Stage 1 Design, Technology and Engineering:
Industry and entrepreneurial solutions

School Assessment – Assessment Type 1:

Specialised Skills Task 2

# Purpose

Students develop knowledge and skills through specialised skills tasks. They apply the skills, processes and techniques in the chosen context. Students evaluate and assess the development of their own skills in this assessment task. They review how these processes and techniques may influence their solution.

# Description of task

## Utilising Adobe Illustrator Cutting Pattern:

Students will produce one or more templates using Adobe Illustrator. The files can be used to cut their chosen material directly with a laser cutter or used to cut out paper or thin wood templates to cut their chosen material (e.g. using a router with a flush trim bit or a bandsaw using a paper template). This informs the design development for a solution in Assessment Type 2 and files created can be used in the final product.

Students provide photographic or multimedia evidence of at least 4 different stage of making product/pars utilising Adobe Illustrator’s functions specified below. An evaluation of their skills and review on how these processes and techniques may be used in their solution for Assessment Type 2. This can be in the form of a recorded discussion by the student with the teacher or the student verbally responding and recording or writing to the following criteria.

### Students describe, explain and evaluate:

1. The progress of the product/parts against the final design of the model. It also can be:
	* Small model/diorama of your product with cardboards (especially if your solution is big)
	* A hanging sign to go with your product, which should have both cut out parts and etched parts
2. Skills developed (e.g. methods, tools, new functions) to produce the model and how process and procedure used allow the design ideas to be executed and/or translated to the model (e.g. [Laser Cut Tree Pendant – Place and Trace](https://www.youtube.com/watch?v=vbuYtNDJMIM)). Skills, tools or process that you should showcase (as evidence) with Adobe Illustrator are as following:
	* **Competent**
		+ Change workspace setting i.e. artboard size, colour and units as necessary
		+ Create shapes with "Rectangle tool", "Eclipse tool", "Polygon tool" and/or "Pen tool"
		+ Create a vector image with "Image Trace" tool and change factors within them - "Expand" and "Ungroup" to modify the vector image.
		+ Move and modify shapes “Selection tool” and “Direct Selection tool” to
		+ Scale and transform shapes to the required sizes
		+ Customise the file for laser cutting
			- Change colours for outline and remove colour from filling - "RGB Red for cutting", any other colours for etching
			- Change "Stroke Weight" to 0.001 mm for cutting.
			- Close gaps to make less waste.
	* **Proficient**
		+ Combine shapes / eliminate parts with "Pathfinder" tools
		+ Using different well labelled layers to identify different parts
		+ Draft cut the file and identify issues to be fixed for the final product
	* **Highly Proficient**
		+ Identify what tools could be used to fix the issues with the vector image and improve it
		+ Consider kerf of the laser (thickness of the laser that reduce the size of the cut product)
3. Technical problems occurred and skills developed to overcome these
4. Skills developed to improve the design (along with evidence that you have modified your model after cardboard draft was cut out)
5. How these processes and techniques may influence their solution.

# Work Evidence Template

You may use the following template to keep the evidence of your work. The images and notes you keep will be necessary to produce a multimodal presentation (e.g. video recording / screen casting) that will be submitted.

|  |  |  |
| --- | --- | --- |
| Snapshot that showcase skills and/or progress (minimum of 4) | Description and Explanation of:* Skills Used/Developed to produce/improve design [P1]
* Technical problems occurred and skills developed to overcome these
 | Evaluation on Skills/Techniques:* How process and procedure used allow the design ideas to be executed and/or translated to the model
* How these processes and techniques may influence their solution
 |
|  1. |   |   |
|  2. |   |   |
|  3. |   |   |
|  4. |   |   |

# Assessment conditions

Evidence for this assessment type should be provided in multimodal form to a maximum of 3 minutes, 500 words in written form or a combination of these.

For this assessment type, students provide evidence of their learning in relation to the following assessment design criteria:

### Production

P1 Application of skills, processes, procedures, and techniques to create a solution.

P2 Development of solutions to technical problems or recommendations for improvement.

### Evaluation

E1 Evaluation of the solution features, realisation process, and /or response to issues.

**Performance Standards for Stage 1 Design, Technology and Engineering AT1 SST2: Utilising Adobe Illustrator Cutting Pattern**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **E** |
| **Investigation and Analysis** | **I1** | Comprehensive and insightful analysis of the design features of products, processes, materials, systems, and/or production techniques. | Thoughtful and well-considered analysis of the design features of products, processes, materials, systems, and/or production techniques. | Considered analysis of the design features of products, processes, materials, systems, and/or production techniques. | Identification of the design features of products, processes, materials, systems, and/or production techniques. | Attempted identification of the design features of products, processes, materials, systems, and/or production techniques. |
| **I2** | Purposeful research and critical analysis of ethical, legal, economic, and/or sustainability issues. | Detailed research and well-considered analysis of ethical, legal, economic, and/or sustainability issues. | Research and some analysis of ethical, legal, economic, and/or sustainability issues. | Some description of information about ethical, legal, economic, and/or sustainability issues. | Some accessing of information about ethical, legal, economic, and/or sustainability issues. |
| **Design Development and Planning** | **D1** | Insightful and comprehensive communication of design concepts, using relevant technical language and visual representations. | Thoughtful and well-considered communication of design concepts, using relevant technical language and visual representations. | Clear communication of design concepts, using technical language and some visual representations. | Basic communication of design concepts, using some technical language. | Superficial and simplistic communication of design concepts. |
| **D2** | Insightful and thorough planning, development, testing, and validation of design concepts and procedures. | Well-considered planning, development, testing, and validation of design concepts and procedures. | Competent planning, development, testing, and validation of some design concepts and procedures. | Some planning and development of design concepts and/or procedures. | Limited use of information to plan design concepts. |
| **Production** | **P1** | Highly proficient application of skills, processes, procedures, and techniques to create a solution. | Proficient application of skills, processes, procedures, and techniques to create a solution. | Competent application of skills, processes, procedures, and techniques to create a solution. | Basic application of some skills, processes, procedures, and techniques to create a solution. | Limited application of emerging skills. |
| **P2** | Comprehensive development of solutions to technical problems that arise during the solution realisation. | Thoughtful development of solutions to technical problems that arise during the solution realisation. | Development of solutions to technical problems that arise during the solution realisation. | Some endeavour to develop solutions to technical problems that arise during the solution realisation. | Attempted development of a solution to a technical problem. |
| **Evaluation** | **E1** | Comprehensive and insightful evaluation of the solution features, realisation process, and/or response to issues. | Well-informed and detailed evaluation of the solution features, realisation process, and/or response to issues. | Considered evaluation of the solution features, realisation process, and/or response to issues. | Some description of the solution features, realisation process, and/or response to issues. | Emerging recognition of the solution features, realisation process, and/or response to issues. |
|  |  |  |  |  | **Overall:** |  |