**Scheme of Work: Packaging Project**

<table>
<thead>
<tr>
<th>Year Group: 9</th>
<th>Key Stage: 3</th>
<th>Duration: 6 / 7 Weeks</th>
<th>No. of Lessons: 18 / 21</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Title:</strong> Packaging Project</td>
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</tbody>
</table>

### Introduction: Key Purpose of Project

During key stage 3 pupils use a wide range of materials to design and make products. In this project pupils will work out their ideas with some precision, taking into account how products will be used, who will use them, how much they cost and their appearance. They will develop their understanding of designing and making and expand their practical skills in the use of paper, card and other graphic equipment. They will use computers, including computer-aided design and manufacture, as an integral part of designing and making. The main aim of this project is to develop pupils understanding of designing and manufacture for a company and specific user.

During this project students will be asked to design and make a new carton for a local Chinese takeaway company. Students are required to design and create a logo for the company which will need to go on the takeaway packaging and it must be in-keeping with Chinese style and tradition. The carton must be made from card and can include inside sections for different foods or condiments. Within the project students will research different packaging symbols, sustainability, existing logo and net design. This project is designed to link with a Food project where by students design and make their own health versions of a take away food.

The main aim of this project is to develop pupils understanding of designing and manufacture. The project allows pupils to understand basic principles of net design, fonts, colour styles and semantics. The project builds upon design and making skills previously learnt to be used in a graphics based project. Pupils will also be introduced to other areas of design including: mood boards, cultural research and design, packaging design and the development of a recipe.

### Aims of the project:

- To enable pupils to develop their practical skills.
- To increase awareness of sustainability in packaging design.
- To develop knowledge and understanding of materials, tools, processes, symbols and net design
- Select and use a range of tools, equipment and processes safely and accurately.
- Understand how to take account of working characteristics of materials and components and restrictions imposed by tools and equipment.
- Research of Printing Processes and Techniques.
- Accurately measure, mark out, cut and waste material. High quality finishes produced.
- Use of computer-aided design and manufacture, as an integral part of designing and making.
- To evaluate work throughout the manufacturing process.
- To develop knowledge/skills to enable achievement of a high quality finish in practical work.

### Knowledge and understanding that will be needed or acquired:

- Health and safety with a particular focus on graphics equipment.
- Marking out techniques, the use of templates and accuracy.
- Use of computer-aided design and manufacture skills, the use of 2D Techsoft Design and photoshop.
- Understanding of mood boards, image selection, logo design and net development.
- Knowledge of Social, Moral, Cultural and Sustainable design within a product.

### Pupils will be assessed on:

- Research, analysis and planning of making.
- Design ideas and Development.
- Evaluations, testing and modifications/improvements.
- Production of effectiveness of outcome (level of accuracy and finish)

### Key Terms:


### Areas to be covered within the Project:


Acknowledgment of the range of skills of year 9 will be needed in order to keep the attention of the whole class. Allowing freedom within the project to personalize the work may help to do this. Also challenging the whole class and allowing for differentiation within the class. Pupils will also be introduced to Social, Moral, Cultural and Sustainable design within a product as well as printing processes and techniques.
### Outline of Key Developments

<table>
<thead>
<tr>
<th>Developing, planning and communicating ideas</th>
<th>Key Activities to Fulfil Developments</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Generate, develop, model and communicate ideas in a range of ways, using appropriate strategies.*</td>
<td>* Developing, planning and communicating ideas to meet the needs of clients.*</td>
</tr>
<tr>
<td>* Respond creatively to briefs, developing their own proposals and producing specifications for products.*</td>
<td>* Introduce the project and allow pupils to explore the use of possible images and designs (Mood Board and Inspiration Board).*</td>
</tr>
<tr>
<td>* Use their understanding of others' designing to inform their own.*</td>
<td>* Pupils will be required to develop and communicate a range of design ideas using appropriate strategies.*</td>
</tr>
<tr>
<td>* Analysing existing products and solutions to inform designing and making.*</td>
<td>* Use a range of research techniques to explore possible packaging designs, logo designs, cultural influences, printing processes and techniques.*</td>
</tr>
<tr>
<td>* Undertake focused tasks that develop knowledge, skills and understanding in relation to design and make assignments.*</td>
<td>* Pupils will be required to develop a range of ideas. Students will practice their sketching techniques, annotating and evaluating each idea.*</td>
</tr>
</tbody>
</table>

