

## Higher National Unit specification

### General information for centres

**Unit title:** Glass: Copper Foil Work

**Unit code:** F1RT 34

**Unit purpose:** This Unit is designed to enable candidates to cut glass to different shapes, apply copper foil and solder pieces of glass into 3D shapes using a variety of materials tools and equipment. It is suitable for those undertaking a course of study in decorative glasswork or those working in the glass industry.

On completion of the Unit the candidate should be able to:

- 1 Cut and grind glass to a given cartoon.
- 2 Apply copper foil to glass.
- 3 Prepare and solder panels.
- 4 Apply patina and clean object.

**Credit points and level:** 1 HN credit at SCQF level 7: (8 SCQF credit points at SCQF level 7\*)

*\*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

**Recommended prior knowledge and skills:** While access to this Unit is at the discretion of the centre, candidates would benefit from having prior knowledge of glasswork. This may be demonstrated by possession of NQ Units in Decorative Glasswork at SCQF level 5 or 6.

**Core Skills:** There are opportunities to develop the Core Skill of Problem Solving and Working with Others at SCQF level 5 in this Unit, although there is no automatic certification of Core Skills or Core Skills components.

**Context for delivery:** If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

**Assessment:** This Unit will be assessed holistically with a centre-devised practical project and a set of written or oral questions.

## Higher National Unit specification: statement of standards

**Unit title:** Glass: Copper Foil Work

**Unit code:** F1RT 34

The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

### Outcome 1

Cut and grind glass to a given cartoon

#### Knowledge and/or Skills

- ◆ Cartoons
- ◆ Glass cutting techniques including straight and irregular shapes
- ◆ Glass grinding techniques
- ◆ Grinder equipment
- ◆ Glass types
- ◆ Health and safety requirements

#### Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can, with reference to a given brief:

- ◆ use four different types of glass
- ◆ cut straight and curved shapes both internal and external
- ◆ use cartoons to cut glass
- ◆ produce templates
- ◆ use a light box to illuminate a cartoon
- ◆ set up a grinder according to manufacturer's instructions
- ◆ use grinder correctly to grind the edges of glass so that there are no rough edges and grinding is carried out evenly
- ◆ follow all health and safety requirements for the materials and machines being used

Candidate performance should be recorded in an observation schedule. The practical evidence should be supported by written/oral responses to four questions on the processes covered in this Outcome.

#### Assessment Guidelines

The assessment of this Outcome can be combined with Outcomes 2, 3 and 4 as part of a single assessment for the Unit, details of which are given under Outcome 4 below.

## Higher National Unit specification: statement of standards (cont)

**Unit title:** Glass: Copper Foil Work

### Outcome 2

Apply copper foil to glass

#### Knowledge and/or Skills

- ◆ Types of foil
- ◆ Sizes of foil
- ◆ Application techniques
  - manual
  - aided
- ◆ Crimping, smoothing and dressing down techniques
- ◆ Foilers
- ◆ Crimpers
- ◆ Seam rollers
- ◆ Fids

#### Evidence Requirements

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can, with reference to a given brief:

- ◆ select appropriate materials and tools
- ◆ apply foil by hand and with a foiler to straight and complex shapes
- ◆ smooth down edges using crimpers, fids and seam rollers ensuring they are sealed down against the glass to prevent fluid seeping between foil and glass causing failure

Candidate performance should be recorded in an observation schedule. The practical evidence should be supported by written/oral responses to four questions on the processes covered in this Outcome.

#### Assessment Guidelines

The assessment of this Outcome can be combined with Outcomes 1, 3 and 4 as part of a single assessment for the Unit, details of which are given under Outcome 4 below.

### Outcome 3

Prepare and solder panels

#### Knowledge and/or Skills

- ◆ Types of solder
- ◆ Uses of solder
- ◆ Types of solder beads
- ◆ Maintenance of solder irons
- ◆ Health and safety procedures

## **Higher National Unit specification: statement of standards (cont)**

**Unit title:** Glass: Copper Foil Work

### **Evidence Requirements**

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can produce a 3D object which includes:

- ◆ two different types of solder beads of a smooth and consistent size one of which should be of a decorative nature involving two different grades of solder

Candidate performance should be recorded on an observation schedule which should include observing the candidate carrying out soldering iron maintenance and following health and safety procedures.

The practical evidence should be supported by written/oral responses to four questions on the processes covered in this Outcome.

### **Assessment Guidelines**

The assessment of this Outcome can be combined with Outcomes 1, 2 and 4 as part of a single assessment for the Unit, details of which are given under Outcome 4 below.

## **Outcome 4**

Apply patina and clean object

### **Knowledge and/or Skills**

- ◆ Types of patina
- ◆ Cleaning methods
- ◆ Application of patina

### **Evidence Requirements**

Candidates will need to provide evidence to demonstrate their knowledge and/or skills by showing that they can, with reference to a given brief:

- ◆ wash glass removing all traces of flux
- ◆ apply patinas evenly (copper, black and verdigris) to achieve the required effect
- ◆ clean finished 3D object so that there is no smearing, or residue

Candidate performance should be recorded in an observation schedule. The practical evidence should be supported by written/oral responses to four questions on the processes covered in this Outcome.

## Higher National Unit specification: statement of standards (cont)

**Unit title:** Glass: Copper Foil Work

### Assessment Guidelines

The assessment of this Outcome can be combined with Outcomes 1, 2 and 3 as part of a single assessment for the Unit.

