

# Level 2 Award in Principles of Carbon Management (0674-01)

May 2011 Version 1.0





## Qualification at a glance

<b>Subject area</b>	Principles of Carbon Management
<b>City &amp; Guilds number</b>	0674
<b>Age group approved</b>	All
<b>Entry requirements</b>	16+
<b>Assessment</b>	Centre marked short-answer question test
<b>Support materials</b>	Qualification handbook Assessment pack
<b>Registration and certification</b>	Consult the Walled Garden/Online Catalogue for last dates

<b>Title and level</b>	<b>City &amp; Guilds number</b>	<b>Accreditation number</b>
Level 2 Award in Principles of Carbon Management	0674-01	600/1623/1



# Contents

<b>1</b>	<b>Introduction</b>	<b>4</b>
	Structure	4
<b>2</b>	<b>Centre requirements</b>	<b>5</b>
	Approval	5
	Resource requirements	5
	Candidate entry requirements	6
<b>3</b>	<b>Delivering the qualification</b>	<b>7</b>
	Support materials	7
<b>4</b>	<b>Assessment</b>	<b>8</b>
	Assessment of the qualification	8
<b>5</b>	<b>Units</b>	<b>9</b>
<b>Unit 201</b>	<b>Principles of carbon management</b>	<b>10</b>
	Source materials	14
	Guidance	15
<b>Appendix 1</b>	<b>Relationships to other qualifications</b>	<b>16</b>
<b>Appendix 2</b>	<b>Sources of general information</b>	<b>17</b>



# 1 Introduction

This document tells you what you need to do to deliver the qualification:

Area	Description
Who is the qualification for?	For learners who want to learn more around the principles of carbon management. It is ideal for those who wish to gain awareness of what carbon management is about. It is designed to delve into the topic without requiring a specialist or technical background in the subject. This makes it ideal for those working for an organisation that has begun to take carbon management seriously and wants to become more aware to the issue. The introduction also suits those small or large businesses/employers that want to understand how legislation may affect them. Carbon management is fast becoming a key issue for any industry using vast amounts of energy. This qualification is complementary to many industry jobs, particularly, but not exclusively, within manufacturing, processing, transport, and engineering. Anyone part of an organisational shift towards better carbon management would find this qualification a useful introduction.
What does the qualification cover?	It allows learners to gain an awareness of the key principles of carbon management.
What opportunities for progression are there?	City & Guilds are currently developing full Level 2 and Level 3 qualifications in Carbon Management which will go into further depth on this subject.

## Structure

To achieve the **Level 2 Award in Principles of Carbon Management**, learners must achieve **2** credits from the mandatory unit.

Unit accreditation number	City & Guilds unit number	Unit title	Credit value
<b>Mandatory unit</b>			
T/503/1443	201	Principles of Carbon Management	2



## 2 Centre requirements

### Approval

To offer this qualification, new centres will need to gain both centre and qualification approval. Please refer to the *Centre Manual - Supporting Customer Excellence* for further information.

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualification before designing a course programme.

### Resource requirements

#### Physical resources and site agreements

Centres must have an adequate learning environment. There are no specialist plant or equipment requirements to deliver this qualification.

#### Centre staffing

Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be technically competent in the areas for which they are delivering training and/or have experience of providing training in this area. This knowledge must be at least to the same level as the training being delivered
- have recent relevant experience in the specific area they will be teaching/assessing
- be occupationally knowledgeable in the area for which they are delivering training. This knowledge must be at least to the same level as the training being delivered
- have credible experience of providing training.

#### Assessors and internal verifiers

Centre staff should hold, or be working towards, the relevant Assessor/Verifier (A/V) units for their role in delivering, assessing and verifying these qualifications, or meet the relevant experience requirements above.

Centre staff may undertake more than one role, e.g. tutor and assessor or internal verifier, but must never internally verify their own assessments.

