









Categories of Timber			
Type	Description	Example	
1	Hardwoods	<ul style="list-style-type: none"> •Come from deciduous trees [lose their leaves in winter] •Usually grow in warmer climates [South America and Asia] •Grow slowly [80years+] to maturity •Are more expensive than softwoods. •Are more difficult to sustain than softwoods. 	B - Balsa A - Ash D - Deciduous H - Hardwood O - Oak T - Teak E - Expensive L - Loses leaves
2	Softwoods	<ul style="list-style-type: none"> •Come from coniferous [evergreen] trees with needle-like leaves. •Usually grow in colder climates [Scandinavia, Northern Europe]. •Are easier to sustain than hardwoods. •Are less expensive than hardwoods. 	P - Pine I - Indicates N - Needles C - Cedar E - Evergreen R - Redwood S - Softwood
3	Manufactured Boards	Are made from waste materials bonded together. <ul style="list-style-type: none"> •Come in sheet form [usually 1.2m x 2.4m] •Are very stable and have a uniform thickness. •Can be covered with a layer of veneer. 	S- Squashed L- Layers I- Industrial M- Manmade C- Chipboard H- Hardboard I- Inexpensive M- MDF P - Plywood

Key Words	
Cams	A mechanism that changes rotary input movement into a reciprocating or oscillating output movement
Chain and Sprocket	A sprocket is a profiled wheel with teeth, or cogs, that mesh with a chain , track or other perforated or indented material.
Gear	A toothed wheel that works with others to alter the relation between the speed of a driving mechanism (such as the engine of a vehicle) and the speed of the driven parts (the wheels).
Lever	The simplest form of mechanism. There are 3 classes (1st, 2nd & 3rd) F L E 1st = crow bar 2nd = wheelbarrow 3rd = tweezer
Linkages	A collection of levers joined together to amplify or transfer the direction of motion
Mechanism	A mechanical device to transform or change the direction of movement and force.
Perpendicular	An angle of 90° to a given line or surface
Pulley	a wheel with a grooved rim around which a cord or belt passes, which acts to change the direction of a force applied to the cord/belt.
Standard Component	Usually an individual part or component, manufactured in thousands or millions, to the same specification (such as size, weight) e.g. a bolt or screw.
Quality Control	A system of maintaining standards in manufactured products by testing a sample of the product against the specification or criteria
Template	A shape to be used to draw around accurately
Waste line	A line to cut to, just outside the line of the final shape
Tolerance	The amount a component or part can be above or below the required size

Command Words

1	Define	State or describe exactly the nature, scope, or meaning of something / establish the character of something; mark out the boundary or limits of something
2	Summarise	Give a brief statement of the main points of something.
3	Suggest	Used with another command word, e.g. Suggest an explanation. Suggest tells you that you need to apply your knowledge to a new situation, and in this case to give a possible explanation
4	Which	Asking for information specifying one or more people or things from a definite set.
5	Why	Giving a reason or explanation to support the answer of the question.
6	Interpret	Ascribe meaning.
7	Evaluate	Look at the information in the question and bring it together to make a decision and come to a conclusion with evidence from the question. You may be asked to give a personal response.

Types of Motion	
Linear	 In a straight line in one direction
Reciprocating	 Repetitive back and forth or up and down in a straight lines.
Rotary	 Following a circular path around a fixed point
Oscillating	 Swinging left/right or up/down from a fixed pint

Cams and Followers		
Type	Description	
1 Eccentric	A circular disc with an off-centered hole	
2 Pear	A cam with a more pointed shaped makes small jump output movements	
3 Snail	Looks like a snail shell, produces slow rise and sudden fall movement	
4 Follower	The dowel or rod that moves up and down as the cam rotates	

Scale used if it is possible to draw product actual size (it may be too big or too small to fit on the & see clearly)

1	If a drawing is half the size of the real thing it has a scale of 1:2
2	If a drawing is a quarter the size of the real thing it has a scale of 1:4
3	If a drawing is twice the size of the original then it has a scale of 2:1
4	If a drawing is 8 times the original then it has a scale of 8:1

