Hand tools

Forename: _____ Surname: _____

School / College/ Institution _____

Course date: / / RDTHSC: _____

Colleagues must demonstrate their theoretical and practical knowledge, skills and understanding of the use of hand tools in school workshops by completing the following assessment tasks

Please tick in the appropriate column to confirm your knowledge and understanding and that you have completed the practical tasks set

Assessment Task 1
Hazards and Control Measures

Hazards	Safe system of working (control measures)	Tick
Sharp tools/falling tools	• Tools should be stored at a suitable height for ease of access • Sharp or pointed tools should be handled with care (with cutting edges protected or pointing downwards) • Tools should not be carried in pockets or under belts • Hand tools should not be left projecting from a bench • Instruction should be given on the correct use of hand tools	☐
Blunt tools	• Edged tools should be kept sharp and in good condition • They should be stored appropriately, e.g. in racks	☐
Tools breaking/coming apart in use	• Condition of tools should be checked before use • Learners should be aware of action required when tools break or fall apart • Faces of hammer heads/hammer shafts should be frequently inspected. Damaged heads and shafts should be discarded. The correct handle must be securely fixed on the tool. Wedges in hammer shafts should be kept tight • 'Mushrooming' on the struck ends of metalworking chisels should be removed regularly	☐
Slipping of tools, when pressure is applied	• Work pieces should always be held/clamped firmly in place • Sawing boards (bench hooks) should be maintained in good condition • The correct size of spanner should be used to fit nuts and bolts. Packing pieces should not be used	☐
Position/space around benches	• See DfES Building Bulletin 81, section 4. • Benches should be heavy-duty and robust enough for practical activities, with adequate knee space for comfort if used for seated tasks • Working surfaces should be at the correct height for tasks and appropriate for the materials being used	☐
Flooring	• See BS4163: 2014 Section 6 Working Area Environment	☐
Lighting	• See BS4163: 2014 Section 6 Working Area Environment	☐

Teaching Strategies

- It is essential that a risk assessment is completed to cover the use of hand tools by learners and colleagues. This will normally involve the adoption and adaptation of a model risk assessment, e.g. BS4163: 2014
- It is essential that a regular maintenance programme is put into operation and that a maintenance log is kept. This should involve daily, weekly and termly checks, covering general maintenance and identifying any faults that require repairs
- Learners should be aware of the hazards associated with hand tools and precautions that should be taken during use
- Before using the tools, learners should be trained and assessed as competent, and a record of their training should be kept
- Learners should be supervised at all times by a trained, competent person
- Health and safety rules should be available and observed

Demonstration of hand tools to learners should include:

- Where/how to access tools, place them safely on the bench and replace when finished
- Teaching the correct names and parts of hand tools
- The correct use of each hand tool
- Preparation of practice pieces (FPTs) for learners to improve skills using hand tools
- Making adjustments to tools and how to renew worn parts
- Checking the adequacy of the workspace for the safe use of hand tools
- Ensuring that personal protective equipment is used
- Reinforcing correct positioning and use of tools with individual learners during lessons, but encouraging learners to practise for themselves
- Avoiding doing too much for individual learners, taking away the opportunity for them to learn and have responsibility for their own work

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Assessment Task 2
Practical Skills

Demonstrate safe use of a range of hand tools for working in wood, metal and plastics, i.e.

- Marking out accurately, e.g. using ruler, pencil, scriber, try-square, dividers
- Holding work pieces securely, e.g. using bench vices, bench hook, 'g' clamp
- Sawing to length using appropriate saws, e.g. using frame saw, coping saw, back saws, hacksaw, handsaw
- Preparing and testing smooth surfaces, e.g. using planes and files, try-square, straight edge and correct use of face side/face edge
- Shaping materials with appropriate tools, e.g. using rasps, files, chisels, surform, craft knife
- Selecting appropriate joining techniques using fixings and fasteners, e.g. correct marking out for nailing/screwing, using hand drills, countersink bit, screwdrivers, hammers, pincers, spanners
- Selecting appropriate jointing techniques, e.g. correct marking out of joints, using saws, mallet and chisels to accurately fit joints together
- Selecting and using appropriate adhesives and clamping devices to join materials
- Selecting and using appropriate surface finishes for materials, e.g. using abrasives, polishes, applied finishes