Candidates could be asked to produce a 3D object to meet a given specification which could be a commission given to the candidate by a client or could be a centre-devised project. The production of this 3D object should be recorded in an observation schedule which should record the candidate use of:

- ◆ glass cutting techniques and use of correct tools in a safe manner
- ◆ accurate use of cartoons
- ◆ grinding techniques
- ◆ choice of suitable types and sizes of copper foil to meet the given specification
- ◆ use of correct application tools
- ◆ assembly techniques
- ◆ use of fluxes and their application to ensure good soldering
- ◆ selection and use of solder such as 60/40 tin/lead, 50/50 or 40/60

Overall the 3D object should be completed to a commercially acceptable standard.

Additionally, candidates will be expected to show continuing care and maintenance of tools including:

- ◆ sharpening of tools
- ◆ maintenance of grinders and soldering irons
- ◆ adherence to health and safety requirements in the workshop
- ◆ appropriate use of protective clothing and equipment
- ◆ use of tools and equipment which matches manufacturers' instructions

In addition to the practical assessment 16 questions should be correctly answered by candidates — four questions about the techniques used at each stage of production. These questions could cover areas such as selection of appropriate materials and tools, preparation of equipment, producing the artefact such as a lampshade or terrarium to meet the brief and ensuring that health and safety procedures were followed throughout.

These questions should be open-book and would usually be asked by the assessor at the time of observing candidate performance to ensure understanding.

Health and safety and production processes could be recorded in an Observation Schedule.

## Administrative Information

**Unit code:** F1RT 34  
**Unit title:** Glass: Copper Foil Work  
**Superclass category:** JR  
**Original date of publication:** August 2007  
**Version:** 01

### History of changes:

Version	Description of change	Date

**Source:** SQA

© Scottish Qualifications Authority 2007

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of Higher National qualifications.

Additional copies of this Unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Customer Contact Centre for further details, telephone 0845 279 1000.

## **Higher National Unit specification: support notes**

### **Unit title:** Glass: Copper Foil Work

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

### **Guidance on the content and context for this Unit**

This Unit is an optional Unit in the HNC/HND Art Glass Production Group Awards. Its purpose is to introduce candidates to the use of copper foiling techniques using a variety of materials, tools and equipment. It is likely to be delivered in the first year of an HND course.

The kind of equipment which will be used in this Unit will include different types of soldering irons — gas and electric. Candidates should also use different types of copper foils and sizes eg black backed, silver backed and standard scalloped edged.

The use of the following tools should be covered in the Unit – glass cutting tools, foiling tools and soldering irons. The importance of cleanliness and tidiness in the work area should be stressed throughout the Unit.

Candidates should be encouraged not only to follow Health and Safety requirements in the workplace but to research any specific manufacturer's instructions supplied with equipment. Manufacturers' catalogues and websites could be used as a source of reference for materials and equipment.

### **Guidance on the delivery and assessment of this Unit**

The bulk of the work in this Unit is in Outcomes 1 and 3 and candidates will need to practise their techniques prior to assessment until they have achieved a level of competence where they can produce a variety of solder beads and 3D shapes.

The Unit lends itself to holistic assessment. Candidates should be given a practical assessment in manufacturing a 3D object. This could be centre devised and could be, for example, a lampshade or a terrarium. The practical assessment should be supported by a written exercise of 16 questions — four short answer questions on each Outcome.

#### ***Opportunities for developing Core Skills***

Candidates develop their Problem Solving skills by determining the materials, tools and equipment which should be used to meet the brief given. These skills would be developed throughout the Unit by presenting candidates with mini-briefs to work to so that they make decisions, plan their work and organise the resources needed to carry out tasks. Working within a workshop environment would involve candidates Working with Others to negotiate use of equipment at certain times. Candidates will not only have to plan and organise their work but they will have to assess their work as it progresses — in particular when things do not work out and there are flaws, so that they can amend these flaws and minimise wastage.

## **Higher National Unit specification: support notes (cont)**

**Unit title:** Glass: Copper Foil Work

### **Open learning**

This Unit is not suitable for Open learning due to the equipment used and health and safety requirements.

For further information and advice, please refer to the SQA guide *Assessment and Quality Assurance for Open and Distance Learning* [www.sqa.org.uk](http://www.sqa.org.uk).

### **Candidates with disabilities and/or additional support needs**

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* ([www.sqa.org.uk](http://www.sqa.org.uk)).



## **General information for candidates**

### **Unit title:** Glass: Copper Foil Work

In this Unit you will learn how to cut glass to shapes using cartoons — these are patterns of shapes of glass. You will learn how to grind the edges of the glass and apply copper foil — this is just like sticky tape which you solder together to make bigger pieces using soldering irons to melt the solder. You will also learn how to apply patina to your soldering — this just colours it. You will learn about health and safety in the workplace, as well as how to use the equipment.

You will practise making different types of 3D objects using these new skills. These objects could include lampshades or terrariums (small glass greenhouses for plants etc).

You will be assessed by your tutor who will observe and record the things that you are asked to do in a practical assignment. This practical assignment will be supported by written/oral responses to a set of questions covering all Outcomes.

You will have the opportunity to develop the Core Skills of Working with Others and Problem Solving in this Unit. You will develop your Problem Solving skills by planning, developing and evaluating what you do — not all processes will work out exactly the way you planned them and you may need to experiment or correct errors as you work. Your Working with Others skills will be developed through consultation/negotiation with colleagues regarding the use of equipment, tools, etc.