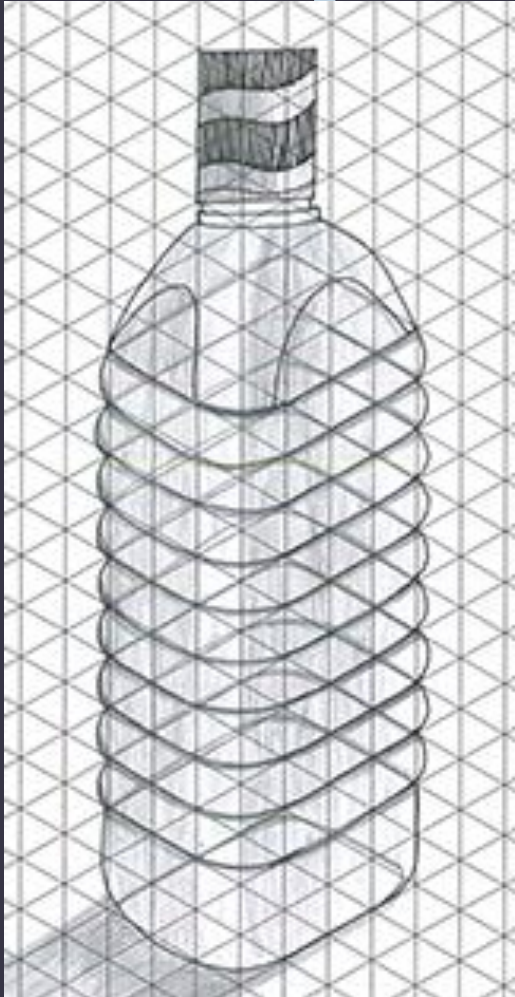


WELCOME TO WJEC
ENGINEERING

40% EXAM
30% DESIGN UNIT
30% PRACTICAL UNIT

Design Project



Task 1: Drawing.

-Find two products in your house that may have broken recently (or can be easily disassembled).

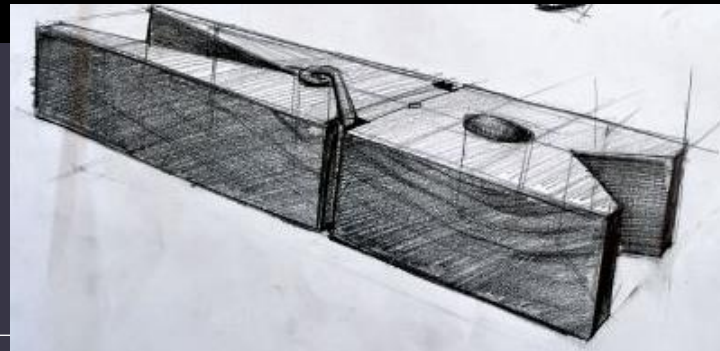
-Draw the 2 products using the isometric grid paper provided.

TIP: Always use the grid paper portrait not landscape, watch a you tube clip on how to draw in isometric.

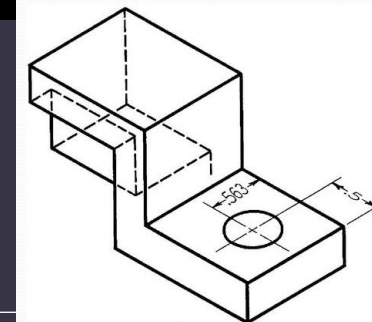
-Add shading to your drawing. See diagram below.

Extension

-Add hidden details your drawings. This means using dotted lines to show any features from the back of the product... on the front of the drawing. As if the product is see through



Hidden Lines



Hidden lines are not usually shown in isometric sketches unless they are needed to show a feature that would be unclear.

