

Skills Proficiency awards in Basic Motorcycle Repair and Servicing

Skills Foundation Certificate 3528
Skills Proficiency Certificate 3529
Syllabus
Assessments
Programme guidance notes



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Skills Foundation Certificate 3528

Skills Proficiency Certificate 3529

Syllabus

Assessments

Programme guidance notes

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Skills Proficiency awards in Basic Motorcycle Repair and Servicing

About City & Guilds

We provide assessment and certification services for schools and colleges, business and industry, trade associations and government agencies in nearly 100 countries. We have over 125 years of experience in identifying training needs, developing assessment materials, carrying out assessments and training assessment staff. We award certificates to people who have shown they have mastered skills that are based on world-class standards set by industry. City & Guilds International provides a service to customers around the world who need quality assessments and certification.

Introduction to this programme

We have designed the Skills Proficiency awards to provide a broad introduction to essential practical skills for those undergoing training or employed in these areas of work.

There are two related levels:
Skills Foundation Certificate
Skills Proficiency Certificate

We do not say the amount of time a candidate would need to carry out the programme. We award certificates and diplomas for gaining and showing skills by whatever mode of study, and not for periods of time spent in study.

We recommend that candidates achieve the Skills Foundation Certificate before attempting the Skills Proficiency Certificate.

About this booklet

This booklet is designed to be used by:

- Candidates
- Instructors
- Assessors
- Verifiers
- Centre co-ordinators
- Employers

It provides all the information required to understand and take part in the Skills Proficiency awards, and conduct suitable training and assessment in accordance with City & Guilds' regulations, policy and practice.

How to offer this programme

To offer these awards you must get approval from us.

There are two categories of approval.

Qualification approval

We give approval to offer a training and assessment course based on this syllabus.

Examination centre approval

We give approval to enter candidates for practical assessments.

To be approved by us to offer a training and assessment course you must send a completed application to your local City & Guilds office.

To enter candidates for assessment you must be approved by us.

Approved centres must provide suitable facilities for taking practical assessments, secure places to keep assessment materials, and will have an appointed external verifier to review practical work.

After we have received and accepted an application, we will send an approval letter confirming this.

Please note that in this section we have provided an overview of centre approval procedures. Please refer to the current issue of 'Delivering International Qualifications – Centre Guide' for full details of these procedures.

City & Guilds reserves the right to suspend an approved centre, or withdraw its approval to conduct City & Guilds programmes, for reasons of debt, malpractice or for any reason that may be detrimental to the maintenance of authentic, reliable and valid qualifications or that may prejudice the name of City & Guilds.

Numbering system

We use a numbering system to allow entries to be made for our awards.

To carry out what is needed for the Skills Proficiency awards in Basic Motorcycle Repair and Servicing, candidates must be successful in one of the following assessments:

3528-13-013 Skills Foundation Certificate

3529-13-013 Skills Proficiency Certificate

We use these numbers throughout this booklet. You must use these numbers correctly if you send forms to us.

Making entries for assessments

Candidates must enter through an assessment centre we have approved to carry out the assessments for Skills Proficiency awards.

There are two ways of entering candidates for assessments.

Internal candidates

Candidates can enter for assessments if they are taking or have already finished a course at a school, college or similar training institution that has directed their preparation, whether by going to a training centre, working with another institution, or by open-learning methods.

External candidates

These are candidates who have not finished a programme as described above. To be eligible for assessment external candidates must be able to provide suitable evidence of previous training or work experience through which the required competencies have been demonstrated on more than one occasion in the past. The assessment centres must receive their application for assessment well before the date of the assessment concerned. This allows them to act on any advice you give about assessment arrangements or any further preparation needed.

External candidates must meet all the requirements for the assessment.

In this publication we use the term 'centre' to mean a school, college, place of work or other institution.

Submitting results to City & Guilds

Successful candidates entering for the Skills Proficiency awards will receive a 'Notification of Candidate Results' giving details of how they performed.

We grade practical assessments as pass (P) not yet competent (X).

If candidates successfully finish all the requirements for the Skills Proficiency award at a specific level, they will receive the appropriate certificate.

We will send the 'Notification of Candidate Results', and certificates to the assessment centre to be awarded to successful candidates. It is your responsibility to give the candidates the certificates. If candidates have a question about the results and certificates, they must contact you. You may then contact us if necessary.

We will also send you a results list showing how all candidates performed.

Roles and responsibilities

This section gives details of the requirements and responsibilities of each role involved in the assessment, verification and examinations processes. Centres should identify members of staff to fulfill these roles.

Please refer to 'Delivering International Qualifications – Centre Guide' for more information.

Programme coordinator

The person in the training centre responsible for ensuring that:

- printouts sent by City & Guilds are correct
- results are sent to City & Guilds in accordance with specified procedures
- all interested parties are notified of assessment dates well in advance
- candidates and centre staff fully understand their role and responsibilities
- facilities and equipment are available so that assessments can be conducted in accordance with City & Guilds requirements
- documents received from City & Guilds are securely stored
- results and/or certificates are properly issued to candidates at the centre
- results and/or certificates are properly issued to candidates at the centre
- monitoring the work of assessors.

Assessor

The primary role of an assessor is to assess candidates' performance and related knowledge in a range of tasks and to ensure that the competence/knowledge demonstrated meets the requirements of the programme. Assessors will therefore need to have occupational experience in the vocational area to be assessed.

They will also need to be familiar with the candidates whom they are assessing; so assessors are likely to be the candidates' own instructors, who are best able to decide when individuals are able to perform competently, and therefore are ready to be formally assessed for the award.

Assessors are responsible for:

- agreeing an assessment plan with each candidate
- briefing candidates on the assessment process
- following assessment guidance provided
- observing candidates' performance and/or conducting other forms of assessment
- recording all questions used and answers given for the purposes of meeting the evidence requirements
- justifying the evidence and making assessment decisions against the standards
- providing candidates with prompt, accurate and constructive feedback
- maintaining records of candidates' achievement
- confirming that candidates have demonstrated competence/knowledge and completing the required documentation
- keeping themselves up to date with City & Guilds publications relating to quality assurance
- agreeing new assessment plans with candidates where further evidence is required
- making themselves available for discussion with the external verifier.

Candidate

Candidates are those individuals who are working towards a qualification at a centre approved by City & Guilds.

Candidates are responsible for:

- confirming to assessors that they understand the requirements of the programme
- confirming to assessors that they understand the relationship between the requirements and the tasks they need to perform to demonstrate competence and/or related knowledge
- discussing and agreeing assessment plans with their assessors
- identifying possible sources of evidence
- maintaining and presenting evidence in a well organised way
- ensuring that the evidence is adequate to present for assessment
- making themselves available for assessment and to discuss their evidence.