#### Continuing professional development (CPD)

Centres must support their staff to ensure that they have current knowledge of the occupational area, that delivery, mentoring, training, assessment and verification is in line with best practice, and that it takes account of any national or legislative developments.

## **Candidate entry requirements**

City & Guilds does not set entry requirements for this qualification. However, centres must ensure that candidates have the potential and opportunity to gain the qualification successfully.

## **Age restrictions**

City & Guilds cannot accept any registrations for candidates under 16 as this qualification is not approved for under 16s.



### 3 Delivering the qualification

#### Support materials

The following resources are available for this qualification:

Description	How to access
Assessment pack	City & Guilds website

For further information to assist with the planning and development of the programme, please refer to the following:

Carbon Trust Publications:

**<http://www.carbontrust.co.uk/publications/Pages/home.aspx>**

European Commission:

**[http://ec.europa.eu/environment/climat/emission/index\\_en.htm](http://ec.europa.eu/environment/climat/emission/index_en.htm)**

Biomass Energy Centre:

**<http://www.biomassenergycentre.org.uk>**

WRAP (Waste and Recycling)

**<http://www.wrap.org.uk/>**

Department of Energy and Climate Change:

**<http://www.decc.gov.uk/>**



## 4 Assessment

### Assessment of the qualification

Candidates must:

- successfully complete one short answer question paper

City & Guilds has written the following assessments to use with this qualification:

- a short-answer question paper

### Time constraints

The following must be applied to the assessment of this qualification:

- Candidates must finish their assessment within the candidate's registration period

### Verification of assessments

Centres must use the provided documentation to ensure that external verifiers can check that evidence for an assessment is complete and can ensure that the allocation of marks is fair and beyond dispute. Centres may devise additional documentation/forms to support those provided by City & Guilds. If a candidate's work is selected for verification, samples of work must be made available to the appointed external verifier who will ensure that

- the quality assurance co-ordinator is undertaking his/her responsibilities
- the quality assurance co-ordinator is given prompt, accurate and constructive feedback on centre operations
- a report is written on centre activities for City & Guilds.

### Internal quality assurance

Approved centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications.

Quality assurance includes initial centre approval, qualification approval and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance, and City & Guilds is responsible for external quality assurance.

Full details and guidance on the internal and external quality assurance requirements and procedures, are provided in *Centre Manual - Supporting Customer Excellence*. This document also explains the tasks, activities and responsibilities of quality assurance staff.

### Retention of evidence

In order to fully support candidates, centres are required to retain copies of candidates' assessment records for **three years** after certification.





## 5 Units

### Availability of units

The following unit is on The Register of Regulated Qualifications:  
**<http://register.ofqual.gov.uk/Unit>**

### Structure of units

The unit has the following:

- City & Guilds reference number
- unit accreditation number (UAN)
- title
- level
- credit value
- unit aim
- learning outcomes which are comprised of a number of assessment criteria .

<b>UAN:</b>	T/503/1443
<b>Level:</b>	2
<b>Credit value:</b>	2
<b>GLH:</b>	12
<b>Aim:</b>	<p>This unit enables the learner to develop some understanding of carbon management and the effects of climate change. They will gain knowledge of global and regional climate policy, business drivers, carbon footprints and emission reduction.</p> <p>It is suitable for young and adult learners with little or no knowledge of carbon management or climate change.</p>

<b>Learning outcome</b>
<p>The learner will:</p> <ol style="list-style-type: none"> <li>1. Understand the effects of climate change</li> </ol>
<b>Assessment criteria</b>
<p>The learner can:</p> <ol style="list-style-type: none"> <li>1.1 explain the difference between weather and climate</li> <li>1.2 explain the terms 'climate variability' and 'climate change'</li> <li>1.3 identify the trend of global average temperature</li> <li>1.4 explain the effect of <b>drivers</b> of climate change</li> <li>1.5 describe the predicted <b>impact</b> of climate change</li> <li>1.6 explain the terms adaptation and mitigation.</li> </ol>