### Tools, equipment, materials and components

**Tools, equipment, materials and components (including CAD/CAM)**

- Applying knowledge of materials and production processes to design products and produce practical solutions that are relevant and fit for purpose.
- Have a broad range of techniques, including handcraft skills and CAD/CAM, and use them to ensure consistency and precision when making single and multiple products.
- Evaluate which hand and machine tools, equipment and computer-aided design/manufacturer (CAD/CAM) facilities are the most appropriate to use.

### Understanding Materials and components

- Apply their knowledge and understanding of a range of materials, ingredients and technologies to design and make their products.
- Know how to use materials, smart materials, technology and aesthetic qualities to design and make products of worth.
- Exploring and experimenting with ideas, materials, technologies and techniques.
- How to use materials, smart materials, technology and aesthetic qualities to design and make products of worth.

### Planning

- Plan and organise activities and then shape, form, mix, assemble and finish materials, components or ingredients.
- Solve technical problems.
- How to prepare and assemble components to achieve functional results.

### Evaluation

- Reflect critically when evaluating and modifying their ideas and proposals to improve products throughout their development and manufacture.
- Aesthetic, technical, constructional and relevant wider issues that may influence designing, selection of materials, making and product development.

### Communication

- Use ICT as appropriate for image capture and generation; data acquisition, capture and handling; controlling; and product realisation.

- Developing, planning and communicating ideas to meet the needs of clients.
- Introduce the project and allow pupils to explore the use of possible images and designs (Mood Board and Inspiration Board).
- Pupils will be required to develop and communicate a range of design ideas using appropriate strategies.
- Use a range of research techniques to explore possible packaging designs, logo designs, cultural influences, printing processes and techniques.
- Pupils will be required to develop a range of ideas. Students will practice their sketching techniques, annotating and evaluating each idea.
- Develop a final design idea in relation to the specification. Improving and adapting the idea.
- Use of computer aided design to develop nets and logos (2D Techsoft Design and Photoshop)

- Demonstrations on marking out, precision and accuracy when card and other graphic equipment.
- Demonstrate safe use of tools to be used. Rules and regulations of the workshop.
- Demonstrations of a selection of graphic tools.
- Increase awareness of health and safety.
- To develop knowledge and skills to enable the achievement of a high quality finish in practical work.
- Development of marking out techniques, accuracy
- Explanation of materials and processes.
- The use of quality control and quality assurance methods used throughout the project.
- Produce a high quality and accurate product.

- Focus on properties of materials such as card and paper, working characteristics and environmental issues (Sustainability of Packaging).
- Research into Social, Moral, Cultural and Sustainable design within a product.
- Research of sustainable and recycling issues and relate information gained to the project.

- Understanding time management by drawing up, discussing a plan for making in the workshops.
- Development and planning of recipes.

- Evaluations of pupils own work and the work of others (self and peer evaluation/ assessment).
- Test, modify and evaluate that the quality of their product is suitable for intended users and devise modifications where necessary for improvements.

- Present information in a form that suits its purpose, using appropriate media.
- Develop research techniques and the selection of relevant information.
- Able to represent designs in the form of accurate and recognised drawing forms (quality of drawings).
Methods of Assessment (How and When)

Assessment is an essential part of teaching and learning in all subjects. It can take many forms and be used for a range of purposes. Use of Assessment of Learning (summative assessment) to judge students’ performance against national standards (level descriptions), at the end of a unit of work. Assessment for learning (formative assessment) involves using assessment in the classroom to raise students’ achievement. It is based on the idea that students will improve most if they understand the aim of their learning, where they are in relation to this aim and how they can achieve the aim.