Key Words

1	Anthropometrics	The study of the human body and it's dimensions.
2	Crating	Quick, freehand 3D drawing style
3	Contemporary	Modern and up to date, fashionable
4	Designers	People who design products as a job
5	Ergonomics	The relationship between a product and its user – how comfortable it is to use, how easy it is to use etc.
6	Isometric	3D drawing style where horizontal lines are drawn at 30 degrees to the vertical.
7	Modelling	Creating prototypes of a design
8	Rendering	Techniques used to add colour or realistic texture to drawings
9	Scale	How a drawing compares to the real product size wise
10	Template	A pattern/shape that can be drawn around to ensure parts are identical
11	3 rd Angle Orthographic Projection	Working drawing used to show different views (elevations) of a product [plan, front, side] it is usually drawn to scale.
12	3 rd Party Manufacture	When a skilled worker or company is used to make/manufacture a product for someone else.
13	5 th -95 th Percentile	The range of data e.g. size of a person used when designing. Smallest & largest 5% is ignored.

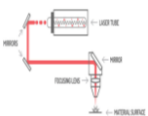
Sketch Modelling-is used to....

1	Communicate ideas
2	Make scale models
3	Check ergonomics/anthropometrics
4	Show a 3D visualisation to show clients

Command Words

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3	Suggest	Used with another command word, e.g. Suggest an explanation. Suggest tells you that you need to apply your knowledge to a new situation, and in this case to give a possible explanation
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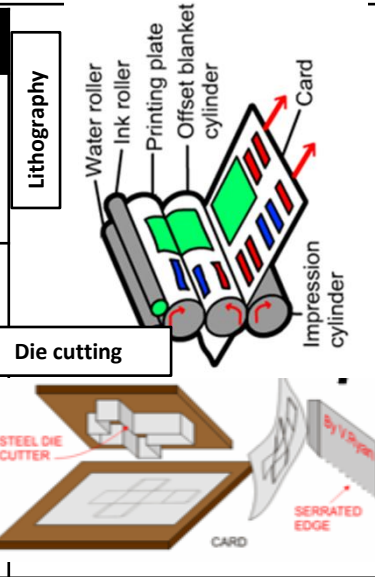
Printing Cutting Methods

Type	Description	Example
Die Cutting	A die cutter cuts, scores or perforates lines in card to make packaging nets. It uses hardened steel blades, a bit like a cookie cutter. Sharp blades = cut. Blunt blades = score. Serrated blades = perforate	To cut net shapes for packaging in industry
Laser Cutting	<ul style="list-style-type: none"> A 2D design is created using CAD software. This design is then sent to the laser cutter and the settings are adjusted depending on the material being cut. The machine operator focusses the lens to the surface of the material. A laser beam is emitted from the laser tube. The laser beam is reflected a series of mirrors until finally the laser is focussed through a machine head and onto the material 	In school- nets for packaging from folding box board
Lithography	In this high quality printing process the image is etched onto a flat printing plate which is then rolled onto a cylinder. Access ink is removed using the a blanket cylinder before the image is printed onto paper/card. It works on the principle that oil (ink) and water do not mix	Printing magazines and packaging









Key Words

1	Net	The shape of a box in 2D
2	Criteria	A list of points your product must meet
3	Prototype	A test model of a design
6	Replica	A copy of something
7	Brand	A company name or make
8	Graphic Designer	Someone who combines words, symbols, and images to create a visual representation of ideas and or messages for posters, packaging etc.
9	Typography	The style, arrangement, and appearance of the letters, numbers, and symbols

Board Types	Properties	Example products
Corrugated Card	<ul style="list-style-type: none"> Impact resistant Made from recycled materials Strong, durable and light weight Cheap to buy 	<ul style="list-style-type: none"> Pizza boxes Outer packaging and boxes
Solid White Board	<ul style="list-style-type: none"> Made from virgin materials Expensive to buy Good surface to print on Durable and light weight 	High quality packaging such as: <ul style="list-style-type: none"> Cosmetic packaging Some book covers High quality, stiff chocolate boxes
Folding Box Board or Duplex Board	<ul style="list-style-type: none"> Good surface to print on Reasonable inexpensive to buy Made from 2 layer [one recycled, one virgin material] Light weight 	Food packaging such as: <ul style="list-style-type: none"> Breakfast cereals Chocolate packaging Fast food packaging E.g. burger boxes