External verifier

External verifiers are appointed by City & Guilds for specific programmes to ensure that all assessments undertaken within City & Guilds centres are fair, valid, consistent and meet the requirements of the programme.

External verifiers are responsible for:

- making approval visits/recommendations (where necessary) to confirm that organisations can satisfy the approval criteria
- helping centres to develop internal assessment and evidence evaluation systems that are fair, reliable, accessible and non-discriminatory
- monitoring internal quality assurance systems and sampling, including by direct observation, assessment activities, methods and records
- checking claims for certification to ensure they are authentic, valid and supported by auditable records
- acting as a source of advice and support, including help with the interpretation of standards
- promoting best practice
- providing prompt, accurate and constructive feedback to all relevant parties on the operation of centres' assessment systems
- confirming that centres have implemented any corrective actions required
- reporting back to City & Guilds
- maintaining records of centre visits and making these available for auditing purposes.

Quality inspector/auditor

Quality inspectors or auditors are appointed by City & Guilds to ensure that centres comply with our centre approval criteria. Their responsibilities relate to systems and quality assurance rather than specific assessment requirements.

Quality inspectors or auditors are responsible for:

- conducting inspection or audit trails to ensure centres comply with City & Guilds centre approval criteria
- making approval visits/recommendations (where appropriate) to confirm that potential centres satisfy/will be able to satisfy the centre approval criteria
- providing prompt, accurate and constructive feedback to all relevant parties
- providing advice to centres on internal quality arrangements
- reporting back to City & Guilds
- maintaining records of centre visits and making these available for auditing purposes.

Designing courses of study

Candidates for the Skills Proficiency awards will have come from different backgrounds and will have different employment and training experiences.

We recommend the following:

- carry out an assessment of the candidates' achievements so you can see what learning they already have; and
- consider what learning methods and places will best suit them.

When you assess a candidate's needs, you should design training programmes that consider:

- has the candidate completed any previous education, training or qualifications?
- does the candidate have any previous practical experience which is relevant to the aims of the programme and from which they may have learned the relevant skills and knowledge?

As long as the candidates meet the aims of this learning programme the structure of the course of training is up to you. So, it is possible to include extra topics that meet local needs.

Practical work must be carefully planned both to illustrate the application of theory and to provide exercises of skill. The maximum opportunity must be provided for workshop practice and demonstrations. As far as possible, candidates must be able to apply their theoretical knowledge to practical work within a realistic work environment. Candidates should keep records of the practical work they do so they can refer to it at a later date.

Resources

If you want to use these qualifications as the basis for a course, you must read this booklet and make sure that you have the staff and equipment to meet all the requirements. If there are no facilities for realistic practical work, we strongly recommend that you develop links with local industry to provide opportunities for hands-on experience.

Presentation format of syllabus

Practical competences

Each unit starts with a section on practical competences which shows the practical skills candidates must have.

At times we give more detail about important words in each 'competence statement'.

For example:

1.2 Apply good housekeeping practices at all times.

Practices: clean/tidy work areas, removal/disposal of waste products, protect surfaces

In the above statement the word 'practices' is given as a range which the candidate should be familiar with. If a range starts with the abbreviation 'eg' the candidates only need to cover some of the ranged areas or you can use suitable alternatives.

The end of each unit contains practical assessments which deal with the practical competences. Candidates must carry out the practical assessments either in a real or a simulated work environment.

Carry out assessments

The practical assessments for these awards may be carried out during the learning programme, but they may also take place during a special assessment period once training has been completed.

We describe these assessments as 'free date' because they are carried out at a college or other training establishment on a date or over a period which the college chooses.

Assessments must be carried out in accordance with the requirements described in 'Delivering International Qualifications – Centre Guide'. Assessors/instructors should familiarise themselves with the **Guide to the assessment of practical skills** contained in this booklet.

Practical assessments

The practical assessments for the Skills Proficiency awards are derived from the practical competences.

The **competence checklist** given at the end of the list of practical competences and knowledge requirements, serves as the marking criteria for these assessments and should be used by the assessor/instructor to record the outcome of each candidate's performance.

The competence checklist is a list of activities or performance outcomes that a candidate must be seen to be able to do in order to be considered competent in the tasks being assessed for these awards. The checklists are written in the same way, so that for each competence statement it is possible to say either:

'Yes, the candidate successfully carried out this activity' or

'No, the candidate has not yet achieved this standard.'

The use of local legislation, tools, equipment and practices is allowed within the specifications of the 'range' supporting each practical competence statement. The results of the assessment must be documented and available for audit by the external verifier.

All assessments must be successfully completed.

All assessments must be completed in the context of one specific job role in which the candidate is working, or for which the candidate is being trained. The context must be stated on each candidate's assessment record.

The competence checklists in this publication must be photocopied and must be completed for every candidate.

The practical assessments for this programme are not suitable for entirely classroom-based teaching. Candidates must demonstrate competence in a **realistic work environment**.

This may be:

- the workplace in which the candidate is undertaking training
- a simulated work environment.

A simulated work environment is an area such as a training room specifically designed to replicate the work place as closely as possible. A classroom is unsuitable as a simulated work environment.

A candidate transferring from a realistic work environment to a real workplace should perceive no difference.

Candidates may demonstrate competence in a combination of real and simulated situations.

Candidates must be able to show that they can perform the required tasks to the standards that would be expected if they were actually working in industry. This is likely to include factors such as the time taken to complete the tasks and the quality of any products produced. In addition to demonstrating practical skills, candidates will have to show that they can cope with psychological and environmental conditions of real work, eg pressures and consequences of producing products for customers, working with other people, planning and organising work, following procedures, and dealing with variations and problems that may occur in performing the specified tasks.

Candidates undertaking practical activities for the purposes of assessment must, at all times, be under the supervision of a competent and qualified supervisor.

Preparation, supervision and marking

It is essential that the instructor/assessor ensures all necessary preparations are carried out. This will involve ensuring:

- the candidate is ready to demonstrate his or her practical skills
- every candidate understands what is involved
- any necessary materials, tools or equipment are available for the assessment.

Assessment of the practical performance is determined on outcomes as defined by the practical competences. The candidate must be successful in all competences included in the checklist before it can be 'signed off' and its results transferred to the summative record.

All practical assessments should be supervised and assessors should make sure that the results reflect the candidate's own performance. Separate records must be kept of the dates of all attempts by each candidate.

The candidate should be informed of the result as soon as possible. If he / she does not meet the standard of 'competent' in any of the practical requirements, the decision of either immediate resit or further practice must be taken.