Learning and undertaking activities in design and technology contribute to achievement of the curriculum aims for all young people to become:

- Successful learners who enjoy learning, make progress and achieve.
- Confident individuals who are able to live safe, healthy and fulfilling lives.
- Responsible citizens who make a positive contribution to society.

Key characteristics of assessment for learning are:

- Using effective questioning techniques.
- Using marking and feedback strategies.
- Sharing learning goals.
- Peer and self assessment.
- Consistent Question and Answer sessions within lessons.
  - Formal questioning is used throughout the lesson which is addressed to the whole class, small groups or an individual.
  - Informal questioning takes place during pupil activities. This can be used to confirm pupils are kept on task, understand the work they are doing and motivate pupils in a positive direction.
- Praise and encouragement in the classroom. Pupils are monitored throughout the lesson and motivated through praise and encouragement. Providing students with both positive and constructive comments during assessment. Students will be given an area to improve on for each project.
- Pupils evaluate their own work during the course and assess their level of achievement towards the end of the project. Peer assessment involves students assessing the performance of other students.

Key characteristics of assessment of learning are:

- To judge students' performance against national standards.
- Measuring what has been learned in formal assessment.
- Emphasis is more on helping pupils learn.
- Regular homework once a week.
- National Curriculum level at the end of the topic. Pupils will be given a grade based on the national curriculum levels at the end of the topic. These will be from level 4 to level 8.
- Pupil monitoring during lesson. Assessing the students as you are walking around will provide more of an insight to how different students work. Students who seem to be working hard and show enthusiasm and effort could influence their mark. It will allow the students to ask for help or assistance if they see a teacher’s presence. Guidance can be given and encouragement can be shown through positive comments.

Good assessment:

- Helps develop successful learners.
- Recognises strengths and areas for development and clearly identifies ways for learners to progress.
- Is based around pupils’ needs and leads to improved attainment and progress.
- Encourages pupils to take a central role in their own assessment.
- Is essential in creating personalised learning
- Helps teachers to be flexible enough to recognise learning as it happens
- Results in decisions and actions from both day-to-day interactions with pupils and through taking a periodic overview of progress.

Assessment needs to:

- Value and include a wide range of attitudes, dispositions and skills, as well as achievement in subjects.
- Draw on a broad range of evidence, including beyond the school.
- Involve those that know the learner best – including parents, peers and members of the wider community.
Performance Criteria (National Curriculum Level Related)

**Level 4**
Pupils generate ideas by collecting and using information. They take users’ views about aesthetic and technical issues into account as they respond to briefs. They communicate alternative ideas using words, labelled sketches and models, showing that they are aware of constraints. They apply their knowledge and understanding of materials, ingredients and components, and work with them with some accuracy, paying attention to quality of finish and to function. They use some ideas from others’ designing to inform their own work. They produce step-by-step plans and then select and work with a range of tools and equipment. They identify what is working well and what could be improved to overcome technical problems. They reflect on their designs as they develop, recognising the significance of knowledge and previous experience.

**Level 5**
Pupils develop ideas by drawing on and using various sources of information. They clarify their ideas through discussion, drawing and modelling, showing understanding of aesthetic and economic dimensions. They respond to briefs showing understanding of how culture and society are reflected in familiar products when developing and communicating their own ideas. They show that they are aware of constraints as they apply knowledge and understanding of materials, ingredients and techniques. They use understanding of others’ designing as they develop their work. They work from their own detailed plans, modifying them where appropriate. They work with a range of tools, materials, ingredients, equipment, components and processes with some precision. They check their work as it develops, solve technical problems and show some evidence of creativity as they modify their approach in the light of progress. They test and evaluate their products, showing that they understand the situations in which the products will function.

**Level 6**
Pupils draw on and use a range of sources of information, and show that they understand the form and function of familiar products as they develop and model ideas. They respond creatively to briefs, exploring and testing their design thinking. They develop detailed criteria for their products and use these to explore proposals. They apply their knowledge and understanding by responding to several aspects of the problem. They recognise the significance of others’ designing and modify their approaches accordingly. They produce plans that outline alternative methods of making progress. They work with a range of tools, materials, ingredients, equipment, components and processes, showing that they understand their characteristics. They check their work as it develops and solve technical problems by modifying their approach in the light of progress. They evaluate how effectively they have used information sources, using the results of their research to inform their judgements when developing products. They evaluate their products as they are being used, and identify ways of improving them.