<b>Range</b>
<p><b>Drivers</b></p> <p>Natural - sun volcanoes; human - greenhouse gases and land-use change</p> <p><b>Impact</b></p> <p>Weather, natural resources, economic, demographics, globally and locally.</p>

<b>Source documentation</b>
<p>IPCC Fourth Assessment Report: Climate Change 2007 (AR4), (<a href="http://www.ipcc.ch">http://www.ipcc.ch</a> )</p>

<b>Learning outcome</b>
The learner will: 2. Know the key features of climate policy
<b>Assessment criteria</b>
The learner can: 2.1 describe the <b>key features</b> of the United Nations Framework Convention on Climate Change 2.2 describe the <b>key features</b> of the Kyoto Protocol 2.3 describe the <b>key features</b> of the Energy Performance of Buildings Directive 2.4 describe the <b>international relevance</b> of the UK Climate Change Act

<b>Range</b>
<p><b>Key features - United Nations Framework Convention on Climate Change</b> Objective, principles ,commitments, Conference of the Parties, protocols</p> <p><b>Key features - Kyoto Protocol</b> Purpose, implementation of guidance, ‘Basket of six – greenhouse gases’</p> <p><b>Key features - Energy Performance of Buildings Directive</b> Objectives, minimum standards, energy assessments and inspections</p> <p><b>International relevance</b> Lessons learnt, approach, potential model, drawbacks</p>

<b>Source documentation</b>
<p>‘United Nations Framework Convention on Climate Change’, Fifth session 1992, United Nations (<a href="http://unfccc.int">http://unfccc.int</a> )</p> <p>‘Kyoto Protocol to the United Nations Framework Convention on Climate Change’, 1998, United Nations (available at <a href="http://unfccc.int">http://unfccc.int</a> )</p> <p>‘Directive 2002/91/EC of the European Parliament and of the Council on the Energy Performance of Buildings’ (available at <a href="http://eur-lex.europa.eu/en/index">http://eur-lex.europa.eu/en/index</a>)</p>

<b>Learning outcome</b>
The learner will: 3. Understand the business drivers of carbon management
<b>Assessment criteria</b>
The learner can: 3.1 identify regulations aimed at improving energy efficiency and reducing emissions of organisations 3.2 describe the <b>impact</b> of regulations on carbon management for different types of organisations

- 3.3 explain the relationship between carbon emissions and energy costs to an organisation
- 3.4 explain the effect of carbon management on an organisation's reputation
- 3.5 identify the key threats and opportunities to organisations from carbon management issue

### Range

**Impact:** - positive and negative

### Regulations

- European Union Emissions Trading System
- European Union Energy labels (White Goods, EPB Regulations)
- Energy Services Directive
- CRC Energy Efficiency Scheme
- Ozone Depleting Substances Regulations
- F Gas Regulations

### Source documentation

'Practical Energy Management', CT023, Carbon Trust

'Better Business Guide to Energy Saving', CTV034, Carbon Trust

'Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community' (available at <http://eur-lex.europa.eu/en/index>)

'Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products' (available at <http://eur-lex.europa.eu/en/index>)

'Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006' (available at <http://eur-lex.europa.eu/en/index>)

'The CRC Energy Efficiency Scheme – User Guide', 6 April 2010, Department of Energy and Climate Change (available at <http://www.decc.gov.uk>)

'Directive EC 2037/2000 (and Amendments 2038 & 2039) of the European Parliament and of the Council on Substances that Deplete the Ozone Layer' (available at <http://eur-lex.europa.eu/en/index>)

'Directive EC 842/2006 of the European Parliament and of the Council on Certain Fluorinated Gases' (available at <http://eur-lex.europa.eu/en/index>)