Assessment of underpinning knowledge

The knowledge requirements in this programme are tested by asking questions at the end of the practical assessment to verify that the candidate understands the reasons why a particular activity has been performed.

The programme coordinator must arrange in advance with their local City & Guilds office to obtain the underpinning knowledge questions and candidate record sheets required for conducting the oral assessment. He/she is responsible for ensuring that all oral questioning materials are kept securely and the assessments conducted in accordance with City & Guilds requirements.

Oral questioning must not be conducted during an activity. The person carrying out the assessment of practical competences is responsible for asking questions about underpinning knowledge and recording the candidate's responses on the relevant form. The candidate response record forms must be available for review by the external verifier.

The underpinning knowledge questions may be asked in any language that is understood by both candidate and assessor. The centre must ensure that the external verifier is provided with translations of questions asked, as well as candidate responses, if he / she does not speak the language in which questioning was conducted.

Please refer to the section **Oral questioning** in the **Guide to the assessment of practical skills** contained in this booklet.

Records, results and certification

When all the required assessments have been achieved, the result must be entered onto **Form S** which must be countersigned by the external verifier and sent to City & Guilds.

You must keep all assessment documentation and material in a file for each candidate until the results have been agreed by the external verifier and until confirmation of the result has been received from City & Guilds. You must hold all the evidence for eight weeks after the application for a certificate.

After results have been confirmed, copies of assessment documentation other than **Form S** may be returned to candidates.

The operation of this programme requires the appointment of an external verifier.
The external verifier must countersign the results of the practical assessments on Form S.

The external verifier should also be able to inspect records and candidates' work to verify the results before submission.

Health and safety

Instructors must emphasise the dangers associated with vehicle systems, fuels, and materials at all times, in particular FLUOROLASTOMEC (VETON) used in the manufacture of some brake seals, fuel pipes and possibly other rubber or plastic substitutes.

Fluorolastomec (Veton – trade name) becomes dangerous after it has been burnt. The material melts into a highly-corrosive acid, which if touched by bare skin cannot be removed – the only treatment is amputation. In this melted state, Fluorolastomec will stay dangerous for at least two years, only professional decontamination will make it safe. Safety precautions must be taken when working on burnt-out vehicles and their parts.

All work must be carried out in a safe and efficient manner, and safety must be inherent in the candidate's approach to the practical assessments.

Centres must ensure that due attention is paid to safety and safe working practices during **all** practical assessments.

It is expected that the assessor will intervene if a candidate is acting in a dangerous manner, explaining to the candidate the reason for stopping the assessment.

Candidates should not be allowed to continue with the test if acting in an unsafe manner.

Equal opportunities

We are committed to giving everyone who wants to gain one of our awards an equal opportunity of achieving it. We support equal opportunities in education, training and employment, and will take positive action to:

- promote practice and procedures in our centres that give equal opportunities to everybody, regardless of their culture, sex, ability, disability, age, ethnic background, nationality, religion, sexual orientation (sexuality), marital status, employment status or social class
- work towards removing all practice and procedures that discriminate unfairly (directly or indirectly)
- widen access to our awards to include people who are under-represented
- set the awards standards according to equal opportunities best practice.

We will make sure that our centres use an equal opportunities policy that works together with ours, and that they maintain an effective appeals procedure.

We will expect centres to tell candidates how to find and use their own equal opportunities policy and appeals procedure.

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Syllabus

Skills Proficiency awards in Basic Motorcycle Repair and Servicing

19 Skills Foundation Certificate

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Skills Foundation Certificate

Introduction

The aim of this module is to introduce the candidate to:

- a. safe working within their own area of work
- b. the prevention of hazards
- c. basic tool skills
- d. types of layout and construction used in motorcycles
- e. operating principles of motorcycle systems
- f. motorcycle basic maintenance, replacement of minor assemblies and making running adjustments.

The use of national/local regulations and working practices must be included in all practical competences.

Practical competences

The candidate must be able to do the following:

Health and Safety

- 1.1 Select and use protective clothing and equipment as applicable to the task.
Task: working on motorcycle, road testing motorcycle
- 1.2 Apply good housekeeping practices at all times.
Practices: clean/tidy work areas, removal/disposal of waste products, protect surfaces, follow statutory regulations
- 1.3 Carry out risk assessments as applicable to the task and identify potential hazards.
- 1.4 Use all equipment safely.
- 1.5 Correctly wire appliance plugs.
- 1.6 Carry out manual handling operations safely.
Handling: eg lifting techniques, mechanical lifting devices, vehicle jacks, hoists, crane/lifting tackle
- 1.7 Use and store materials in a safe manner.
Use: eg manufacturers' instructions, toxic effect, loading, unloading
Materials: eg adhesives, lubricants, oils, acids, alkalis

Tool Skills

- 1.8 Select, use, clean and store basic hand tools.
Tools: eg hammer, spanner, chisel, file, hacksaw, hand drill, taps and dies, screwdrivers, pry bars and levers, reamers, punches and drifts, wrenches, feeler gauges, cutters, pliers, thread restoration tool, marking out instruments
- 1.9 Select, use, clean and store portable power tools.
Tools: eg hand drill, angle grinder

- 1.10 Sharpen tools using a bench grinder.
Tools: eg chisel, screwdriver, drill bits
- 1.11 Select, use, clean and maintain workshop equipment.
Workshop equipment: eg jacks, stands, hoist, scissor stand, paddock stand, bench grinder, bench drill, hydraulic press, cleansing tank, washing plant, steam cleaning machines, lubrication equipment, pneumatic equipment
- 1.12 Produce paper and cork gaskets.
- 1.13 Identify motorcycle components from assembly drawings and diagrams.
- 1.14 Manufacture, anneal and shape pipes for routing on motorcycles.
Pipes: eg steel, copper, plastic
Manufacture: eg single flare ends, double flare ends, olive and union, cone nipples
- 1.15 Solder materials and produce effective joints.
Materials: eg electrical wire, light gauge steel, copper, brass
- 1.16 Braze materials, inspect and rectify defective joints.
Joints: eg tack, lap
- 1.17 Remove and replace different types of securing, locking, locating and sealing devices.
Devices: eg nuts (wing, thumb, wheel, selflocking, castellated), bolts (pinch), set screws (Allen, grub, Phillip), studs, pins (clevis, split), rivets, washers (spring, shake proof, tab), locking plates, circlips, locking wire, self curing materials, gaskets, joints, plugs, compounds, pipes (metal, copper, flexible, plastic, formed nipple, olive), unions (straight coupling, elbow, banjo), swaged end pipe fixing, high pressure pipes, hoses, hose clips

Engine Systems

- 1.18 Drain and replenish engine lubrication systems (four stroke).
- 1.19 Remove and maintain oil filters (four stroke).
Maintain: dismantle container filters, change element, reassemble, replace canister filters

Petrol Fuel Systems

- 1.20 Remove and refit fuel tank.
- 1.21 Check fuel tap operation (if fitted).
- 1.22 Remove and replace fuel pipes.
- 1.23 Remove, clean and replace air filter elements.