**Level 7**
Pupils use a wide range of appropriate sources of information when developing and modelling ideas. They investigate form, function and production processes as they respond creatively to briefs. They apply their knowledge and understanding, recognising the different needs of a range of users, and search for trends and patterns in existing solutions as they develop fully realistic products. They use their understanding of others’ designing to inform their own as they communicate creative ideas. They produce plans that predict the time needed to carry out the main stages of making products. They work with a range of tools, materials, ingredients, equipment, components and processes, taking full account of their characteristics. They adapt their methods of manufacture to changing circumstances as they solve technical problems, providing a sound explanation for any change from the design proposal. They select appropriate techniques to evaluate how their products would perform when used and modify their products in the light of this evaluation to improve their performance.

**Level 8**
Pupils use a range of strategies to fully develop and model appropriate ideas, responding to information they have identified. They identify conflicting demands on a product and respond creatively to briefs, suggesting ways forward and explaining how their ideas address these demands. When applying knowledge they make decisions on materials, ingredients and techniques based on their understanding of physical properties and working characteristics. They use their understanding of others’ designing by reinterpreting and applying learning in new contexts. They organise their work so that they can carry out processes accurately and consistently, and use tools, equipment, materials, ingredients and components with precision. They use accurate testing to inform their judgements when solving technical problems. They identify a broad range of criteria for evaluating their products, clearly relating their findings to environmental, ethical, and social and cultural dimensions.