Symbols

Name	Symbol	Name	Symbol
1 Tidyman Keep Britain Tidy		5 Green Dot Company pays for the recycling of waste materials their factories	
2 Gluten Free Contains no gluten/wheat		6 'Mobius Loop' / Recycling This product can be recycled	
3 Fairtrade Farmers paid fair wages for work/products		7 Vegetarian Symbol Suitable for vegetarians	
4 Estimate The estimated weight or volume of a product		8 Forest Stewardship Council Organisation who make sure forests are grown sustainably and protected	

Command Words

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2	Summarise	Give a brief statement of the main points of something.
3	Suggest	Used with another command word, e.g. Suggest an explanation. Suggest tells you that you need to apply your knowledge to a new situation, and in this case to give a possible explanation
4	Which	Asking for information specifying one or more people or things from a definite set.
5	Why	Giving a reason or explanation to support the answer of the question.
6	Interpret	Understand meaning.
7	Evaluate	Look at the information in the question and bring it together to make a decision and come to a conclusion with evidence from the question. You may be asked to give a personal response.

Scale 如果可以繪製產品的實際尺寸（它可能太大或太小而無法放在上面並看清楚），則使用

1	如果圖紙是實物的一半大小，則比例為 1:2
2	如果一幅圖是實物大小的四分之一，那麼它的比例就是 1:4
3	如果繪圖是原始尺寸的兩倍，那麼它的比例為 2:1
4	如果一幅圖是原圖的 8 倍，則它的比例為 8:1

Sketch Modelling- 習慣於....

1	交流想法
2	製作比例模型
3	檢查人體工程學/人體測量學
4	顯示 3D 可視化以向客戶展示

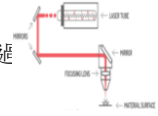
Key Words

1	Anthropometrics	人體及其尺寸的研究。
2	Crating	快速、徒手的 3D 繪圖風格
3	Contemporary	現代、最新、時尚
4	Designers	以設計產品為工作的人
5	Ergonomics	產品與其用戶之間的關係——使用起來有多舒適，使用起來有多容易等。
6	Isometric	3D 繪圖風格，水平線與垂直線呈 30 度角繪製。
7	Modelling	創建設計原型
8	Rendering	用於向繪圖添加顏色或逼真的紋理的技術
9	Scale	圖紙與實際產品尺寸的比較
10	Template	可以繪製的圖案/形狀以確保零件相同
11	3 rd Angle Orthographic Projection	工作圖用於顯示產品的不同視圖（立面圖）[計劃、正面、側面]，通常按比例繪製。
12	3 rd Party Manufacture	當熟練工人或公司被用來為其他人製造/製造產品時。
13	5 th -95 th Percentile	數據範圍，例如設計時使用的人的尺寸。最小和最大 5% 被忽略。

Command Words

1	Define 定義	準確陳述或描述某物的性質、範圍或意義/確立某物的特徵；標出某物的邊界或限制
2	Summarise 總結	簡要說明某事的要點。
3	Suggest 建議	與另一個命令詞一起使用，例如建議解釋。Suggest 告訴你，你需要將你的知識應用到一個新的情況下，並在這種情況下給出一個可能的解釋
4	Which 哪個	詢問特定一組中的一個或多個人或事物的信息。
5	Why 為什麼	給出理由或解釋來支持問題的答案。
6	Interpret 解釋	賦予意義。
7	Evaluate 評價	查看問題中的信息並將其匯總以做出決定，並根據問題中的證據得出結論。您可能會被要求提供個人回復。