1.24 Top up lubrication tank (two stroke).

1.25 Remove and replace exhaust system.

Ignition Systems

1.26 Remove and replace spark plugs.

Cooling Systems

1.27 Remove dirt and debris from cooling fins.

1.28 Remove and replace thermostat.

Braking and Suspension Systems

1.29 Check and top up fluid levels.

1.30 Remove and replace front brake pads.

1.31 Inspect front brake disc/discs for wear.

1.32 Inspect rear brake system for wear.

1.33 Remove and replace rear shock absorbers.

Wheels and Tyres

1.34 Inflate vehicle tyres and check and adjust tyre pressures.

1.35 Measure tyre tread depths.

1.36 Inspect tyres for damage.

Transmission Systems

1.37 Change gear box oil.

1.38 Replace drive chain.

1.39 Remove links from drive chain.

1.40 Remove and replace clutch operating cable.

1.41 Check and adjust clutch operating clearance.

1.42 Lubricate drive chain.

Electrical Systems

1.43 Correctly top up vehicle batteries.

1.44 Remove and replace vehicle batteries.

- 1.45 Neutralise battery corrosion.
- 1.46 Correctly connect battery to charger.
- 1.47 Remove and replace light bulbs.
Bulbs: eg side light, tail light, indicator, light, headlight

General maintenance

- 1.48 Remove and replace mirrors.
- 1.49 Lubricate cable.
Cables: eg front brake, clutch, throttle
- 1.50 Clean motorcycle.
- 1.51 Remove and replace seat.

Underpinning knowledge

Oral questioning should be used to provide evidence of the candidate's knowledge of:

Health and Safety

- 1.1 Emergency procedures.
Procedures: raising alarms, alarm types, safe/efficient evacuation, means of escape, assembly points
Emergencies: fire drill
- 1.2 Use of protective clothing/equipment.
Protective clothing: overalls, ear defenders/plugs, safety boots, knee pads, gloves/gauntlets, safety helmet (hard hat), particle masks, glasses/goggles/visors, barrier cream
Equipment: machine guards, residual current devices
- 1.3 Use of specific safety clothing when riding motorcycles.
Clothing: eg helmet, visor, goggles, protective clothing
- 1.4 Reasons for carrying out good housekeeping practices.
Practices: clean/tidy work areas, removal/disposal of waste products
Reasons: safety, efficiency, security
- 1.5 Reasons for carrying out a risk assessment for all working practices.
Reasons: hazard identification, dangerous substances (adhesives, oils, greases, acids, alkalis, solvents, gases), site machinery, noise

- 1.6 Sources of electrical danger and methods of protection.
Sources: damaged (sockets, cables, plugs, equipment), incorrectly wired appliance plugs, water
Methods of protection: transformers, fuses, plugs, circuit breakers, double insulation, safe working practices
- 1.7 Method of correctly wiring appliance plugs.
Method: colour coding, fuse rating
- 1.8 Principles of fire and different types of fire. **Principles of fire:** heat, fuel, oxygen
Types: wood/paper, oil/spirit, electrical
- 1.9 Types of fire fighting equipment and their uses.
Equipment: fire extinguishers (water, CO₂, foam, powder), sand/water bucket, blanket, fire hose
- 1.10 Hazards associated with pneumatic equipment.
Hazards: directing the air jet at body/clothing
- 1.11 Procedures for safe storage of materials.
Procedures: loading, unloading, storage
- 1.12 Toxic effect of materials used in motorcycles and motorcycle maintenance.
Effect: eyes, skin, breathing
- 1.13 Preventative and remedial actions to be taken in the case of exposure to toxic materials.
Exposure: ingested, contact with skin, inhaled
Preventative action: ventilation, masks, protective clothing/equipment
Remedial action: immediate first aid, report to supervisor

Tool Skills

- 1.14 Use of basic hand and power tools.
Tools: eg hammer, spanner, chisel, file, hacksaw, hand drill, taps and dies, screwdrivers, pry bars and levers, reamers, punches and drifts, wrenches, feeler gauges, cutters, pliers, thread restoration tool, marking out instruments, sander, drill
- 1.15 Method of cleaning and storing basic tools.
Method: wipe clean/dry, lubricated, cable care, secure storage
- 1.16 Use of workshop equipment.
Workshop equipment: eg jacks, stands, hoist, bench grinder, lubrication equipment, bench drill, hydraulic press, cleansing tank, washing plant, steam cleaning machines

- 1.17 Method of cleaning and maintaining workshop equipment.
- 1.18 Equipment and consumables used for soldering.
Soldering: surface cleaning materials, soldering irons (electric, gas), fluxes
- 1.19 Basic principles of soldering sheet metal and wire joints.
Principles: joint types, joint structure, capillary action, process, applications, safety precautions
- 1.20 Equipment and consumables used for brazing.
Equipment for brazing: surface cleaning materials, blowpipe/torch, fluxes, filler metal
- 1.21 Basic principles of brazing.
Principles of brazing: joint types, joint structure, capillary action, process, applications, safety precautions and equipment

Engines and Fuel Systems

- 1.22 Types of motorcycle engines.
Engines: two stroke, four stroke
Types: single cylinder, multicylinder
- 1.23 Basic layout and identification of components of motorcycle fuel systems.
Petrol: carburettor systems, petrol injection systems

Ignition Systems

- 1.24 Function of the spark plug.

Cooling Systems

- 1.25 Specific safety measures associated with cooling stems.
- 1.26 Basic operating principles of cooling systems.
Systems: air cooled, water cooled
- 1.27 Main cooling system components and their function.

Braking and Suspension Systems

- 1.28 Types of braking systems.
Systems: drum brakes, disc brakes, parking brakes, hydraulic, pneumatic
- 1.29 Main components of braking systems and their functions.
- 1.30 Health hazards associated with braking systems.
- 1.31 Main components of suspension systems, wheels and tyres.
Suspension systems: front forks, swinging arm, springs, dampers
Tyres: tubed, tubeless, crossply, radial

1.32 Purpose and function of shock absorbers.

Transmission Systems

1.33 Types of gears and gearboxes.

1.34 Types of clutch operating mechanisms.

Clutch operating mechanisms: cable and hydraulic

1.35 Location of clutch assembly.

1.36 Types of motorcycle drives.

Types: chain, belt and shaft

Electrical Systems

1.38 Electrical systems and components.

Systems: generation, storage, starting, motor/drive assemblies, lights, switches

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Skills Proficiency Certificate

Introduction

The aim of this module is to enable the candidate to:

- a. maintain safe working conditions
- b. adopt safe procedures for themselves and others
- c. replace motorcycle components and assemblies
- d. strip and repair motorcycle components
- e. determine serviceability of wear components
- f. understand the operating principles of motorcycle systems.

