



Y9: Design and Technology Knowledge organiser

Passive Speaker

CAD Computer Aided Design	
Examples; 2D Design, Autodesk Inventor, Fusion 360, Photoshop, etc	
Advantages	Disadvantages
<ul style="list-style-type: none"> • Easy to change designs • Designs are easily saved and sent • Can be worked on by multiple people simultaneously • Can be used for virtual testing • Can produce high-quality designs 	<ul style="list-style-type: none"> • Complex and time-consuming to learn <ul style="list-style-type: none"> • Expensive to buy • PCs can crash or be hacked – causing work to be lost • Takes up PC memory

CAM Computer Aided Manufacture	
Examples; 3D Printing, Laser Cutting, CNC Router, Automated Machines and Robotics, etc	
Advantages	Disadvantages
<ul style="list-style-type: none"> • Faster and more accurate than traditional tools • Repetitive accuracy/ consistent outcomes <ul style="list-style-type: none"> • Machines can run 24/7 	<ul style="list-style-type: none"> • Expensive to buy the equipment, etc • Training takes cost and time • Need specialists to maintain and repair the machines • Dependence on CAM can cause unemployment

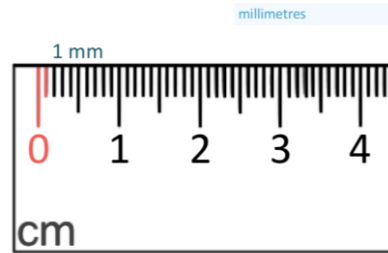


Accuracy with measuring and marking. We need to always measure in millimetres (mm) this give us the most precise measurement.

Technique	Description/ notes	Diagram
Orthographic Projection/ Working Drawings	<ul style="list-style-type: none"> • Includes "Front", "Plan" and "End" 2D Views, and often an Isometric 3D View • Standardised method for scale, dimensions and line types • Great for manufacturing 	
Isometric	<ul style="list-style-type: none"> • Common 3D sketching method • Can be drawn free-hand or using isometric paper and ruler <ul style="list-style-type: none"> • Angles are at 30 degrees • Great for seeing most of the products 	
1-Point Perspective	<ul style="list-style-type: none"> • A 3D drawing method • Often used by interior designers and architects <ul style="list-style-type: none"> • Gives drawings depth • Only uses 1 vanishing point 	
2-Point Perspective	<ul style="list-style-type: none"> • Used for 3D designs • Exaggerates the 3D effect • Objects can be drawn above of below the horizon line but must go to the 2 vanishing points 	
Annotated Drawings/ Free and Sketches	<ul style="list-style-type: none"> • Quick and easy way of getting ideas down • Range of ideas can be seen • Annotation helps explain designs further 	
Exploded View	<ul style="list-style-type: none"> • Helps see a final design of a product and all it's parts • Can see where all the parts fit • Great for manufacturers 	

Design Movements		
A "movement" is a style of art or design that upholds a specific philosophy or ideal and is followed and promoted by a group of artists for a defined period.		
Memphis		Uses bold bright colours and geometric shapes
Bauhaus		Simple shapes and primary colours only. Straight lines only.

Scales of production:	
Depending on the product they are all made in different quantities.	
One off (1)	Customer made (bespoke) products.
Batch (10-1000)	Creates products of a specific number
Mass (10,000 – 100,000)	Big assembly lines. Creates multiple of the same.
Continuous (100,000+)	24/7 production, this method never stops



You will always need to use a pencil and steel rule.