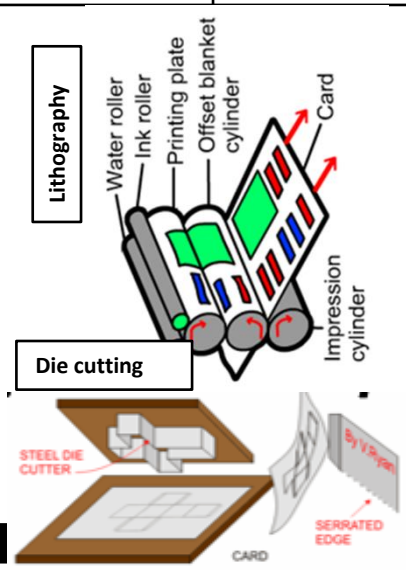
Printing Cutting Methods

Type	Description	Example
Die Cutting 模切	模切機在卡片上切割、刻痕或穿孔線以製作包裝網。它使用硬化鋼刀片，有點像曲奇刀。鋒利的刀片 = 切割。鈍刀片 = 分數。鋸齒刀片 = 穿孔	切割工業包裝的淨形狀
Laser Cutting 激光切割	<ul style="list-style-type: none"> 使用 CAD 軟件創建 2D 設計。然後將此設計發送到激光切割機，並根據被切割的材料調整設置。 機器操作員將鏡頭聚焦到材料表面。 從激光管發射激光束。激光束通過一系列反射鏡反射，最後激光通達聚焦到材料上。 	在校網中用於折疊盒板的包裝
Lithography 光刻	在這種高質量的印刷過程中，圖像被蝕刻到平面印刷板上，然後被捲到滾筒上。在將圖像打印到紙/卡片上之前，使用橡皮布滾筒去除訪問墨水。它的工作原理是油（墨水）和水不混合）	印刷雜誌和包裝

Key Words

1	Net 網	二維盒子的形狀
2	Criteria 標準	您的產品必須滿足的要點列表
3	Prototype 原型	設計的測試模型
6	Replica 複製品	某物的副本
7	Brand 品牌	公司名稱或品牌
8	Graphic Designer 平面設計師	結合文字、符號和圖像來為海報、包裝等創建想法和/或信息的視覺表示的人。
9	Typography 排版	字母、數字和符號的樣式、排列和外觀

Board Types	Properties	Example products
Corrugated Card 瓦楞紙卡	<ul style="list-style-type: none"> -耐衝擊 - 由回收材料製成 - 堅固、耐用且重量輕 - 便宜買 	<ul style="list-style-type: none"> 披薩盒 外包装和盒子
Solid White Board 實心白板	<ul style="list-style-type: none"> 由原始材料製成 買貴了 良好的打印表面 耐用且重量輕 	高質量的包裝，例如：化妝品包裝 一些書的封面 高品質、堅硬的巧克力盒
Folding Box Board 折疊盒板 or Duplex Board 雙面板	<ul style="list-style-type: none"> 良好的打印表面 合理便宜買 由 2 層製成 [一層回收，一層原始材料 輕的 	食品包裝如： 早餐麥片 巧克力包裝 快餐包裝漢堡盒

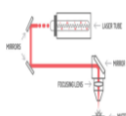


Symbols

Name	Symbol	Name	Symbol
1 Tidyman 清潔工 保持英國整潔		5 Green Dot 綠點 公司出錢回收他們工廠的廢料	
2 Gluten Free 不含麩質 Contains no gluten/wheat		6 'Mobius Loop' / Recycling 回收 本產品可回收	
3 Fairtrade 公平貿易 農民為工作/產品支付了合理的工資		7 Vegetarian 素食者 Symbol 適合素食者	
4 Estimate 產品的估計重量或體積		8 Forest Stewardship Council 森林管理委員會 確保森林可持續生長	

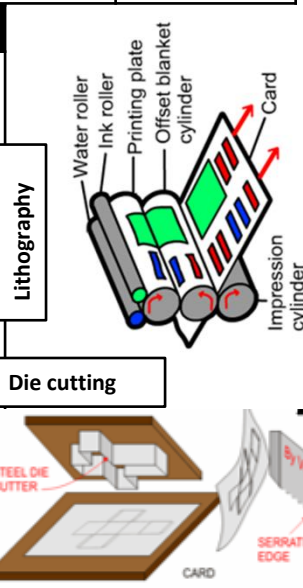
Command Words

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2	Summarise 總結	簡要說明某事的要點。
3	Suggest 建議	與另一個命令詞一起使用，例如建議解釋。Suggest 告訴你，你需要將你的知識應用到一個新的情況下，並在這種情況下給出一個可能的解釋
4	Which 哪個	詢問特定一組中的一個或多個人或事物的信息。
5	Why 為什麼	給出理由或解釋來支持問題的答案。
6	Interpret 解釋	賦予意義。
7	Evaluate 評價	查看問題中的信息並將其匯總以做出決定，並根據問題中的證據得出結論。您可能會被要求提供個人回復。

