Design & Technology

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
- For the multiple choice questions, circle your 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. 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.

Q10. Describe two health and safety precautions that should be taken when welding. **(4 marks)**

1.

2.

Q11. Give two health and safety issues associated with using a laser cutter. **(3 marks)**

1.

2.

3.

Q12. 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.

Q13. Safe working practices are needed in modern manufacturing. Risk assessments are carried out for all manufacturing operations and processes.

Give **two** control measures, used during the pouring of an aluminium sand casting in a school workshop **(2 marks)**

Q14. Describe the purpose of a risk assessment in a manufacturing environment. **(6 marks)**

Answers

Q1. A
Q2. A
Q3. C
Q4. C
Q5. B
Q6. C
Q7. C
Q8. A

Q9.
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)

Q10.
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)

Q11.

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)

Q12.

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)

Q13.

- Use PPE (1)
- Use a ventilation extract (1)
- Use screens to separate user from molten metal (1)
- Sand floor to stop rapid spread of molten metal if spilled (1)
- Use specialist tools to lift crucible and pour aluminium (1)

Q14.

- To identify both the likely probability and potential of harm, injury or risk measured (1)
- To identify when activities or actions are deemed unsafe, or where the severity of injury is great (1)
- Ensures that they are removed, or an increased level of scrutiny is adhered to in order to make the environment safe (1)

- To identify specific PPE that a worker may need to be equipped with for a specific activity (1)
- To ensure that the manufacturing company is fulfilling its duty of care for employees (1)
- To help employers identify and minimise risk to the workforce
- To provide guidance for all employees to help reduce accidents or injuries (1)
- To ensure that annual reassessments take place and new measures/directives are implemented (1)
- To ensure all new staff are properly trained and aware of the manufacturers health and safety policy and guidance (1)
- To ensure all employees, regardless of job are aware of any dangers or risks that may occur (1)