

YEAR 10	SUBJECT: PRODUCT DESIGN	TITLE: GAME DESIGN
OBJECTIVE: To introduce the pupils to a simple design process and practical skills.		

STAGE	ADDITIONAL SKILLS	EXTENSION WORK	RESOURCES	H&S
<p>Stage One: The pupils will be shown an example of a small travel game. This will be discussed in relation to overall size, purpose, joint work and other practical techniques.</p> <p>They will be shown a sample Design Problem / Client Need and Design Brief. These will be discussed in terms of key words and phrases.</p> <p>The pupils will formulate their own Client Need / problem and Design Brief using the template sheet for their rough working out.</p>	<p>L. Key words related to project such as 'client'.</p> <p>C. The role of the designer in society discussed.</p> <p>ICT. Possible use of word processing / DTP in production of problem and brief.</p> <p>HWK. Complete client need and brief.</p>	<p>Research travel games and produce at least one sheet of images / pictures of sample games. Write a simple evaluation of each game.</p>	<p>General Drawing and writing equipment.</p> <p>Computer and projector.</p> <p>Sample game and images of other sample games.</p>	<p>CONTROL MEASURE</p> <p>CLEAPPS REF.</p> <p>RESIDUAL RISK</p>
<p>Stage Two: The pupils will present the Need and Brief on the template sheet.</p> <p>Adding appropriate graphics will be discussed. Colour and shade will be discussed and examples shown.</p>	<p>L. Key words reinforced from previous lesson.</p> <p>C. Role of the designer again discussed.</p> <p>ICT. If available, use of clipart to add images to need and brief.</p> <p>HWK. Complete presentation sheet.</p>	<p>Choose one travel game from the previous research and state why you consider it as a good example / solution.</p>	<p>General Drawing and writing equipment.</p> <p>Computer and projector.</p> <p>Sample game and images of other sample games.</p>	<p>CONTROL MEASURE</p> <p>CLEAPPS REF.</p> <p>RESIDUAL RISK</p>
<p>Stage Three: The pupils will attempt the key words exercise. They will list words relating to the project and connect them to key words / groups.</p> <p>The pupils will be shown a sample rich picture. The use of rich pictures will be explained.</p> <p>The pupils will design the layout and content for their own rich picture using the key words exercise as a basis.</p>	<p>L. Key words emphasised. And explained.</p> <p>ICT. Potential use of CAD software / DTP in the production of the rich picture.</p> <p>HWK. Complete the rich picture with images and colour.</p>	<p>Add further words / areas to the rich picture. For example, expand a key word into a branch of words.</p>	<p>General Drawing and writing equipment.</p> <p>Computer and projector.</p> <p>Sample game and images of other sample games.</p>	<p>CONTROL MEASURE</p> <p>CLEAPPS REF.</p> <p>RESIDUAL RISK</p>

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<p>Stage Four: The pupils will be shown how to draw four ideas for the game. Plan views will be discussed and presentation techniques.</p> <p>The use of notes and written explanation will be discussed and examples shown.</p> <p>The pupils will produce four ideas with appropriate notes.</p>	<p>L. Key words relating to the project. For example, names of materials will be discussed.</p> <p>C. The duty of a designer to design safe, education games that encourage learning (even hand eye coordination). HWK. Complete the four ideas. ICT. Possible use of CAD / CAM N. Page layout and proportion explained. Some measuring involved.</p>	<p>Design at least two more ideas with detailed notes.</p>	<p>General Drawing and writing equipment. Computer and projector. Sample game and images of other sample games.</p>	<p>CONTROL MEASURE</p> <p>CLEAPPS REF.</p> <p>RESIDUAL RISK</p>
<p>Stage Five: The pupils will begin the manufacturing process.</p> <p>They will be shown how to mark out and cut finger joints for the casing of their game. Numbering of corners and face edge and side will be explained. Safe use of tools emphasised.</p> <p>Drilling of the Perspex lid / top through the use of a jig will also be demonstrated.</p> <p>Cleaning edges of Perspex with files and wet and dry paper demonstrated.</p>	<p>L. Key words in relation to the project especially the tools and equipment.</p> <p>C. Health and safety emphasised at all times. The need for cooperation and team work. HWK. Start log book of manufacture. ICT. Possible use in production of log book. N. Measuring and accuracy during marking out and cutting and shaping.</p>	<p>Research on piece of equipment used during this early manufacturing stage and present the research on A4 / A3 paper.</p>	<p>General Drawing and writing equipment. Computer and projector. Sample game and images of other sample games. Try Squares, Steel rulers, etc.....</p>	<p>CONTROL MEASURE Teacher instruction Ventilation Goggles</p> <p>CLEAPPS REF. 1.066 Handsaws 1.067 Fretsaw 1.062 Sanding Disk 1.042 Hazards - Plastics</p> <p>RESIDUAL RISK Low</p>
<p>Stage Six: The pupils will be shown how to clean up the edges of the Perspex top using a filing techniques.</p> <p>Demonstration on the use of the buffing machine to polish edges. Safety emphasised.</p> <p>The use of a countersink demonstrated.</p> <p>The pupils will continue to manufacture their project.</p>	<p>L. Key words in relation to the project especially the tools and equipment.</p> <p>C. Health and safety emphasised at all times. The need for cooperation and team work. HWK. Start log book of manufacture. ICT. Possible use in production of log book. N. Measuring and accuracy during marking out and cutting and shaping.</p>	<p>Research into packaging and how it could be used for this project.</p>	<p>General Drawing and writing equipment. Computer and projector. Sample game and images of other sample games. Try Squares, Steel rulers, etc..... General workshop equipment.</p>	<p>CONTROL MEASURE Teacher Instruction Protective clothing/goggles</p> <p>CLEAPPS REF. 1.066 Hand saws and Files 1.049 Polisher 1.031 Drilling machine</p> <p>RESIDUAL RISK Low</p>