Printing Cutting Methods		
Type	Description	Example
Die Cutting 模切	模切机在卡片上切割、刻痕或穿孔线以制作包装网。它使用硬化钢刀片。有点像曲奇刀。锋利的刀片 = 切割。钝刀片 = 分数。锯齿刀片 = 穿孔	为包装切割净形状
Laser Cutting 激光切割	<ul style="list-style-type: none"> 使用 CAD 软件创建 2D 设计。然后将此设计发送到激光切割机，并根据被切割的材料调整设置。 机器操作员将镜头聚焦到材料表面。 从激光管发射激光束。激光束通过一系列反射镜反射，最后激光通过机头中的透镜聚焦到材料上 	在校网中用于折叠盒板的包装
Lithography 光刻	在这种高质量的印刷过程中，图像被蚀刻到平面印刷板上，然后被卷到滚筒上。在将图像打印到纸/卡片上之前，使用橡皮布滚筒去除访问墨水。它的工作原理是油（墨水）和水不混合	印刷杂志和包装

1	Net 网	二维盒子的形状
2	Criteria 标准	您的产品必须满足的要点列表
3	Prototype 原型	设计的测试模型
6	Replica 复制品	某物的副本
7	Brand 品牌	公司名称或品牌
8	Graphic形象的 Designer 设计师	结合文字、符号和图像来为海报、包装等创建想法和/或信息的视觉表示的人。
9	Typography 排版	字母、数字和符号的样式、排列和外观

Board Types	Properties	Example products
Corrugated Card 瓦楞纸卡	<ul style="list-style-type: none"> 耐冲击 由回收材料制成 坚固、耐用且重量轻 便宜买 	<ul style="list-style-type: none"> Pizza boxes 披萨盒 Outer packaging and boxes 外包装和盒子
Solid White Board 实心白板	<ul style="list-style-type: none"> 由原始材料制成 买贵了 良好的打印表面 耐用且重量轻 	High quality packaging (高品质包装)E.g.: <ul style="list-style-type: none"> Cosmetic packaging Some book covers High quality, stiff chocolate boxes
Folding Box Board or Duplex Board 折叠盒纸板或双面纸板	<ul style="list-style-type: none"> 良好的打印表面 合理便宜买 由 2 层制成 [一层回收，一层原始材料 轻的 	Food packaging (食品包装) e.g.: <ul style="list-style-type: none"> Breakfast cereals Chocolate packaging Fast food packaging E.g. burger boxes



Symbols					
	Name	Symbol	Name	Symbol	
1	Tidy man 清洁工 保持英国整洁		5	Green Dot 绿点 公司出资回收其工厂产生的废料	
2	Gluten 麸质 Free 自由的 不含麸质/小麦		6	'Mobius Loop' / Recycling 回收 本产品可回收	
3	Fairtrade 公平贸易 农民为工作/产品支付了合理的工资		7	Vegetarian 素食 Suitable for vegetarians	
4	Estimate 估计 产品的估计重量或体积		8	Forest Stewardship Council 森林管理委员会 确保森林可持续生长和受到保护的组织	

Command Words

1	Define 定义	准确陈述或描述某物的性质、范围或意义/确立某物的特征；标出某物的边界或限制
2	Summarise 总结	简要说明某事的要点。
3	Suggest 建议	与另一个命令词一起使用，例如建议解释。Suggest 告诉你，你需要将你的知识应用到一个新的情况下，并在这种情况下给出一个可能的解释
4	Which 哪个	询问特定一组中的一个或多个人或事物的信息。
5	Why 为什么	给出理由或解释来支持问题的答案。
6	Interpret 解释	明白意思。
7	Evaluate 评价	查看问题中的信息并将其汇总以做出决定，并根据问题中的证据得出结论。您可能被要求给出个人回应。