The use of national / local regulations and working practices must be included in all practical competences.

Practical competences

The candidate must be able to do the following:

Health and Safety

- 21 Select, use, clean and store personal protective equipment.
- 22 Carry out safe working practices to prevent hazards and to ensure the safety of working personnel and members of the public.
- 23 Use and store materials in a safe manner.
- 24 Apply good housekeeping practices at all times.
Practices: eg clean tidy work areas, removal/disposal of waste products, gangways free from obstruction
- 25 Demonstrate the correct procedure for securing motorcycles prior to work being carried out.
Procedure: eg sidestand, rearstand, scissor bench, paddockstand, hydraulic bench
- 26 Demonstrate the correct procedure for wiring appliance plugs.
Procedure: preparing, connecting and securing wires, colour coding
- 27 Demonstrate the correct procedure for soldering a terminal end to electrical wire.
Procedure: preparation of wire, safe use of soldering iron, selecting correct flux, tinning, soldering, testing solder joint

Engine Systems

- 28 Remove and replace cylinder head gasket.
Cylinder: single cylinder, four stroke, two stroke
- 29 Remove and replace cylinder barrel.
Cylinder: single cylinder, four stroke, two stroke

2.10 Remove and replace piston and rings.
Piston and rings: single cylinder, four stroke, two stroke

2.11 Remove and replace exhaust and inlet valves.
Valves: single cylinder, four stroke, two stroke

2.12 Remove and replace timing chain.

2.13 Carry out compression tests.

2.14 Remove and refit engine assemblies.

Petrol Fuel System

2.15 Remove and replace carburettor or injector.

2.16 Service carburettor or injector.
Service: clean jets, replace needle valve, replace gaskets

Ignition Systems

2.17 Remove and replace ignition distributor or coil pack.

2.18 Remove and replace flywheel generator or Magneto.

2.19 Remove and replace contact breaker points (if fitted).

2.20 Set and adjust ignition timing.

2.21 Remove and replace high tension leads.

2.22 Remove and replace ignition coil.

2.23 Demonstrate the correct procedure for replacing a head gasket on a two stroke engine.

Procedure: secure motorcycle, remove, clean and replace components, reset and refit components, run engine

Cooling Systems

2.24 Clean radiator matrix.

2.25 Remove and replace radiator.

Braking and Suspension Systems

2.26 Remove, inspect and replace brake shoes.

2.27 Remove, inspect and replace brake pads.

2.28 Remove and replace discs.

- 229 Remove and replace front calliper.
- 230 Bleed hydraulic brake system.
- 231 Remove and replace front fork assembly.
- 232 Remove and replace rear coil springs.
- 233 Remove and replace rear swinging arm.

Wheels and Tyres

- 234 Remove and replace wheels.
Wheels: front, rear
- 235 Remove and replace tyres.
- 236 Demonstrate the correct procedure for removing and refitting a front wheel.
Procedure: secure motorcycle, release and remove component parts, refit and secure component parts, adjust, testing wheel assembly
- 237 Demonstrate the correct procedure for checking tyre condition and inflating tyres.
Procedure: inspecting damage to wheel rim and tyre walls, inspecting tyre tread, depth of tread, valves, correct tyre pressure

Transmission Systems

- 238 Remove, inspect and replace drive chain.
- 239 Remove and replace drive sprocket.
- 240 Remove and replace clutch assembly.

Electrical Systems

- 241 Remove and replace generator/alternator.
- 242 Remove and replace starter motor.
- 243 Remove and replace lamp assembly.
- 244 Demonstrate the correct procedure for removing and replacing a vehicle battery.
Procedure: order for disconnecting and attaching earth and power leads, lifting battery safely, fitting and connecting new battery

Frame and Bodywork

- 245 Remove and replace body panels.
Panels: eg fairing, visor, mudguards, side panels

Knowledge requirements

Oral questioning should be used to provide evidence of the candidate's knowledge of:

Health and Safety

- 2.1 Types and use of protection equipment.
- 2.2 Principles of workshop layout.
Layout: non-slip flooring, cleanliness, provision of adequate gangways, safe movement of materials, exits
- 2.3 Human and environmental conditions leading to accidents in the workplace and the means of controlling them.
Conditions: human causes of accidents (ie carelessness, improper behaviour and dress, lack of training, supervision and experience, fatigue, drug taking and drinking), environmental causes of accidents (ie unguarded or faulty machinery and tools, inadequate ventilation, untidy, dirty, overcrowded or badly-lit workplaces)
- 2.4 Dangers associated with using faulty/misusing workshop tools and equipment.
- 2.5 Correct procedures for safely performing workshop tasks.
- 2.6 Dangers associated with substances used for cleaning component parts.
- 2.7 Dangers associated with working with running engines and moving parts.
- 2.8 Dangers associated with working with flammable liquids.
Dangers: eyes, skin, breathing, fire
- 2.9 Hazards associated with braking systems.
Hazards: lining materials (asbestos dust), brake cleaning fluids

Tool Skills

- 2.10 Use of special hand and power tools.
Tools: eg pullers, press, measuring equipment
- 2.11 Use of workshop manuals and equipment data.
- 2.12 Use, cleaning and maintenance of workshop equipment.
Workshop equipment eg tyre removing equipment, lifting equipment

Engines and Fuel Systems

- 2.13 Basic operating principles of motor vehicle engines.
Engines: petrol, four stroke, two stroke, single cylinder, multi-cylinder

- 2.14 Function of components.
Components: crankshaft, camshaft, pistons, connecting rods and valves
- 2.15 Basic operating principles of motorcycle fuel systems.
Petrol systems: carburettor systems, petrol injection systems, petrol two stroke
- 2.16 Basic operating principles of engine lubrication systems.
Systems: wet sump, dry sump, two stroke mixture

Cooling System

- 2.17 Components and functions of the cooling systems.

Ignition System

- 2.18 Types of spark ignition systems.
Systems: contact breaker, contact breakerless
- 2.19 Basic operating principles of spark ignition systems.
- 2.20 Procedures for replacing a head gasket on a two stroke engine.

Cooling Systems

- 2.21 Basic operating principles of motorcycle cooling systems.

