

Year 11 Engineering

What concepts will we be covering this half term?	Curriculum mapping for students <ul style="list-style-type: none"> Unit R107: Developing and Presenting Engineering Designs What content/concepts will you be covering this half term? In school we are completing coursework and so this work supports the drawing and rendering skills that are needed. Key words/Power words: Isometric, oblique, rendering, tone.
What resources can you use to support your learning?	<ul style="list-style-type: none"> Powerpoint with tasks Coloured pencils and paper (from home) Most pieces of work are to help you to practise these skills but please keep all work as it could be used in your coursework. Hand to Mrs Harpham once you are back in school (or email it to me).
Tasks to complete so we can assess your understanding/ Key Performance Indicator tasks	<ul style="list-style-type: none"> Work through the tasks, firstly practising drawing techniques and colour rendering, then having a go at producing 4-6 very neat and accurate designs to go in your coursework. Instructions on PP - For your next piece of coursework you will be designing bike lights using hand drawing skills and CAD. We have already completed some quick sketches in class. Can you remember what these looked like? <p>Now you need to try to come up with 4 – 6 very neat 3D ideas for a new bike light. Try to use isometric drawing techniques to help you. You will also need to very neatly colour render your 4-6 ideas.</p> <p>The next few slides have some tasks which will help you to practise your isometric skills.</p>
What can you do if you need help/ support?	Email h.harpham@netherthorpe.derbyshire.sch.uk Send a message to SMHW (will not be picked up as quickly as email).

Year 11 Engineers

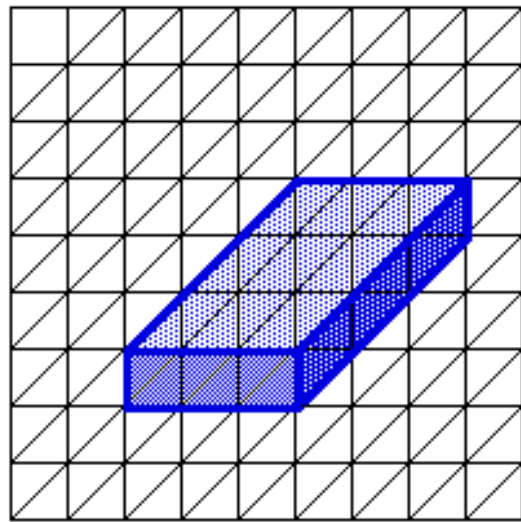
For your next piece of coursework you will be designing bike lights using hand drawing skills and CAD. We have already completed some quick sketches in class. Can you remember what these looked like?

Now you need to try to come up with 4 – 6 very neat 3D ideas for a new bike light. Try to use isometric drawing techniques to help you. You will also need to very neatly colour render your 4-6 ideas.

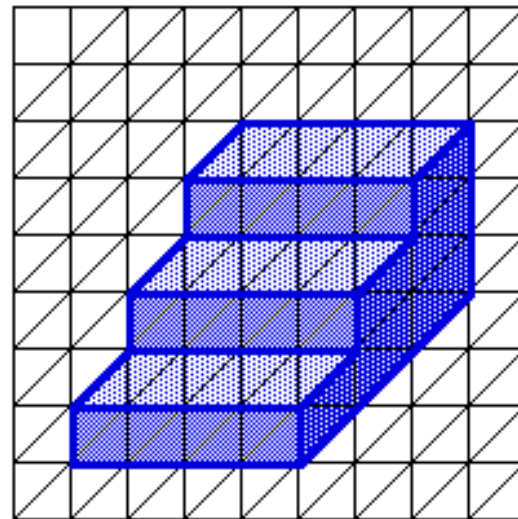
The next few slides have some tasks which will help you to practise your isometric skills.

3D drawing skills- before you start to design your bike lights you need to practise your 3D drawing and rendering techniques.

Oblique drawing – draw the front view as normal and then show the top and one side going away at a 45 degree angle.