Subject D&T | Year 8 | Topic – AUTOMATA PROJECT

Categories of Timber			
	Type	Description	Example
1	Hardwoods 硬木	<ul style="list-style-type: none"> 来自落叶树[在冬天失去叶子] 通常生长在温暖的气候[南美洲和亚洲] 慢慢成长 [80 岁以上] 直至成熟 比较木贵。 比较木更难维持。 	B - Balsa A - Ash D - Deciduous H - Hardwood O - Oak T - Teak E - Expensive L - Loses leaves
2	Softwoods 软木	<ul style="list-style-type: none"> 来自具有针状叶子的针叶[常绿]树。 通常生长在寒冷的气候[斯堪的纳维亚半岛, 北欧]。 比硬木更容易维持。 比硬木便宜。 	P - Pine I - Indicates N - Needles C - Cedar E - Evergreen R - Redwood S - Softwood
3	Manufactured 制造的 Boards 的 Boards	由废料粘合在一起制成。以单张形式出现 [通常为 1.2m x 2.4m] 非常稳定, 厚度均匀。可以覆盖一层木皮。	S - Squashed L - Layers I - Industrial M - Manmade C - Chipboard H - Hardboard I - Inexpensive M - MDF P - Plywood

Command Words		
1	Define 定义	准确陈述或描述某物的性质、范围或意义/确立某物的特征; 标出某物的边界或限制
2	Summarise 总结	简要说明某事的要点。
3	Suggest 建议	与另一个命令词一起使用, 例如建议解释。 Suggest 告诉你, 你需要将你的知识应用到一个新的情况下, 并在这种情况下给出一个可能的解释
4	Which 哪个	询问特定一组中的一个或多个人或事物的信息。
5	Why 为什么	给出理由或解释来支持问题的答案。
6	Interpret 解释	明白意思。
7	Evaluate 评价	查看问题中的信息并将其汇总以做出决定, 并根据问题中的证据得出结论。您可能会被要求给出个人回应。

Key Words	
Cams 凸轮	一种将旋转输入运动转变为往复运动或摆动输出运动的机构
Chain 链 and Sprocket 链轮	链轮是一种带有齿或嵌齿轮的成型轮, 与链条、轨道或其他穿孔或锯齿状材料啮合。
Gear 齿轮	与其他齿轮一起工作以改变驱动机构 (例如车辆发动机) 的速度与从动部件 (车轮) 的速度之间关系的齿轮。
Lever 杠杆	最简单的机制形式。有 3 类 (第一、第二和第三类) FLE 第一类 = 撬棍 第二类 = 手推车 第三类 = 镊子
Linkages 联系	连接在一起以放大或转移运动方向的杠杆集合
Mechanism 机制	一种改变或改变运动方向和力的机械装置。
Perpendicular 垂直	与给定线或面成 90° 角
Pulley 滑轮	带有凹槽轮辋的轮子, 绳索或皮带绕过轮辋, 用于改变施加在绳索/皮带上的力的方向。
Standard 标准 Component 成分	通常是一个单独的零件或组件, 以相同的规格 (如尺寸、重量) 制造成数千或数百万, 例如螺栓或螺钉。
Quality 质量 Control 控制	通过根据规格或标准测试产品样本来维护制成品标准的系统
Template 模板	用于精确绘制的形状
Waste line 废线	一条要切割到的线, 就在最终形状的线之外
Tolerance 宽容	组件或零件可以高于或低于所需尺寸的数量

Types of Motion	
Linear 线性的	在一个方向的一条直线上
Reciprocating 往复式	在一条直线上来回或上下重复。
Rotary 旋转式	沿着固定点的圆形路径
Oscillating 震荡的	Swinging left/right or up/down from a fixed pint

Cams and Followers		
	Type	Description
1	Eccentric 偏心	带有偏心孔的圆形凸轮
2	Pear 梨	梨形凸轮
3	Snail 蜗牛	一个看起来像蜗牛壳的凸轮
4	Follower 追随者	随着凸轮旋转而上下移动的销钉或杆