**Exceptional Performance**
Pupils seek out information to help their design thinking. They recognise how products contribute to lifestyle and choices of a variety of client groups as they develop and model ideas in an innovative way. Responding creatively to briefs, they are discriminating in their selection and use of information sources to support their work. They interpret and apply knowledge and understanding creatively in new design contexts and communicate ideas in new or unexpected ways. They use understanding of others’ designing in innovative ways. They work with tools, equipment, materials, ingredients and components to a high degree of precision. They make products that are reliable and robust and that fully meet the quality requirements given in the design proposal. They reflect critically and effectively throughout designing and making processes.
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic/area of study</th>
<th>Skills/knowledge acquired (including curriculum links)</th>
<th>NC PoS links</th>
<th>Activities (extension/differentiation)</th>
<th>Resources/risks</th>
</tr>
</thead>
</table>
| 1    | • Introduction to the Project (aims and objectives of the project in relation to the Nation Curriculum Levels).  
• Understanding of Design Briefs, Specifications and Mind Mapping techniques.  
• Development a Design Brief and Specification.  
• Researching a range of topics in relation to the project. | • Understand the project and how it will evolve over the course.  
• Knowledge and understanding of Design Briefs, Specifications and Mind Maps.  
• Developing research skills.  
• Knowledge and understanding of theory work.  
Links to literacy – Knowledge and understanding of technical terms used within design.  
Links to Citizenship – Designing for a user and development of a project to solve a problem and meet a need. | 1.1a  
1.2b  
1.4b  
2d  
3d  
4c | • Students will complete a Mind Map to determine possible solutions or aspects of the product. Research will be carried out on Symbols and Sustainability.  
• Students will complete a mood board containing a range of images to inspire their designs.  
• Students will be introduced to Net Theory and Packaging Design  
**Homework**  
Students will research Printing Processes. | • Project Example.  
• Graphic Materials: Paper, pencils, colouring pencils, rulers, project booklets.  
• ICT computer room. |
| 2    | • Introduction to Generation of Design Ideas (looking at sketching techniques and annotating ideas).  
• Demonstration of sketching and rendering techniques.  
• Remind students to include details on the packaging:  
  o Symbols  
  o Information  
  o Take away restaurant theme and logo. | • Able to generate ideas, develop project proposals and evaluate them.  
• Improvement of design idea generation (looking at sketching techniques and annotating ideas).  
• Development of presentation of work, evaluation skills and technical terms.  
Links to numeracy – Setting up page borders. | 1.1b  
2a,b  
3e  
4b | • Students will generate a range of neatly presented design ideas. Students should ensure that that include labels, colour and evaluations.  
• Students will generate a range of Logo Designs and Net Design.  
• Students will develop a range of Design Ideas / Development designs.  
**Homework**  
Collect any images required to help with their packaging design. | • Graphic Materials: Paper, pencils, colouring pencils, rulers. |
| 3    | • Develop a range of design ideas into a final design.  
• Students will practice their sketching techniques, annotating and evaluating each idea.  
• Develop a final design idea in relation to the specification. Improving and adapting the idea. | • Able to generate ideas, develop project proposals and evaluate them. Pupils will develop their project proposals and sketching techniques (annotations).  
• Able to use a range of sketching techniques to explain design proposals. | 1.3c  
2a,b,c  
4b  
4d  
4g | • Students should develop at least two of their design ideas into a final proposal. Students must remember to evaluate the final design, use 3rd views and state the changes that have been made.  
• Students will develop a Recipe Design within their food lessons.  
**Homework**  
Students will complete their Logo Development and Recipe Development. | • Graphic Materials: Paper, pencils, colouring pencils, rulers. |
| 4 | • Begin manufacture of final project proposal.  
   • Greater knowledge and understanding of the Health & Safety rules/behaviour within the workshop.  
   • Pupils will be able to mark out and cut material accurately.  
   • Use of computer aided design to develop nets and logos (2D Techsoft Design and Photoshop) | • Safety precautions when using some Graphic equipment (Craft Knives and Scissors)  
   • Demonstrations and Health and Safety issues regarding tools / equipment (cutting and scoring card).  
   • Demonstrations on marking out, accuracy and use of tools. | 1.3c  
   2c  
   2g  
   3l  
   4b | • Use of computer aided design to develop nets and logos (2D Techsoft Design and Photoshop)  
   • Use of a range of graphical skills and cutting equipment to produce the final packaging product.  
   • Demonstrations on folding, piercing and cutting the net design.  
   • Use or a range of bright and bold colours to produce a final design. Consider tonal range and outlining to bring out the font used. | • Graphic Materials: Paper, pencils, colouring pencils, rulers.  
   • Card, Glue, Scissors, Craft Knife, Hot Glue Gun. |
|---|---|---|---|---|---|
| 5 | • Continue manufacture of product.  
   • Students will develop skills in a range of shading and rendering skills.  
   • Development of marking out techniques, accuracy. | • Accurately cut and score material into the desired sizes and shapes.  
   • Join a range of materials together using a range of different techniques. | 2g  
   3l  
   4b | • Use of a range of graphical skills and cutting equipment to produce the final packaging product.  
   • Demonstrations on adding windows and dividing sections in the packaging.  
   • Consider the writing/ information and images that will be placed on the packaging. | • Graphic Materials: Paper, pencils, colouring pencils, rulers.  
   • Card, Glue, Scissors, Craft Knife, Hot Glue Gun. |
| 6 | • Complete manufacture of product.  
   • To develop knowledge and skills to enable the achievement of a high quality finish in practical work.  
   • Development of marking out techniques, accuracy  
   • Explanation of materials and processes. | • Accurately cut and score material into the desired sizes and shapes.  
   • Join a range of materials together using a range of different techniques.  
   • Knowledge and understanding of a range of finishes that could be applied to the completed practical work. | 2g  
   3l, n  
   3q  
   4b | • Complete the manufacture of the packaging design.  
   • Encourage pupils to include symbols used on packaging. Remind students that the packaging should represent the brand of the take away restaurant.  
   **Homework**  
   Students will complete a menu that could be included in the take away box. | • Graphic Materials: Paper, pencils, colouring pencils, rulers.  
   • Card, Glue, Scissors, Craft Knife, Hot Glue Gun. |
| 7 | • Produce a detailed plan of making. Include stages undertaken, tools and equipment used, health and safety and quality control.  
   • Pupils will be able to assess and evaluate the work of others (peer assessment).  
   • Completion of all project work. | • Produce a detailed sequence of main making activities.  
   • Evaluate the work of others and assess their own work against an original design and Specification.  
   • Understand peer assessment and be able to provide positive, construct comments to classmates. | 2e  
   2h | • Students will complete a detailed Plan of Making.  
   • Students will complete the systems and control page in their folders.  
   • Students should evaluate their work and that of other students. | • Graphic Materials: Paper, pencils, colouring pencils, rulers, project booklets. |
### Workshop Health and Safety: General Health and Safety