Braking and Suspension Systems

- 2.22 Basic operating principles of braking systems.
Systems: drum brakes, disc brakes
- 2.23 Basic operating principles of hydraulic braking systems.
Hydraulic braking systems: master cylinder, caliper
- 2.24 Basic operating principles of steering systems.
Steering systems: mechanism steering geometry
- 2.25 Basic operation of suspension systems.
Suspension systems: front forks, swinging arm, spring and dampers
- 2.26 Construction of wheels and tyres. **Wheels:** steel, spoked, alloy **Tyres:** crossply, radial ply
- 2.27 Tyre defects.
- 2.28 Procedures for assessing tyre condition, safely inflating vehicle tyres and checking tyre pressure.

Transmission Systems

- 2.29 Basic operating principles of gearboxes.

230 Basic operation principles of the clutch assembly.

Clutch assembly: single plate, diaphragm, multi-plate

231 Construction of drive chains.

Electrical Systems

232 Electrical systems and components.

Systems: eg relays, conductors, circuit protection devices

Candidate assessment record sheets

Instructions

One complete set of competence achievement records must be provided for each candidate being assessed. The following section contains competence achievement records for both the Skills Foundation Certificate and the Skills Proficiency Certificate programmes.

The assessor should confirm achievement of each requirement with a tick in the appropriate box and note the date of achievement. The candidate should also initial and date each requirement to confirm the successful completion of the assessment.

Unsuccessful attempts should not be recorded on these sheets but recorded separately.

Upon completion of all requirements for the award the competence assessment record must be dated and signed by the candidate, assessor and external verifier before results can be submitted and certification requested.

Context:

Comments:

This is to confirm that the candidate has successfully completed the required tasks:

Candidate name (please print) and signature

Assessor name (please print) and signature

Verifier name (please print) and signature

Completion date

Context:

Comments:

This is to confirm that the candidate has successfully completed the required tasks:

Candidate name (please print) and signature

Assessor name (please print) and signature

Verifier name (please print) and signature

Completion date

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Guide to the assessment of practical skills

The performance outcomes in the competence checklist are often stated as activities performed to a particular standard, that can be observed by the assessor. The outcomes may also require assessment of practical skills through **appraisal of products**, objects made by the candidate in the course of the activity being assessed.

The checklist ensures that everyone involved in observation of practical performance the Skills Proficiency awards is working to the same checklist and standards.

Assessor skills

We do not require assessors to have a formal qualification in assessment, although we do ask centres to confirm that all staff involved in teaching programmes are appropriately qualified, as part of the centre approval process. We reserve the right to check this, and we moderate the quality of assessor performance through the external verifier.

Observation of performance requires personal skills and judgment skills to make assessment decisions based on the evidence and criteria available.

Personal skills are related to the assessor's behaviour towards candidates during the observation. Although assessors need to be objective, they must also be supportive.

Assessors with good personal skills will:

- ✓ Plan a realistic environment – normal workplace, normal workshop activity
- ✓ Be friendly towards the candidate, and using first name
- ✓ Check that the candidate understands everything and is not nervous
- ✓ Be attentive
- ✓ Not stand so close to the candidate that the candidate is distracted or made to feel nervous
- ✓ Offer words of encouragement – provided these do not distract
- ✓ Ask questions that offer encouragement
- ✓ End the observation with a final word of encouragement.

Assessors with poor personal skills:

- X Dress inappropriately (for example wearing unusually formal clothes)
- X Use threatening expressions, eg 'I hope you understand this, because it's too late if you don't!'
- X Be inattentive, not watching, talking to people not involved in the assessment
- X Stand very close to the candidate so that candidate feels nervous
- X Show disapproval, eg by shaking the head
- X End the assessment with an expression of disapproval

During the assessment the assessor should focus on one activity at a time. The candidate may be performing activities in a sequential order. The assessor must watch for each activity as it happens, in sequence, and make a judgment quickly and decisively, in order to be prepared to move to the next observable activity. If assessing one candidate at a time, the assessor can follow the activities in a sequence.

Candidates may also be assessed in groups, although we suggest not more than 10 - 15. The assessor will need to move from candidate to candidate to collect evidence for all the outcomes being observed. More than one assessor may be required.

The assessor should consider:

- Has the candidate normally performed this task successfully up to the time of the assessment?
- Is it likely that the candidate will continue to perform this task to the standard required in the future?

If the answer to these questions is 'yes', then the assessor should be confident about recording successful achievement.

Preparing assessment plans

Unplanned assessment of practical skills is ineffective and wastes time.

In best practice, the assessment process is a natural part of the learning programme, is cost-effective and fair, and is held in respect by all involved.

The first stage is to be clear about what has to be assessed. What is the candidate being asked to do, show, know, produce – to what standard and under what conditions? This information can also come from lesson plans. A good lesson plan will have specific achievements as the outcome of the lesson or series of lessons.

The meaning of the outcome must be understood and agreed as part of the planning process. Some outcomes are intentionally written to allow for local interpretation according to particular circumstances. The training programme should provide opportunities to discuss all the possible interpretations and to consider why different companies have different policies and why practices can vary from country to country. It will also focus on what is most appropriate for the particular situation in which the candidates are working.

The assessment plan must involve the selection of assessment methods that are valid and reliable, cost-effective, achievable in terms of time and resources and which cover the competences to be assessed.

City & Guilds has a policy that all of its assessments should be fair and accessible. The practical assessments are not a test of English, or indeed any other language, unless knowledge and use of specific terminology is an essential part of the job in question. The Assessor must explain any instructions or performance objectives that a candidate does not understand before the assessment takes place.

The following tips may be useful in making an assessment plan:

- Make plans clearly legible with good handwriting or typed
- Write plans in clear language which avoids jargon
- Order stages logically
- Identify the aim of assessment
- Identify suitable venue for assessment to take place
- List resources to be used
- Explain the aim of assessment to candidate and how information gained by the assessment will be used
- Establish candidate's current and prior achievements and preferred learning style.
- Select assessment methods best suited for the learning objectives
- Select assessment methods which cause minimum disruption and are cost effective
- Select assessment methods which take account of any special factors
- Select assessment methods which occur during normal work activities
- Complete the assessment plan and state where records are stored

The external verifier will want to know what plan was used to arrive at the practical assessment results.

Please refer to section 9.6 in 'Delivering International Qualifications – Centre Guide' for a sample assessment plan (Form 7).

Conducting practical assessments by observation

Assessment by observation of performance takes place whilst the activity is being done. This method of assessment, especially in the workplace, is popular with candidates and employers because there is a high degree of realism and it is a good indicator of the ability to perform particular tasks.

Before the assessment takes place, it is essential to **brief the candidates**. This can be done as a group, or individually. Observing performance is not intended to be an examination, or cause candidates undue stress. It should never be a surprise, unannounced activity.

