

Portable power tools: General metal: Industrial Technology

Answers

Activity 1

Read the guidelines and then answer the following questions related to the safe use of portable power tools.

1. Why should you unplug an angle grinder before changing the cutting/grinding disk?

The angle grinder needs to be turned off and unplugged from the power point to eliminate the risk of the grinder being accidentally switched on whilst adjusting the guard or securing a new grinding or cutting disk.

2. You have been asked by your teacher, Mrs Mettallica, to grind off the sharp edges on your metal project before painting. Mrs Mettallica has asked you to implement all of the safety checks and then call her over to your work area for a final check before grinding. List the checks that you need to make before you gain permission to grind.
 - a) The grinder is unplugged whilst not in use.
 - b) Check that the correct disk is attached to the grinder. It must be a grinding disk and not a cutting disk. Ask your teacher if you are unsure.
 - c) Check that the power cord is free from any cuts or abrasions and that the plug is securely attached.
 - d) Make sure that the metal project is securely held and will not move in the process of grinding.
 - e) Make sure all guards are in place and adjusted for the activity to be undertaken.
 - f) Make sure that the area is clear of flammable liquids and that any water will not come into contact with the electrical cord or connections.
 - g) Ensure that, where necessary, screens are in place to prevent the escape of sparks into other work areas.

Activity 2: Risk assessment

Complete the following table by identifying the risks involved in the following situations and suitable control measures.

Practical task: Drilling into sheet metal with a portable drill.	
Identified risk: Risk of metal rotating and lacerating user and eye injury from metal fragments.	Control measures: Clamps must be used to secure material. Eye protection to be used.
Practical task: Cutting sheet metal with a nibbler.	
Identified risk: Risk of laceration from sharp edges after cutting and eye injury from metal fragments.	Control measures: Sheet metal should be clamped. Gloves and eye protection to be used.
Practical task: Removing burrs with an angle grinder.	
Identified risk: Risk of abrasion from disk, eye injury from ejected particles and burns from hot metal.	Control measures: Gloves and eye protection to be used.
Practical task: Cutting a curve in 3 mm flat mild steel with a jigsaw.	
Identified risk: Risk of laceration from blade and impact from off-cut.	Control measures: Eye protection, hair restraint, loose clothing restrained.
Practical task: Soldering two pieces of tin plate together.	
Identified risk: Risk of burns and exposure to fluxes and fumes.	Control measures: Eye protection, face mask with filtration canister to be used.