Electric shock from machinery, loose clothing not worn, jewellery removed, eye protection (goggles) worn when working, ventilation, extraction, equipment properly adjusted / used when working and emergency stop locations in the workshop.

#### Workshop rules and behaviour (safe working practice).
- Aprons and Goggles must be worn at all times when using machinery.
- Loose hair tied back and jewellery taken off. Shirt / pullover sleeves pulled up.
- Know where the Emergency stops are - locations within the room.
- Workshops should be kept clean and tidy. Scrap material should be put in bins.
- Never run in a workshop. Stools under desks if practical work is being undertaken.
- Never blow dust – sweep into a bin.
- Excess tools and materials put away after use. Carrying tools the correct way.
- Main risk when people do not know or understand how to use something correctly – if not sure always ask.

### Adhesives

<table>
<thead>
<tr>
<th>Location</th>
<th>ALL</th>
<th>Hazards</th>
<th>Risk Control Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Adhesives in contact with the eyes can cause permanent injury.</td>
<td>- Adhesives should be used in accordance with the manufacturer’s instructions.</td>
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<tr>
<td></td>
<td></td>
<td>Adhesives in contact with the skin can cause irritation. Hot adhesives can cause burns.</td>
<td>- Sufficient ventilation should be provided, in accordance with the manufacturers recommendations.</td>
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<td></td>
<td></td>
<td>Inhalation of solvents, fumes and vapours can present a hazard and can cause respiratory sensitization. Adhesives containers can spill or leak. Adhesives vapours can be highly flammable.</td>
<td>- Local exhaust ventilation should be provided if required.</td>
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</tbody>
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### Laser Cutters

<table>
<thead>
<tr>
<th>Location</th>
<th>IC3 &amp; D7</th>
<th>Hazards</th>
<th>Risk Control Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>The equipment can present an electric shock hazard.</td>
<td>- The equipment can present an electric shock hazard.</td>
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<tr>
<td></td>
<td></td>
<td>Leads could be tripped over.</td>
<td>- Leads could be tripped over.</td>
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<tr>
<td></td>
<td></td>
<td>Fumes from materials being cut might be harmful.</td>
<td>- Fumes from materials being cut might be harmful.</td>
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<td></td>
<td></td>
<td>Looking into the light source when working on reflective materials might be harmful.</td>
<td>- Looking into the light source when working on reflective materials might be harmful.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moving parts might present a tripping hazard.</td>
<td>- Moving parts might present a tripping hazard.</td>
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</tbody>
</table>

### Graphics Tools

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<thead>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Sharpe blades on cutting tools and craft knives can cause cuts.</td>
<td>- Unsure all tools are collected at the end of a lesson.</td>
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<td></td>
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<td></td>
<td>- Blades should only be extended to a minimum length required.</td>
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<td></td>
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<td>- When not in use blades should be covered or retracted.</td>
</tr>
</tbody>
</table>

### Hot Melt Glue Gun

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Electric Shock from tools.</td>
<td>- Supply leads for glue guns should be heat resistant. Care should be taken to ensure that trailing leads do not become entangled with the operator, others in the vicinity or the hot glue nozzle.</td>
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<tr>
<td></td>
<td></td>
<td>Leads could cause a trip hazard.</td>
<td>- Suitable eye protection should be worn.</td>
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<td></td>
<td></td>
<td>Hot glue nozzle tips can cause burns.</td>
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<tr>
<td></td>
<td></td>
<td>Splashes of glue can cause burns.</td>
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