<b>Learning outcome</b>
The learner will: 4. Understand carbon footprints and options for emission reduction
<b>Assessment criteria</b>
The learner can: 4.1 define the term 'carbon footprint' 4.2 identify the greenhouse gases commonly included in carbon footprint calculations 4.3 identify the main sources of greenhouse gas emissions 4.4 explain the difference between direct and indirect emissions 4.5 explain the term 'tonnes of carbon dioxide equivalent (tCO <sub>2</sub> e)' 4.6 describe how a carbon footprint calculation helps to manage and reduce emissions 4.7 identify <b>options</b> for reducing emissions in an organisation

<b>Range</b>
<b>Options</b> Fuel, building, equipment, behaviour, renewable energy generation

<b>Source documentation</b>
<p>'Kyoto Protocol to the United Nations Framework Convention on Climate Change', 1998, United Nations (available at <a href="http://unfccc.int">http://unfccc.int</a> )</p> <p>'Energy Management Systems – Requirements with guidance for use', BS EN 16001:2009, BSI British Standards</p> <p>'Improving the energy efficiency of our homes and buildings – Energy certificates and air conditioning inspections for buildings', Act on CO<sub>2</sub>, Department for Communities and Local Government</p> <p>'Practical Energy Management', CT023, Carbon Trust</p> <p>'Better Business Guide to Energy Saving', CTV034, Carbon Trust</p> <p>'Conversion Factors – Energy and Carbon Conversions – 2009 Update', CTL085, Carbon Trust</p> <p>'Carbon Footprinting', CTV043, Carbon Trust</p> <p>'Product Carbon Footprinting', CTFC004, Carbon Trust</p> <p>'Making the Business Case for a Carbon Reduction Project', CTV039, Carbon Trust</p> <p>(All available at <a href="http://www.carbontrust.co.uk/publications">http://www.carbontrust.co.uk/publications</a>)</p>

# Unit 201 Principles of carbon management

## Supporting information

### Source materials

The documents provided below are freely accessible to the public and can be sought from the relevant organisations via their webpages.

It should be noted that the documents listed below should form the basis for the material to be delivered and will be the primary documents used for the assessment of this qualification.

IPCC Fourth Assessment Report: Climate Change 2007 (AR4), (<http://www.ipcc.ch>)

‘United Nations Framework Convention on Climate Change’, Fifth session 1992, United Nations, (<http://unfccc.int>)

‘Kyoto Protocol to the United Nations Framework Convention on Climate Change’, 1998, United Nations (available at <http://unfccc.int>)

‘Montreal Protocol on Substances that Deplete the Ozone Layer’, 2000, United Nations Environment Programme (available at <http://www.unep.org/ozone>)

‘Directive 2002/91/EC of the European Parliament and of the Council on the Energy Performance of Buildings’ (available at <http://eur-lex.europa.eu/en/index>)

‘Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community’ (available at <http://eur-lex.europa.eu/en/index>)

‘Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products’ (available at <http://eur-lex.europa.eu/en/index>)

‘Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006’ (available at <http://eur-lex.europa.eu/en/index>)

‘The CRC Energy Efficiency Scheme – User Guide’, 6 April 2010, Department of Energy and Climate Change (available at <http://www.decc.gov.uk>)

‘Directive EC 2037/2000 (and Amendments 2038 & 2039) of the European Parliament and of the Council on Substances that Deplete the Ozone Layer’ (available at <http://eur-lex.europa.eu/en/index>)

'Directive EC 842/2006 of the European Parliament and of the Council on Certain Fluorinated Gases' (available at <http://eur-lex.europa.eu/en/index>)

'Energy Management Systems – Requirements with guidance for use', BS EN 16001:2009, BSI British Standards

'Improving the energy efficiency of our homes and buildings – Energy certificates and air conditioning inspections for buildings', Act on CO2, Department for Communities and Local Government

'Practical Energy Management', CT023, Carbon Trust

'Better Business Guide to Energy Saving', CTV034, Carbon Trust

'Conversion Factors – Energy and Carbon Conversions – 2009 Update', CTL085, Carbon Trust

'Carbon Footprinting', CTV043, Carbon Trust

'Product Carbon Footprinting', CTFC004, Carbon Trust

'Making the Business Case for a Carbon Reduction Project', CTV039, Carbon Trust

(All Carbon Trust documents available at <http://www.carbontrust.co.uk/publications>)

## **Guidance**

Assessors should be teaching to current legislation and regulations.