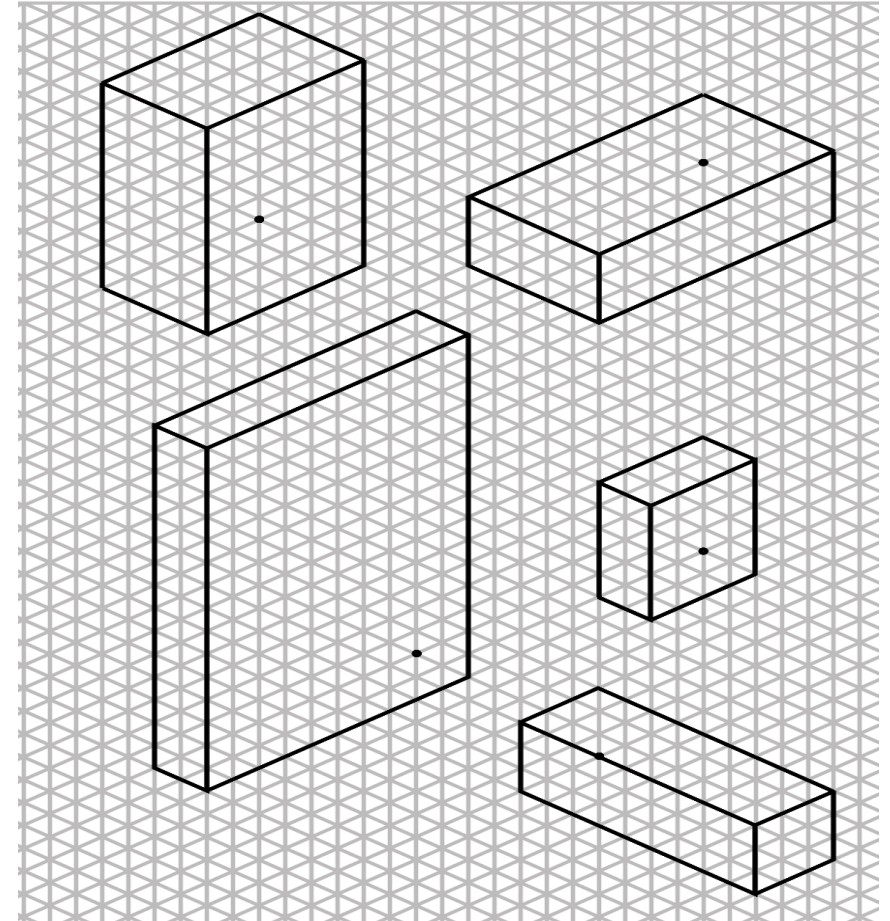


a box



3 steps

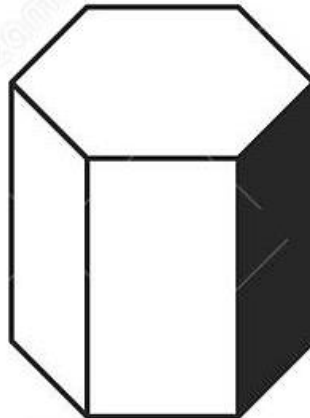
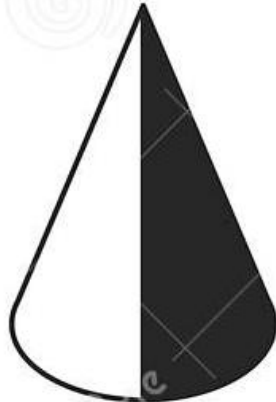
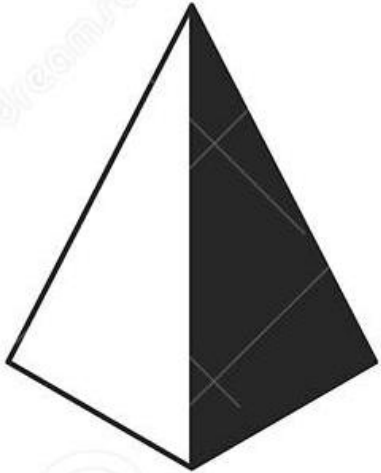
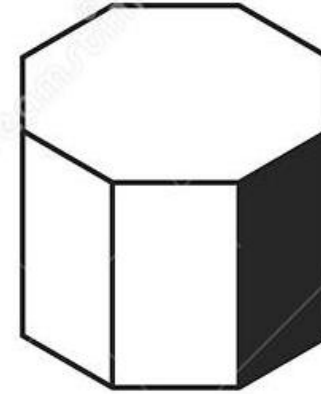
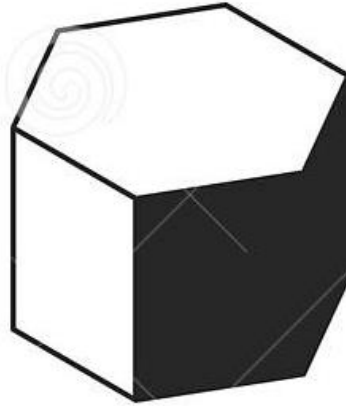
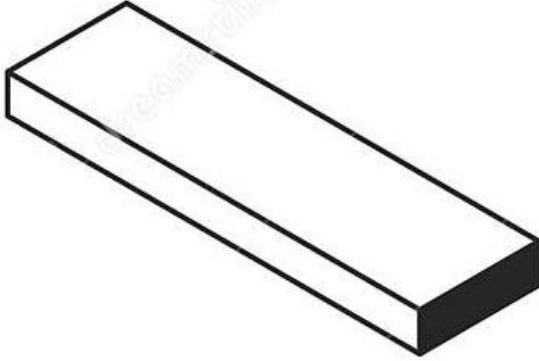
Isometric drawing – draw a Y shape to start. You **must not** use horizontal lines on this type of drawing.



