity sheets	Teachers' notes	Resource pack	Video	Poster	Disk / CD-ROM	Interactive on-line access	Design briefs	Design space & solutions	Engineering drawings	Choosing drawing techniques	Presenting a design solution	Using a product specification	Production planning	Choosing materials etc.	Using Processes	Quality control techniques	Tools & equipment	Health & Safety	Manuf. & Engineering Sectors	New technology	Stages in producing a product	Investigating products
S003	Making Steel	•																							
S004	GCSE Science Pack				•																				
S008	Shaping Metals	•				•																			
S009	Coating Steel	•																							
S014	Materials Database	•																							
S015	A Canny Design	•								✓															
S017/B	Corus Environmental Report	•																							
S020	The Steel Story	•	•																						
S021	Using Steel	•																							
T100/4	Managing Health and Safety	•																							
ESP	Engineering Steels																								
SCCP	Continuous Casting of Steel																								
	Chemistry of Steelmaking																								
	Making Tracks																								
	Minelifta																								
	On Your Metal																								
	Physics in Steelmaking																								
	Some Like it Hot																								

✓✓✓ Directly relevant to Unit ✓✓ Useful background information ✓ Some relevance

New Resource Items

These items are not covered by the “Reference Guide to GNVQ and AVCE Resources”.

Making Tracks



Internet only Accessible at www.coruseducation.com

	Sci	Eng	Man
Unit 1	✓		
Unit 2	✓✓✓	✓	
Unit 3	✓		

Free

Extensive interactive on-line resource covering the physical properties needed for steel railway rails, and their manufacture. Includes numerous animations of processes and test procedures. Much of the detail is beyond GCSE, but the resource is structured so that individual sections may be accessed as required.

Sections cover:

- needs - shape, durability, hardness (Includes simulation of Brinell test)
- properties - related to composition & microstructure of steel grades
- manufacture - continuous casting & rolling into shape
- finishing - quality control tests, including straightness

Interactive features include:

- user-participation in animations
- a quiz (with 'rewards') for each section
- pop-up 'Tell Me More' text windows
- facility to print out notes (language = upper GCSE / post-16)
- glossary of 60+ key words and terms

Minelifta



Internet only Accessible at www.coruseducation.com

	Sci	Eng	Man
Unit 1		✓	✓
Unit 2	✓	✓	
Unit 3			

Free

Brief description and animation of Minelifta, a Corus-designed armour plated 'tractor', used to clear anti-personnel mines from minefields in former conflict zones. Animation shows its main components and how it collects and explodes mines, while protecting the driver.

Useful stimulus to promote discussion on the special properties of materials required for this 'extreme' application.

Includes 'Quiz' testing pupils' grasp of main points.

On Your Mettle



Internet only Accessible at www.coruseducation.com

	Sci	Eng	Man
Unit 1	✓		
Unit 2	✓	✓	
Unit 3			

Free

Designed as a 'Virtual Activity Centre' for KS2 and KS3 to try out simple interactive 'experiments' relating to properties of materials. Limited (as at December 2002) to thermal and electrical conduction tests. Regular additions promised.

Not GCSE material (and no substitute for genuine practicals), but might provide quick and easy reminder of previous work as an introduction to further materials testing in the laboratory.

Users click to assemble apparatus and control the tests on 8 materials. Results automatically transfer to a 'note-book', where questions guide the writing of a lab report. Links to further information provide simple explanations of the results. Teachers' notes give more detailed information and data; though aimed at KS2 non-science-specialists, rather than trained science teachers

Some Like it Hot



Internet only Accessible at www.coruseducation.com

	Sci	Eng	Man
Unit 1		✓✓	✓✓
Unit 2	✓	✓✓	✓✓
Unit 3			

Free

Brief description and animated diagram of self-heating can of coffee. Shows how it works and highlights design considerations and materials used to meet design requirements.

Takes only a few minutes to view, but could stimulate discussions on:

- exothermic reactions
- choice of reactants and quantities
- thermal conduction
- corrosion resistance
- design considerations:
 - materials
 - shape / capacity of inner & outer container
 - safety
 - reliability
 - disposal / recycling
- design of self-chilling can

www.coruseducation.com

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