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<p>Stage Seven: The pupils will be shown how to mark out and cut steel for the handle.</p> <p>The use of the machine drill will be demonstrated especially in relation to using a machine vice.</p> <p>The properties of steel will be discussed and demonstrated. Methods of bending steel will be demonstrated.</p> <p>Sequence drawing attempted.</p>	<p>L. Key words in relation to steel and other workshop metals.</p> <p>C. Recycling of steel discussed and other metals such as aluminium.</p> <p>N. Measurements for marking out and use of marking out equipment.</p> <p>HWK. Collect research materials regarding the manufacture / production of steel.</p>	<p>Collect research material on Aluminium production.</p>	<p>General Drawing and writing equipment.</p> <p>Computer and projector.</p> <p>Sample game and images of other sample games.</p> <p>Try Squares, Steel rulers, etc.....</p> <p>General workshop equipment.</p>	<p>CONTROL MEASURE Teacher instruction</p> <p>CLEAPPS REF. 1.066 Handsaws - metals 1.031 Machine Drill.</p> <p>RESIDUAL RISK Low</p>
<p>Stage Eight: The pupils will be introduced to the centre lathe.</p> <p>Demonstration regarding facing off material and drilling using the tailstock.</p> <p>Safety when using the centre lathe emphasised.</p> <p>Pupils given a costings sheet. They will cost their project in relation to materials used and then labour costs.</p>	<p>L. Key words in relation to Centre Lathes.</p> <p>C. Recycling of metals general and environmental issues relating to steel production. Costing worked out</p> <p>HWK. The pupils will complete the costing of their project.</p> <p>N. Costings.</p> <p>ICT. Potential use of a spreadsheet.</p>	<p>Select an engineering product and work out the its cost of manufacture.</p>	<p>General Drawing and writing equipment.</p> <p>Computer and projector.</p> <p>Sample game and images of other sample games.</p> <p>Try Squares, Steel rulers, etc.....</p> <p>General workshop equipment.</p>	<p>CONTROL MEASURE Space around machine, use of guards and goggles. Teacher Instruction.</p> <p>CLEAPPS REF. 1.032 Metal - lathes</p> <p>RESIDUAL RISK Low</p>
<p>Stage Nine: Evaluation. The pupils will attempt an evaluation exercise of their product.</p> <p>Criteria will be discussed such as quality of finish, game effectiveness, weight, fitness for purpose etc.... They will mark their own work and then the work of others.</p> <p>Pupils will collate data they have collected and work out the mean average for the entire class.</p> <p>They will produce a pictogram and table of results.</p>	<p>L. Evaluation criteria explained and discussed</p> <p>C. Critical self evaluation skills taught.</p> <p>HWK. Complete table and pictogram.</p> <p>ICT. Potential use of spreadsheet software</p> <p>N. Mean average and data collection.</p> <p>Production of a data table.</p>	<p>Select the best game in the class and explain why you consider this the most promising.</p>	<p>General Drawing and writing equipment.</p> <p>Computer and projector.</p> <p>Sample game and images of other sample games.</p> <p>Try Squares, Steel rulers, etc.....</p> <p>General workshop equipment.</p>	<p>CONTROL MEASURE</p> <p>CLEAPPS REF.</p> <p>RESIDUAL RISK</p>

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<p>Stage Ten: The pupils will be shown how to produce a use a template to produce a card package for their project. The use of templates in batch and continuous production will be explained. Animations of scales of production shown.</p> <p>The pupils will mark out and cut their package. Safety in the use of craft knives and scissors will be emphasised.</p> <p>Safety symbols and other packaging symbols will be shown and explained. The pupils will draw or use clipart regarding appropriate symbols for their package.</p>	<p>L. Terminology regarding packaging. N. Measuring and marking out of a card net / development. ICT. Potential use of the internet for collecting packaging symbols. C. Environmental issues relating to packaging and recycling. HWK. Research safety and packaging.</p>	<p>Select a range of packages and analyse the use of colour, shade, text and symbols.</p>	<p>General drawing and writing equipment. Craft knives.</p>	<p>CONTROL MEASURE Teacher instruction</p> <p>CLEAPPS REF. 1.068 Scissors and craft knives</p> <p>RESIDUAL RISK Low</p>
<p>Stage Eleven: The pupils will begin to compile the graphics for their package. These will be applied to the packaging.</p> <p>The use of the vinyl cutter in the production of lettering demonstrated.</p> <p>The session will be mainly practical.</p>	<p>L. Packaging terminology continued. N. Measuring and marking out. ICT. Use of stika machine / vinyl cutter. HWK. Collect images and pictures in relation to packaging and educational games.</p>	<p>Collect a further range of symbols and images.</p>	<p>General drawing and writing equipment. Craft knives. ICT access.</p>	<p>CONTROL MEASURE</p> <p>CLEAPPS REF.</p> <p>RESIDUAL RISK</p>