Using tools and equipment safely 17.1

Safety issues

Workshops contain lots of tools, materials and equipment. You can be seriously injured unless you understand safety rules and make sure you follow them.

You must:

- Use the correct tools and equipment
- Maintain tools and equipment so they are safe to use
- Work sensibly and carefully
- Know how to use tools and equipment before you start using them
- Wear personal protective equipment

You must also use the working environment properly by:

- Moving and working sensibly
- Mopping up spillages
- Ensuring good ventilation and extraction
- Storing tools and materials safely

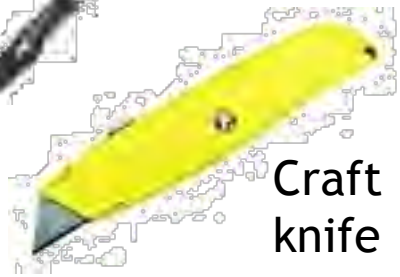
Cutting tools

Even if you are only cutting paper and card this can be dangerous. We need to use sharp cutting tools to cut materials and we need to follow rules to keep us safe:

- Wear PPE
- Make sure you know how to use tools
- Listen to guidance given by the teacher
- Do not get distracted by others
- Maintain tools well
- Read instructions especially for adhesives, solvents and spray paints.

Scissors

Scalpel



Craft knife

Metal safety rule

Compass cutter

Rotary cutter

Cutting mat

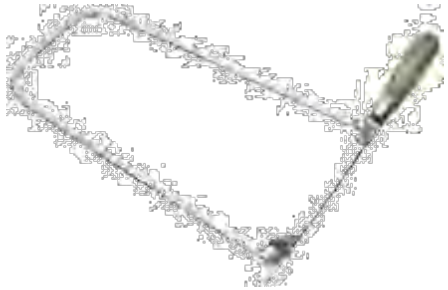
Cutting tools in a workshop

Laser cutter

Vinyl cutter

Fretsaw

Coping saw



Hot wire cutter

Risk assessment Hazards

A hazard is something that could harm you if you take no notice of the danger. If you take care crossing a road it reduces the danger. If you are aware of dangers in the workshop and act sensibly you will reduce the risk. There are different levels of risk.

Identifying risks
It is important to identify risks and make a proper risk assessment. A risk assessment is a process where you work out what the risk is, who is at risk, what the level of risk is and what can be done to reduce the risk

http://www.hse.gov.uk/pubns/indg163.pdf

Risk	Reducing the risk
Bags on the floor	Tidy them out of the way
Using a craft knife	Use a sharp blade safety rule and cutting mat. Cut on a flat surface.
Eye strain from using a computer	Take a break every 20 minutes
Dust from a sanding machine	Wear PPE and use extraction
Loose clothing and long hair when using a machine	Take off ties, roll up sleeves, tie hair back
Using spray adhesive	Use good ventilation and a spray booth for extraction
Using a glue gun	Do not touch the hot nozzle
Using portable electric tools	Ensure all cables are out of gangways
Carrying tools around the workshop	Carry tools in a safe manner, retract blades when possible

Think of six hazards in your classroom and think what you can do to reduce the risk.

Safety and the law

Who is responsible for safety?

The school will ensure that you have a safe working environment but it is your own responsibility to make sure you work safely to protect yourself and others.

There are regulations to make sure that all workplaces are safe and these are enforced by the Health and Safety Executive.

Employers and schools must follow the law on safety such as The Health and Safety at Work Act

Signs and symbols

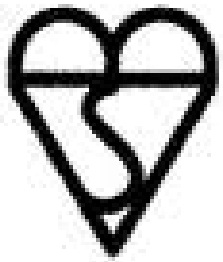
HSE
Health & Safety Executive

Safety Signs and symbols

The British Standards Institute, BSI, has produced symbols and signs that tell us if products are safe to use (by their high standards), and to warn us of potential dangers.

High risk danger signs are usually bright yellow with black lettering

Signs with red circles are prohibitive. They usually have a a diagonal line across and tell us “do not do”
Signs with blue circles or rectangles are used to give positive instructions. These are must do signs.



Signs and symbols are simple in shape and colour. You may have to design one in the exam.

Joining materials

As a designer you will have to model your ideas. This will often mean joining materials together. There are many materials and a lot of ways of joining them. You need to be aware of them and how they work.

Adhesive	What does it join?	What does it look like?	Advantages	Disadvantages
Glue stick	Paper card		Cheap, easy to use, safe	Not a strong bond
PVA	Card wood		Strong bond, safe, sets within 2 hours	Can ripple thin card
Spray adhesive	Paper card		Quick, can reposition work easily	Not a strong bond, expensive, must use extraction
Balsa cement	Balsa wood		Quick setting	Use in a well ventilated area
Epoxy resin	Everything		Very strong, 2 hours to set, can join different materials	Difficult to apply Use in a well ventilated area
Acrylic cement	Acrylic		Quick	Can leave marks and is a bit messy. Use in a well ventilated area
Hot glue gun	Most materials		Very quick to set. Join different materials	Not suitable for fine model work. Can burn skin
Double sided tape	Paper card foam board		Immediate and strong join	Cannot reposition work