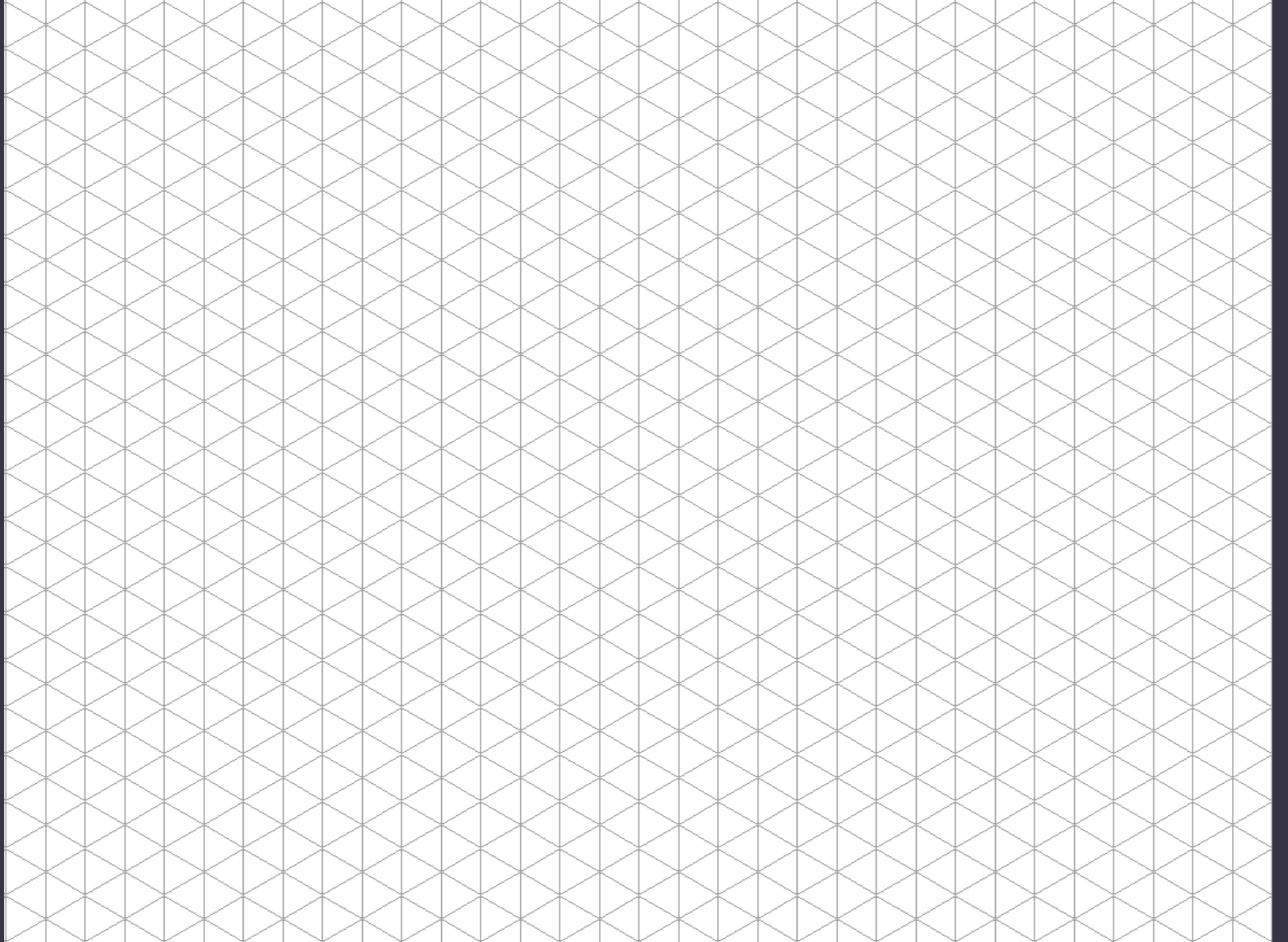
Usually the orientation for the isometric drawing should be chosen so that hidden lines aren't needed.

Holes are assumed to go completely through the object unless their depth is indicated with a note or with hidden lines.

Isometric grid paper

PRODUCT 1

NOTES



A vertical rectangular area containing ten horizontal blue lines, intended for taking notes.

Engineering Project

Student Exemplar



The mother board, controls what Happens to the charger, when it Should charge and when it turns Off, it makes the LED light change Colour depending on when how Much the batteries are charged



aluminum screws, corrosion resistant, lightweight and strong.



thermosetting plastic case, heat resistant as the batteries might get hot and the LED lights might get hot



LED lights, that change colour Depending on how much Charge the batteries have



thermosetting plastic. case with a plug, thermosetting plastic can't Be remoulded so it won't melt



anti-spark board, so sparks will be produced so lower risk of the charger catching fire

Task 2: Product Disassembly

-Find 2 products in your house or another family members house, that maybe have broken recently and take them apart. It doesn't matter what the products are.

-Take photos - before, during and after disassembly. 3 photos minimum per product.

-Put the photos onto a page and label all the components, you may need help from the internet for this.

-Label the **specific** materials.

-Write about the primary function for each product.

-What are the ergonomics features?

Example – Mobile Phone

- Primary Functions
 - Make telephone calls
 - Send text messages
 - Portability
- Secondary Functions
 - Camera
 - Take/play video
 - Social networking
 - Games
 - Internet
 - Apps
 - Wireless technology
 - Etc...



Example – Electric Kettle

- Primary Functions
 - boil 1.8 L of water
 - pour it safely
- Secondary Functions
 - Indicate level of water
 - Cordless
 - Water filtration
 - Power indication
 - Keep warm
 - Etc...



Engineering Project









Task 3: Third Party Opinions and Evaluations

-Show your work to members of your family and gain third party opinions like we have done in the speech bubbles in class. Make sure the responses are detailed. This will help you write an overall evaluation for your project.

-Write a product evaluation for your Isometric drawings and your disassembled products. The evaluation needs to be

Possible questions to help you write your evaluations.



A	Aesthetics	Where did the designer get their inspiration? Could the product look better?	
		Do you think it looks attractive or ugly, Why?	
		What does the product look like? <i>THINK</i> shape, form, materials, size, beauty, ugliness	
C	Cost	Is it affordable to your customer? Will it make a profit?	
		Is it value for money?	
		How much does it cost € €	
C	Customer	What impact would it have on a customers life?	
		Why would a customer buy it? What makes it suitable for them?	
		Who would buy it? Who would use it?	
E	Environment	What is the products impact on the environment? <i>THINK</i> batteries, rethink, refuse, reduce, reuse, recycle, lifecycle	
		How would the product be disposed of?	
		Is the product needed or wanted? How long will it last?	
S	Safety	Is the product high quality? Does it meet safety standards?	
		How has the designer considered safety?	
		Could the product hurt anyone? Are there any sharp edges?	
S	Size	Is it an appropriate size? Would it work better if it was bigger or smaller?	
		Does it come in different sizes ?	
		How big is it?	
F	Function	Does the product work? Could the product work better?	
		How does the product work? Why is the product needed?	
		What does the product do? Is it easy to use?	
M	Materials	What impact could the designer's choice of material have on the environment?	
		Would a different material make it better?	
		What material has it been made from?	

Third Party Opinions

Positives and improvements needed for your drawing skills.

