Entry 3 Skills for Working Life (4807-03)

August 2014 Version 1.0

Unit recording documents for Metalwork (Units 396-400)
City & Guilds
Believe you can

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### METALWORK E3

**Unit no:** 396  
**Unit title:** Drill holes in metal  
**Credit value:** 2

**Guidance:** For this unit the learner is required to drill a hole in three different metals using the appropriate tools. Pictures may be used for the recognition part of this unit. The tutor may assist learner with tightening the chuck if required. This will not affect the achievement of the unit.

**Learning Outcome:**
- The learner will be able to drill holes in **three** metal forms correctly and safely using at least one type of powered drill

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**Practical evidence**

- Choose and wear personal protective clothing
- Recognise **all** the following tools:
  - Centre punch
  - Engineers hammer
- Recognise **all** the following drills:
  - Hand drill
  - Electrically operated (mains) hand held drill
  - Electrically operated (cordless) hand held drill
  - Pillar drill
- Recognise **both** the following parts of a drill:
  - Drill bits
  - Drill chuck
- Recognise **all** the following materials to be drilled:
  - Mild steel sheet
  - Copper sheet
  - Aluminium sheet
- Check that material to be drilled is secure
- Check with supervisor that drill bit diameter is correct
- Check that drill bit is secure in the chuck (assistance may be required to tighten the chuck)
- ‘Pop’ mark position of hole(s) to be drilled with a centre punch
- Drill a ‘pilot’ hole in the correct position
- Check that tools and equipment are safe to use
- Operate the drill correctly
- Drill hole to the required depth
- Withdraw drill bit from the hole

Continued………..
**METALWORK E3**

396 Continued

- Repeat the operation until the required number of holes have been drilled for each of the three metals.
- Clean and store equipment safely
- Dispose of waste correctly
- Clean and tidy up work area
- Clean and store personal protective clothing
- Wash and dry hands

**Knowledge Evidence** *(evidence of answers given to be recorded in portfolio)*

- A reason for choosing the correct size drill bit
- A reason for securing the material to be drilled correctly
- A reason for making sure that the drill bit is correctly secured in the chuck
- A reason for not having too fast a drill speed
- A reason for drilling a ‘pilot’ hole
- A reason for ‘pop’ marking material with a centre punch

**DECLARATION** – The Learning Outcome has been achieved by satisfactory performance of all the components listed above

Date all assessments completed for this unit:

<table>
<thead>
<tr>
<th>Name of Assessor</th>
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Guidance: The holes required for using the fixings can be done as part of unit 510. Pictures can be used for the recognition part of this unit.

Learning Outcome: • The learner will be able to join two metal surfaces using one method correctly and safely

<table>
<thead>
<tr>
<th>Practical evidence</th>
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<tbody>
<tr>
<td>• Choose and wear personal protective clothing</td>
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<tr>
<td>• Recognise metals to be joined (state which were used)</td>
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<tr>
<td>Metals:</td>
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<tr>
<td>• Recognise four different fixings:</td>
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<tr>
<td>- self tapping screws</td>
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<td>- nuts, bolts and washers</td>
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<tr>
<td>- rivets</td>
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<tr>
<td>- ‘pop’ rivets</td>
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<tr>
<td>• Recognise and collect the appropriate tools and equipment (indicate which ones were used)</td>
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<td>Tools and equipment:</td>
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<tr>
<td>• Check that tools and equipment are safe to use</td>
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<tr>
<td>• Drill holes in metal surfaces to be joined and check diameter</td>
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<tr>
<td>• Choose correct size of fixing items to be used</td>
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<tr>
<td>• Join the two surfaces using correct method</td>
</tr>
<tr>
<td>• Check that the joined surfaces are secure</td>
</tr>
<tr>
<td>• Clean and store equipment safely</td>
</tr>
<tr>
<td>• Clean and tidy up work area</td>
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<tr>
<td>• Clean and store personal protective clothing</td>
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<tr>
<td>• Wash and dry hands</td>
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Continued.........
### Knowledge Evidence (evidence of answers given to be recorded in portfolio)

- A reason for joining materials using different methods
- A reason for checking that holes drilled are of the correct size
- A reason for choosing the correct size of joining item

### DECLARATION

The Learning Outcome has been achieved by satisfactory performance of all the components listed above

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**METALWORK E3**

| Unit no: | 398 | Unit title: **Join metals by soldering** | Credit value: 2 |

**Guidance:** For this unit any type of metal can be used provided it can be effectively soldered. Pictures can be used for the recognition part of the unit.