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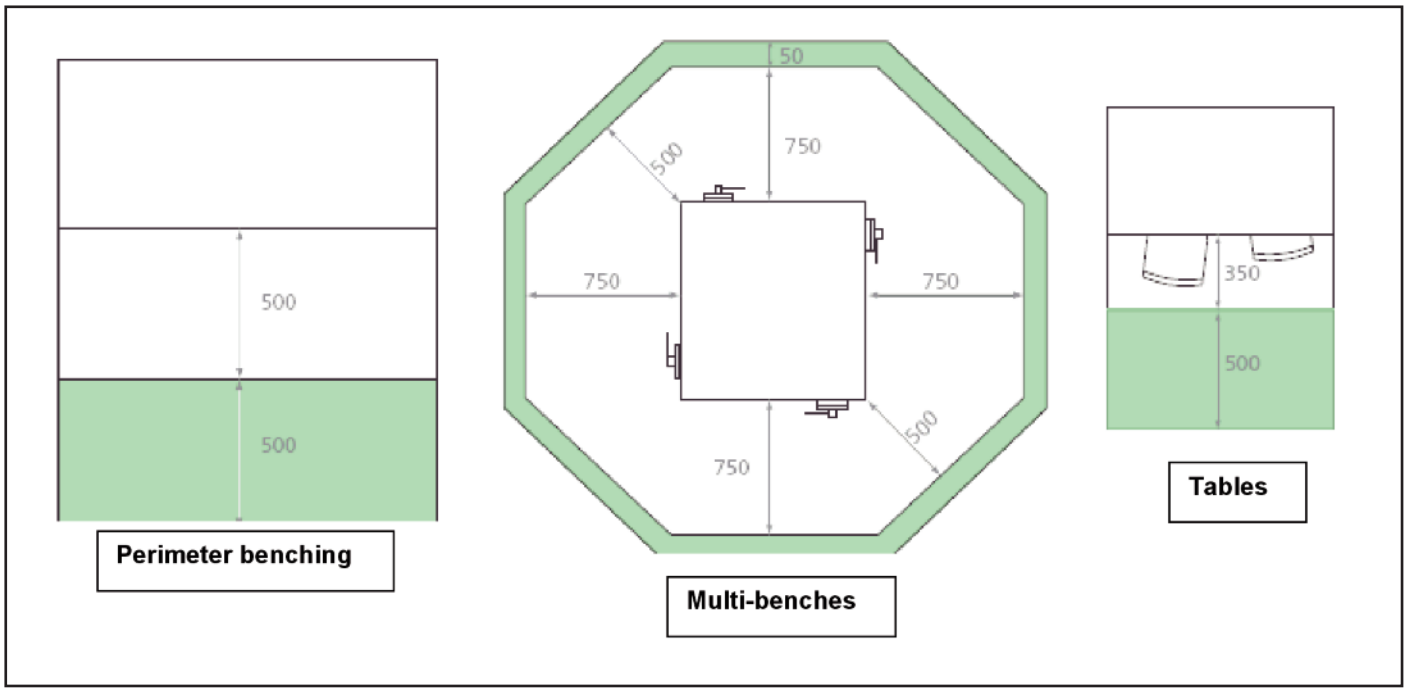
Supplementary materials

The space-allocation diagrams give a guide to the distances that should be allowed around tables, multi-benches and perimeter benching. These dimensions can be used when planning a room layout to help ensure comfortable and safe working conditions. However, it is important to note that adequate distances are not the only safety consideration. Room shape and size are amongst the other things to think about, and the activities carried out also need to be considered.



- The following references provide additional notes and guidance to support training sessions:
  http://www.axminster.co.uk/category-Hand-Tools-206825.htm – a good source of pictures of a wide range of hand tools
  http://www.geoffswoodwork.co.uk/basic_tool_kit.htm – Geoff's Woodwork – recommendation for a basic tool kit with pictures