The briefing should:

- describe what the assessor plans to do
- show candidates the performance outcomes to be assessed
- explain what candidates will be asked to do in order to demonstrate the skills
- clarify what will be looked for in the demonstration of skill
- confirm when the assessment will take place, where and how long it will last
- explain what will happen to information collected during the assessment
- provide opportunities for candidates to ask questions on any aspect of the assessment.

Each candidate needs to know what will happen if the decision is '**not yet achieved the standard required**'. Candidates should be able to attempt the activity again, after the assessor has explained what evidence is still needed.

Appraisal of products

Where observation of performance is not used, our policy is to include **appraisal of products** as a means of assessing practical skills.

Example:

Practical competences

The candidate must be able to do the following:

1.3 Assemble and finish components to form basic products

This method of assessment is sometimes used because a practical task brings together the mental, physical and social skills needed to carry out the planning, undertaking and checking of a specified task. In this case the product required is a product made up of components. A product could also be a plan, a design, or a piece of processed information.

Here the instructor uses the competence checklist to plan a set of activities that will allow the candidate to demonstrate competence in the required practical skills. Often this will involve using equipment in a workshop. It may involve working outside.

Workshop activities are particularly useful in the early stages of assessing practical skills and can be used in combination with work placement. To reduce the risk of candidates making mistakes that have a real value, workshop activities can be used to practice highly technical skills until both the trainer and the candidate are confident that the task can be performed safely and competently in a real work situation.

Workshop practice, combined with work experience, is also useful where there is a high element of risk or where the relationship between customer and customer satisfaction is immediate and critical.

Although it can contribute to the demonstration of practical skills and has its advantages in certain situations, to rely on workshop activities alone for the assessment of practical skills has several disadvantages. It does not give the candidate the opportunity to experience a work environment and therefore it is only possible to **infer** that **if the candidate were in a workplace**, then **probably the candidate would perform the task competently** based on successful performance under observed conditions in the workshop, or while carrying out practical tasks.

Supplementary questions

An additional technique for supporting formative assessment is to use **supplementary questions**. The instructor may observe a candidate performing correctly, but want to know whether the candidate is likely to always perform in such a way. Supplementary questions can be used to probe specific areas of a candidate's knowledge, about which there may be some doubt, or where the possession of knowledge is critical.

They are asked as a natural part of an activity – asking about what the instructor is seeing – so they are less likely to intimidate the candidate.

However, on their own, supplementary questions are not sufficient evidence for confirming that a candidate has the practical skills to carry out tasks to the standard required.

Supplementary questions must be relevant to the task, and must have been covered in the training. It is unfair to ask about things that have not been taught. A variety of supplementary questions may be used and different questions can be used with different candidates, although questions should be similar in construction and degree of difficulty.

Supplementary questions should be planned to ensure they are relevant and fair. Open questions should be used, which require the candidate to supply the answer. Closed questions, which require only 'Yes' or 'No' answers, should be avoided.

Oral questioning

By asking every candidate the same set of questions, requiring a spoken response, the assessor obtains evidence of underpinning knowledge to support assessment of each candidate's practical skills. By using the same set of questions for each candidate the same demand is made of each candidate. This is important if more than one person is involved in the training and assessment of candidates.

The set of questions asked to every candidate is useful evidence to give to the external verifier to support the completed competence checklists. The external verifier may use the same questions to randomly check candidates' knowledge.

It is important not to confuse oral questioning that requires candidates to give answers to specific questions, from observation of performance that involves speaking.

In oral questioning the assessor is looking for the ability of the person to give the required knowledge, using speech. The ability to speak well (clearly, varied pitch and pace, well constructed sentences) should not be the purpose of the assessment. If candidates struggle to speak well, assessors should consider alternative, more appropriate assessment methods.

Distractions and disruptions

Internal distractions come from the candidate. The most likely candidate distractions are sudden loss of confidence, either immediately before or during the observation and resistance to assessment – where the candidate argues against or actually refuses to carry out the task.

The assessor must be alert to candidate signals and respond appropriately. If the task can be completed, the candidate should be encouraged to do so, but if necessary the candidate may take a break to regain their composure, and re-start the observation. The assessor must explain that the reason for the break is to allow the candidate to demonstrate best performance, and that it is not a signal of failure.

Resistance to assessment is more serious. The candidate may resist for a number of reasons, ranging from nerves (encouragement should be offered), to not understanding what is required or not being able to perform the tasks (they should be explained again, and review the learning programme to identify gaps).

Resistance may occur because the candidate does not have confidence in the assessor's ability to make a fair judgment. This may be because the assessor:

- has not briefed the candidate properly
- is untrained and/or does not demonstrate an understanding of the process
- has consistently criticised the candidate's performance and has not offered constructive training and support.

External distractions during an observation of performance should be minimised during the planning process. The assessor must minimise disturbance to the candidate. If it is necessary to interrupt an assessment in order to deal with a disruption, the assessor should reassure the candidate first and explain what is happening, stop the assessment and then deal with the problem. When resuming the assessment, the candidate should be reassured once more. In an extreme situation, the assessor should agree with the candidate arrangements for repeating or rescheduling the assessment.

Giving feedback on performance

Feedback on the demonstration of practical skills is essential to explain to the candidate how the result has been decided.

Feedback should always be a one to one conversation between the candidate and the assessor. The assessor should have a completed record sheet available to show to the candidate.

The approach to feedback should be open and constructive and avoid unfriendliness or intimidation. The purpose of assessment is to find out what a person can do; it should not be a means to find fault or catch the candidate out through unexpected tasks and deliberately difficult questions.

A good way of beginning feedback would be to start by saying 'well done' and then asking for the candidate's evaluation on their own performance. This approach immediately involves the candidate in the feedback process, showing value and respect.

The assessor should explain those activities or products completed well, and congratulate the candidate on what has been achieved. At this stage it is also useful to explain why it was achieved. By maintaining a positive approach throughout, a good relationship should have been developed with the candidate, and the candidate is prepared to accept any feedback on performance as fair and valid.

Giving feedback on unsuccessful performance is always more difficult, but equally important.

At no time should the assessor feel under pressure to say that something has been successfully achieved when it has not.

The assessor should explain what parts of an activity were done well, even if overall performance did not meet the required outcome. It is necessary to explain objectively which specific outcomes were not achieved, and why, and to be able to give examples of what could be done to achieve a successful outcome. During the assessment notes should be taken so that there is a written record of objective observations to give to the candidate during the feedback session.

A candidate is most likely to become upset or aggressive if the result is not understood, or considered to be unfair. Remain calm, objective and supportive. Keep talking to the candidate until agreement to listen has been reached. Subjective expressions like 'I think that.....' or 'In my opinion you should have... ' should be avoided.