TASK: Practise drawing oblique and isometric shapes – do these freehand. You do not need the grid paper.
EXTENSION: Can you add tonal colour to your work? Eg one side light, one side medium tone and one side dark.

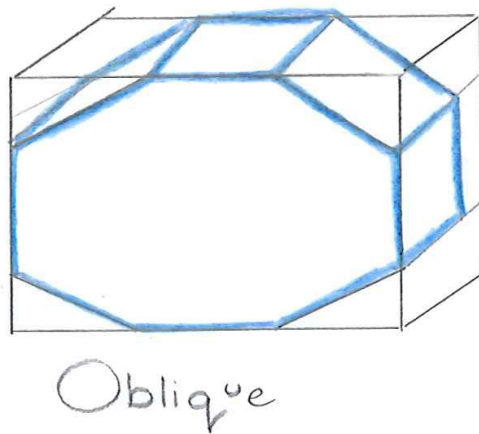
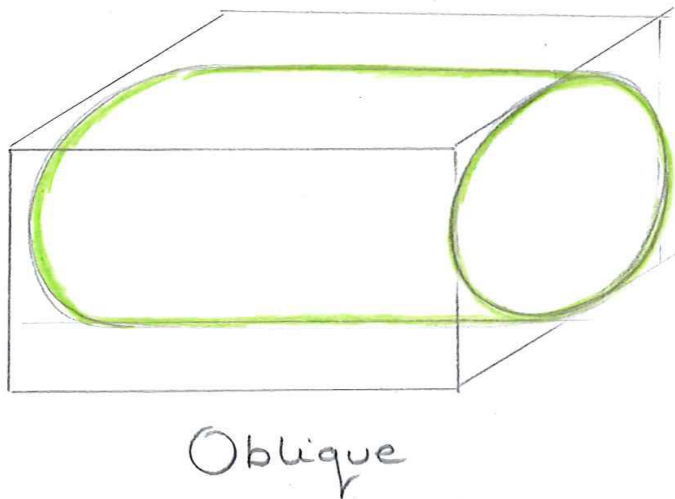
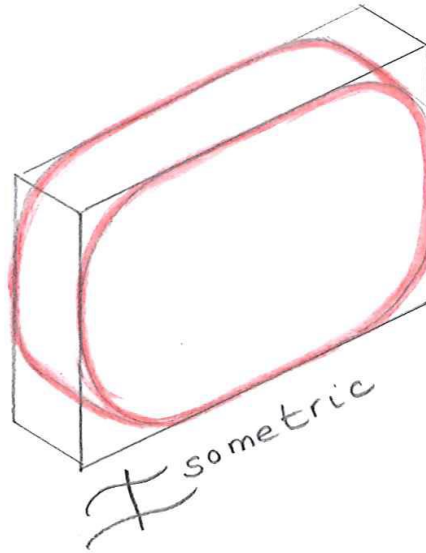
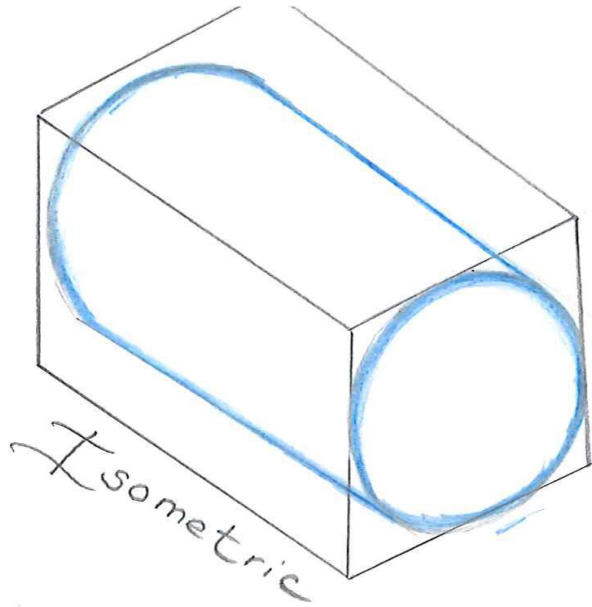
Isometric practise