## Appendix 1 Relationships to other qualifications

### Literacy, language, numeracy and ICT skills development

This qualification can develop skills that can be used in the following qualifications:

- Functional Skills (England) – see **[www.cityandguilds.com/functionalskills](http://www.cityandguilds.com/functionalskills)**
- Essential Skills (Northern Ireland) – see **[www.cityandguilds.com/essentialskillsni](http://www.cityandguilds.com/essentialskillsni)**
- Essential Skills Wales (from September 2010).





## Appendix 2 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centres and Training Providers homepage** on **[www.cityandguilds.com](http://www.cityandguilds.com)**.

***Centre Manual - Supporting Customer Excellence*** contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues. Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

***Access to Assessment & Qualifications*** provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information such on such things as:

- **Walled Garden:** how to register and certificate candidates on line
- **Qualifications and Credit Framework (QCF):** general guidance about the QCF and how qualifications will change, as well as information on the IT systems needed and FAQs
- **Events:** dates and information on the latest Centre events
- **Online assessment:** information on how to register for GOLLA/e-volve assessments.

**Centre Guide – Delivering International Qualifications** contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve ‘approved centre’ status, or to offer a particular qualification. Specifically, the document includes sections on:

- The centre and qualification approval process and forms
- Assessment, verification and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Frequently asked questions.

## Useful contacts

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### UK learners

General qualification information

T: +44 (0)844 543 0033

E: **learnersupport@cityandguilds.com**

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### International learners

General qualification information

T: +44 (0)844 543 0033

F: +44 (0)20 7294 2413

E: **intcg@cityandguilds.com**

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### Centres

Exam entries, Certificates,  
Registrations/enrolment, Invoices,  
Missing or late exam materials,  
Nominal roll reports, Results

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

E: **centresupport@cityandguilds.com**

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### Single subject qualifications

Exam entries, Results, Certification,  
Missing or late exam materials,  
Incorrect exam papers, Forms  
request (BB, results entry), Exam  
date and time change

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

F: +44 (0)20 7294 2404 (BB forms)

E: **singlesubjects@cityandguilds.com**

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### International awards

Results, Entries, Enrolments,  
Invoices, Missing or late exam  
materials, Nominal roll reports

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

E: **intops@cityandguilds.com**

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### Walled Garden

Re-issue of password or username,  
Technical problems, Entries,  
Results, GOLLA, Navigation,  
User/menu option, Problems

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

E: **walledgarden@cityandguilds.com**

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### Employer

Employer solutions, Mapping,  
Accreditation, Development Skills,  
Consultancy

T: +44 (0)121 503 8993

E: **business@cityandguilds.com**

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### Publications

Logbooks, Centre documents,  
Forms, Free literature

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

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## **About City & Guilds**

As the UK's leading vocational education organisation, City & Guilds is leading the talent revolution by inspiring people to unlock their potential and develop their skills. We offer over 500 qualifications across 28 industries through 8500 centres worldwide and award around two million certificates every year. City & Guilds is recognised and respected by employers across the world as a sign of quality and exceptional training.

## **City & Guilds Group**

The City & Guilds Group operates from three major hubs: London (servicing Europe, the Caribbean and Americas), Johannesburg (servicing Africa), and Singapore (servicing Asia, Australia and New Zealand). The Group also includes the Institute of Leadership & Management (management and leadership qualifications), City & Guilds Land Based Services (land-based qualifications), the Centre for Skills Development (CSD works to improve the policy and practice of vocational education and training worldwide) and Learning Assistant (an online e-portfolio).

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