It is essential to agree with the candidate what the future action will be. If the outcome of the assessment activity is the successful completion of all competence requirements, the next stage is to inform the candidate that the successful performance will be recorded and registered with City & Guilds. If the outcome is that some of the tasks have not yet been achieved, discuss what still needs to be practiced, and when an opportunity can be given to repeat the assessment.

Skills to help with employment

Introduction

It is recommended that candidates who are thinking about employment in this sector should prepare themselves for employment by following a course of study or other form of preparation based on the following activities.

Tips and hints

Employability

- 1 Find out about employment opportunities in the industry.
Opportunities: within city, state, nationally and internationally
- 2 Complete a job search and identify training opportunities.
Training opportunities: eg full time and part time courses, apprenticeship programmes, on-the-job training, government funded programmes
- 3 Obtain information about a job.
- 4 Find out about documents that may be required for a job application and reasons for including them.
Documents: eg curriculum vitae, education certificates, identification
- 5 Practice completing job application forms.
- 6 Practice job-interview techniques.
- 7 Understand and demonstrate productive work habits and positive attitudes. **Work habits and positive attitudes:** general (eg timekeeping, health and safety, consideration for others) and job specific
- 8 Identify ethical and responsible work practices.
- 9 Follow acceptable hygiene practices and adopt a professional appearance.
- 10 Demonstrate the principles of time management, work simplification, and teamwork when performing assigned tasks.
- 11 Understand the importance of taking pride in the quality of work performed.
- 12 Understand the importance of a drug-free workplace and industry policies toward drug and alcohol use.
- 13 Explain to a supervisor the importance of confidentiality in the workplace.

Customer relations skills

- 14 Demonstrate positive customer relations skills.
Customer relations skills: self-control, appropriate responses to criticism, courtesy
- 15 Demonstrate appropriate responses to criticism.
- 16 Respond to customer complaints in a positive, professional manner.
- 17 Demonstrate respect for people and property.

Problem-solving skills

- 18 Practice organising and planning multiple tasks, using various resources such as time, personnel and materials.
- 19 Analyse problems, identify the causes and devise plans of action.
- 20 Identify obstacles and choose the best alternatives.
- 21 Create new and better ways to perform tasks.

Safety for workers

Introduction

Going to work for the first time can be exciting and a bit strange. It can sometimes be dangerous. This is true whether you work in a factory or an office or on a farm or building site. Fortunately most dangers are recognisable and can be avoided.

Your own workplace will also have its own safety rules – perhaps in a booklet or on a notice board. Some you will be told. **Make sure you know and obey them.**

Remember these four important rules:

- ✓ **Learn** how to work safely
- ✓ **Obey** safety rules
- ✓ **Ask** your supervisor if you don't understand any instruction
- ✓ **Report** to your supervisor anything that seems dangerous, damaged or faulty

Games and practical jokes

Work is not the place for practical jokes or silly tricks. Serious injuries and even deaths have been caused this way.

Tidiness

Keep work areas and walk ways tidy and clear. Do not leave things lying around which people can trip over or bump into. Wet patches on the floor should be mopped up straight away or someone might slip and fall.

Hygiene

Always wash your hands, using soap and water or a suitable cleanser, before meals and before and after using the toilet.

It is recommended that you use barrier cream to protect your skin when you are doing dirty jobs.

Dry your hands carefully on the towels and driers provided. Do not wipe them on old rags or on your clothes.

Protective equipment and clothing

Use all protective equipment and clothing provided, such as ear and eye protectors, dust masks, overalls and safety shoes, helmets or boots. It may feel strange at first. Keep using it and you will get used to it. Ask your supervisor to replace any item that gets damaged or worn.

Moving about the workplace

Walk, do not run or rush about.

Use the walk ways provided and never take short cuts.

Look out for and obey warning notices and safety signs.

Only drive a works vehicle if you have been trained to use it and your supervisor allows you to use it.

Never hitch a ride on a vehicle not made to carry passengers. Do not stand on a fork lift truck or on a tractor trailer drawbar.

Lifting and carrying

You must learn how to lift correctly. Only lift or carry what you can easily manage. When lifting, get a good grip, lift smoothly and close to your body.

Get help if you are not sure you can lift or carry something safely and easily by yourself. Use trolleys or wheelbarrows where these are provided.

Ladders

Do not use ladders with split, missing or loose rungs. Use proper ladders.

Always make sure that the ladder is placed in the right position, at the right angle and cannot slip.

If working from a ladder, do not lean too far to the side, come down and move the ladder to a more convenient place.

Always use ladders, scaffolding or lifts to reach high places. Never hitch a lift in a crane bucket or on the forks of a lift truck.

Roofs

Roofs may be fragile or the tiles loose. Never go on to a roof unless you are told to do so by your supervisor and have been shown the precautions you should take.

Compressed air

Only use compressed air when your supervisor tells you to.

Do not use it for cleaning machines, benches or clothing.

Electricity

Remember electricity can kill or cause severe burns. Treat it with care.

Make sure you understand your supervisor's instructions before using any electrical equipment. If you do not understand, ask your supervisor to show you again.

Always switch off before connecting or disconnecting any electrical appliance.

Machinery

Operate only machines you have been trained to use and told to use.

Make sure you can reach the controls easily and know how to stop any machine you use.

Safety guards are fitted to machines to protect you and must be used.

Wait until a machine has stopped and has been switched off before you clean or clear it. Dangling chains or loose clothing could get caught up in the moving parts. Keep long hair tucked under a cap or tied back.

Do not distract other people who are using machines.

Tell your supervisor at once if you think a machine is not working properly.

Harmful substances

Learn to recognise the hazard warning signs or labels which tell you about the type of danger. They should tell you if a substance is poisonous, easily set on fire, or can cause burns.

Follow all instructions given on the container or by your supervisor.

Before you use a substance, find out what to do if it spills onto your skin or clothes.

If you are splashed with a chemical wash it off at once in the way you have been shown. Then report to your supervisor or whoever is responsible for first aid.

Overalls or protective clothing that get soaked or badly stained by harmful substances must not be taken home from work.

Do not put liquids and substances into unlabelled or wrongly labelled bottles and containers such as lemonade bottles or empty tins. This can be dangerous to everyone you work with.

Fire

Take care when handling petrol or other flammable substances. Keep them away from naked flames or sparks. Do not smoke.

Do not throw rubbish or cigarette ends and matches in corners, or under benches.

Obey 'No Smoking' rules.

First aid

Make sure you know the first aid arrangements for your workplace.

Report any injury, however slight, to your supervisor.

Always be careful.

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