

## Design & Technology

### A-Level

# Adopting safe working practices, recognise and react to potential hazards

#### Materials required for questions

---

- Pencil
- Rubber
- Calculator

#### Instructions

---

- Use black ink or ball-point pen
- Try answer all questions
- Use the space provided to answer questions
- Calculators can be used if necessary
- Use a cross in the box to mark you answer



#### Advice

---

- Marks for each question are in brackets
- Read each question fully
- Try to answer every question
- Don't spend too much time on one question

## Good luck!

**Q1.** Which piece of safety equipment should be worn when using a pillar-drilling machine?

**A** Goggles

☐

**B** Heat protective glove

☐

**C** Ear defenders

☐

**Q2.** Which statement about hazards and risks is correct?

**A** A hazard is a potential problem.  
A risk is the likelihood that the problem will occur.

☐

**B** A risk is a potential problem. A hazard is the likelihood that the problem will occur.

☐

**C** A hazard and a risk are exactly the same thing.

☐

**Q3.** Which symbol would suggest that the substance is irritant to skin?

**A**

☐

**B**

☐

C

☐

**Q4.** Which symbol indicates a chemical that should be used in a fume cupboard?

A

☐

B

☐

C

☐

**Q5.** Which hazard symbol is used for a substance that will help other things burn faster?

**A**

☐

**B**

☐

**C**

☐

**Q6.** Which symbol indicates a chemical that is corrosive?

**A**

☐

**B**

☐

**C**

☐

**Q7.** What kind of substance should always be heated in a water bath, rather than by a Bunsen burner?

**A** A process whereby paint is sprayed onto the Surface of a material ☐

**B** A process that creates a long-lasting protective Coating on a metal ☐

**C** A flammable substance ☐



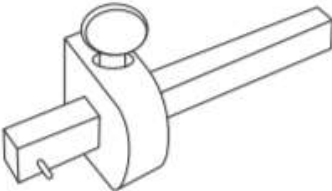

**Q8.** When would wearing protective gloves and eye protection be most appropriate?

**A** When using corrosive substances ☐

**B** When using oxidising substances ☐

**C** When using flammable substances ☐

**Q9.** Complete the table below by giving the missing names and uses.

Tools/Equipment	Name	Use
	First Aid kit	(1)
	(1)	Protect hearing in the workshop
	Marking gauge	(1)
	(1)	For holding a pattern/ packing sand into when casting

**Q10.** MDF can be cut and sanded in the school workshop.

Give three health and safety risks of cutting and sanding MDF in the school workshop. **(3 marks)**

1.

---

---

2.

---

---

3.

---

---

**Q11.** Give three risks associated with the use of glass reinforced plastic (GRP) in the school workshop. **(3 marks)**

1.

---

---

2.

---

---

3.

---

---

**Q12.** Describe two health and safety precautions that should be taken when welding. **(4 marks)**

1.

---

---

---

2.

---

---

---

---

**Q13.** Give two health and safety issues associated with using a laser cutter. **(3 marks)**

1.

---

---

2.

---

---

3.

---

---

**Q14.** Before any manufacturing processes are carried out a risk assessment must be completed.

Outline the five steps involved in a risk assessment. **(5 marks)**

1.

---

---



2.

---

---

3.

---

---

4.

---

---





5.

---

---

**Q15.** Fill in the missing boxes one has been done for you.

**(4 marks)**

Geometric shape	Meaning	Example of use
 Square	Fire equipment	Fire extinguisher
 Square	Safe condition	<hr/> <hr/>
	Prohibition	No smoking
 Circle	Mandatory action	<hr/> <hr/>
 Equilateral triangle with radiused outer corners		Electricity

## **Answers**

**Q1. A**

**Q2. A**

**Q3. C**

**Q4. C**

**Q5. B**

**Q6. C**

**Q7. C**

**Q8. A**

**Q9.**

	Name	Use
ai		Contains / stores / holds plasters / bandages basic medical supplies  Do <b>not</b> accept generic descriptors of first aid kit. (1)
aii	Ear defenders (1) (only answer)	
aiii		Marking / scoring a line parallel to an edge (1)
aiv	Cope and/or drag / moulding flask (1)	

4 x 1

**Q10.**

Any three health and safety risks given from:

- The dust can cause breathing / throat / lung problems (1)
- Fine particles can cause sore eyes (1)
- General dust / particles can cause problems for others in the workshop / slippery floors (1)
- Fibres in extraction systems can potentially cause explosions / blow out (1)
- You could cut yourself when using saws (1)
- You might catch your skin on the glass paper / disc sander/ cause a scratch / remove skin (1)

3 x 1

**Q11.**

Any three risks given from:

- The dust / fibres / particles created from cutting / sanding is harmful to breath in / irritating to the eyes (1)
- The glass fibre matting can cause skin irritation (1)

- The fumes given off when using the resin / gel coat are harmful and can cause sickness dizziness / highly toxic (1)
- The resin materials are highly flammable (1)
- Sharp edges left / exposed when cut / cuts to skin (1)

3 x 1

#### **Q12.**

Two descriptions from:

- Heat / welding mask / shield / goggles should be worn (1) to avoid arc eye / damage to eyes / sparks / burns(1)
- Tinted goggles / mask (1) to avoid arc eye / damage to eyes (1)
- Ensure welding screens / curtains are closed (2) therefore no risk to others of arc eye / damage to eyes (1)
- Gloves should be worn (1) to avoid any burns to hands / splatter from welding (1)
- Apron should be worn (1) to prevent clothing catching fire (1)
- Any gas bottles should be stored correctly / chained up (1) to prevent them falling over / run the risk of exploding (1)
- Any gas bottles should be fitted with nonreturn valve (1) to reduce the risk of any 'blowback' / explosions (1)
- Extraction / ventilation system should be provided (1) to remove harmful fumes / gases from work area (1)
- Fire extinguisher/blankets should be provided (1) to put out any fires (1)

2 x 1

2 x 1

#### **Q13.**

Two issues given from:

- Fumes given off/ inhalation / use of extractor (1)
- Skin burns / burns from laser (1)
- Damage to eyes / blindness / arc eye (1)
- Materials wood / card / paper / fabric can catch fire / burn (1)
- Keep the lid closed to retain fumes / stop potential burns (1)
- Personal injury in the form of burns from hot materials / MDF / Ply (1)

(Do not accept answers related to use of gloves  
or goggles)






3 x 1

#### **Q14.**

Any five of the following points:

1. Identify the hazards / risks (1)
  2. Identify the people at risk / who might be harmed. (1)
  3. Evaluate the risks / assess the seriousness of it / likelihood of it happening. (1)
  4. Decide / implement / check appropriate control measures / an example of a control measure Eg. guards, PPE, signage, training maintenance, etc. (1)
  5. Record /store the risk assessment (1)
  6. Set a review date / regularly review the risk assessment. (1)
- Note that the order of the points should not be considered.  
(1 x 5)

**Q15.**

<b>Geometric shape</b>	<b>Meaning</b>	<b>Example of use</b>
 Square	Fire equipment	Fire extinguisher
 Square	Safe condition	<b>Emergency exit</b>
 Circle with diagonal bar	Prohibition	No smoking
 Circle	Mandatory action	<b>Wear eye protection</b>
 Equilateral triangle with radiused outer corners	<b>Warning</b>	Electricity