**Learning Outcome:**
- The learner will be able to join metal by soldering correctly and safely

| Assessor Initials/Date | E M |

**Practical evidence**

- Choose and wear personal protective clothing
- Recognise all of the following tools and equipment:
  - emery cloth
  - solder
  - flux (paste or liquid)
  - pliers
  - soldering iron (gas or electric heated)
  - self gripping wrench
  - Check that tools and equipment are safe to use
  - Clean and prepare metal surfaces to be joined
  - Heat the soldering iron by the appropriate method
  - Apply flux to the prepared surfaces
  - Check that the soldering iron is sufficiently hot
  - Solder the two surfaces using the correct method
  - Allow the surfaces to cool before being moved
  - Place hot soldering iron in appropriate place to cool
  - Check that surfaces are soldered securely
  - Clean and store equipment safely
  - Clean and tidy up work area
  - Remove and store personal protective clothing
  - Wash and dry hands

**Knowledge Evidence (evidence of answers given to be recorded in portfolio)**

- A reason for cleaning surfaces to be soldered
- A reason for using flux
- A reason for checking that the soldering iron is sufficiently hot
- A reason for allowing the surfaces to cool before being moved

Continued......
DECLARATION - The Learning Outcome has been achieved by satisfactory performance of all the components listed above

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Date all assessments completed for this unit:
Unit no: 399  Unit title: **Prepare a metal surface for treatment**  Credit value: 2

**Guidance:** For this unit any metalwork that requires preparation for painting or other treatment may be used. The learner should use the range of tools to prepare the metal.

**Learning Outcome:**
- The learner will be able to prepare a metal surface for treatment correctly and safely

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**Practical evidence**

- Choose and wear personal protective clothing
- **Recognise all** of the following hand tools:
  - scraper
  - wire brush
  - glass paper/wet and dry paper
  - electric drill with wire brush attachment
- **Recognise all** of the following materials:
  - abrasive cloth/wire wool
  - chemical preparation materials
- Recognise metal surfaces to be prepared
- Check that tools and equipment are safe to use
- Use each tool to prepare the metal surface
- Secure item to be prepared correctly as appropriate
- Clean and prepare metal surface as appropriate
- Clean tools after use correctly
- Store tools safely
- Clean and tidy up work area
- Remove and store personal protective clothing
- Wash and dry hands

**Knowledge evidence (evidence of answers given to be recorded in portfolio)**

- A reason for checking that tools and equipment are safe to use
- A reason for preparing surface for treatment
- A reason for securing item to be prepared
- A reason for cleaning tools after use

Continued........
**DECLARATION** - The Learning Outcome has been achieved by satisfactory performance of all the components listed above.

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**METALWORK E3**

399 Continued
### MetaWork E3

**Unit no:** 400  
**Unit title:** Treat a metal surface  
**Credit value:** 2

**Guidance:** The metalwork prepared in unit 513 can be used or an alternative suitably prepared piece. The tutor should assist the learner in selecting the appropriate treatment.

**Learning Outcome:**
- The learner will be able to treat a metal surface correctly and safely

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**Practical evidence**

- Choose and wear personal protective clothing
- Recognise all of the following hand tools and materials:
  - brushes
  - rust preventatives
  - primer
  - undercoat
  - top coat
- Recognise the surface to be treated
- Ensure that the surface to be treated is:
  - clean
  - dry
  - free from contaminants (*oil and greases*)
  - free from loose material
- Check that brushes are safe to use
- Secure item to be treated correctly as appropriate
- Apply surface treatment material correctly as appropriate
- Follow instructions for application correctly
- Clean brushes after use correctly
- Dry and store brushes safely
- Dispose of surplus materials correctly
- Dispose of waste materials safely
- Clean and tidy up work area
- Remove and store personal protective clothing
- Wash and dry hands

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Continued.........
Knowledge evidence (evidence of answers given to be recorded in portfolio)

- A reason for treating a surface
- A reason for ensuring that surface is free from contaminants
- A reason for cleaning brushes correctly
- A reason for disposing of waste material safely

DECLARATION – The Learning Outcome has been achieved by satisfactory performance of all the components listed above

Date all assessments completed for this unit:

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Appendix 1   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.

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.

Our Quality Assurance Requirements encompasses all of the relevant requirements of key regulatory documents such as:
- Regulatory Arrangements for the Qualifications and Credit Framework (2008)
- SQA Awarding Body Criteria (2007)
- NVQ Code of Practice (2006)
and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

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 on such things as:
- Walled Garden: how to register and certificate candidates on line
- Qualifications and Credit Framework: general guidance about the 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: how to register for e-assessments.
### Useful contacts

<table>
<thead>
<tr>
<th>UK Enquiries</th>
<th>T: +44 (0)844 543 0033</th>
<th>E: <a href="mailto:learnersupport@cityandguilds.com">learnersupport@cityandguilds.com</a></th>
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<tbody>
<tr>
<td><strong>General qualification</strong></td>
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<tr>
<td><strong>International learners</strong></td>
<td>General qualification information</td>
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<tr>
<td><strong>Centres</strong></td>
<td>Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials,</td>
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<tr>
<td><strong>Single subject qualifications</strong></td>
<td>Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam</td>
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<tr>
<td><strong>International awards</strong></td>
<td>Results, Entries, Enrolments, Invoices, Missing or late exam</td>
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<tr>
<td><strong>Walled Garden</strong></td>
<td>Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation,</td>
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<tr>
<td><strong>Employer</strong></td>
<td>Employer solutions, Mapping, Accreditation, Development Skills,</td>
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<tr>
<td><strong>Publications</strong></td>
<td>Logbooks, Centre documents,</td>
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