TASK: Draw the shapes below. Then add tonal shading (light, medium and dark)



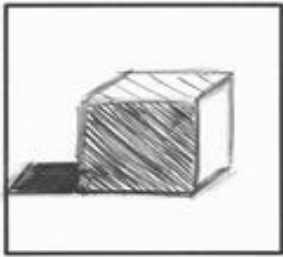
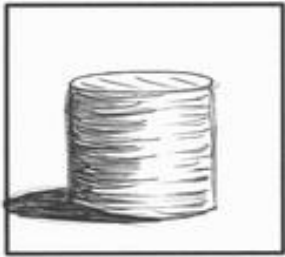
Once you have finished try to turn these shapes in to bike light designs by adding a button, some LED lights, or anything else that you think might be on a bike light. They light look better if you turn them on their side?

3D drawing skills

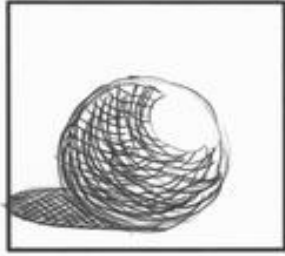
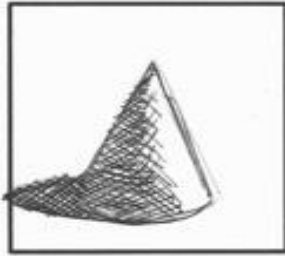
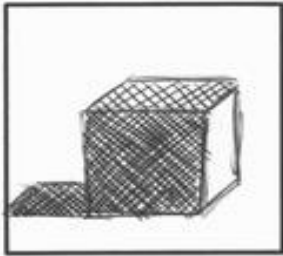
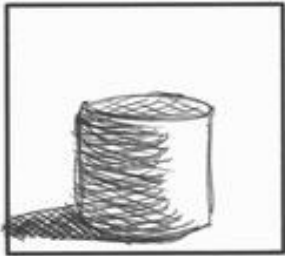


TASK: These ideas use isometric and oblique crating to help them look 3D. Have a go at drawing these shapes in isometric and oblique views and then practise some more simple shapes of your own.

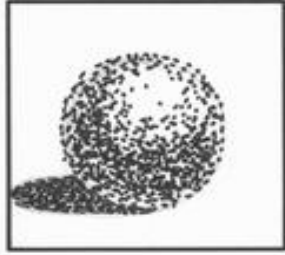
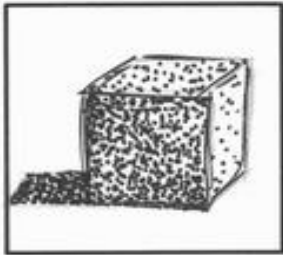
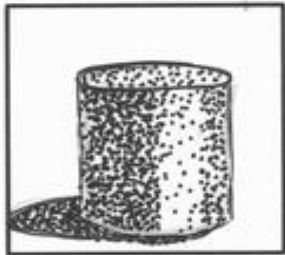
Hatching



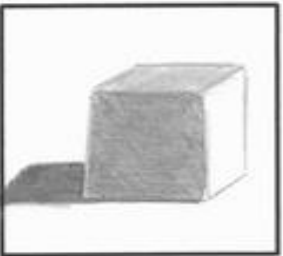
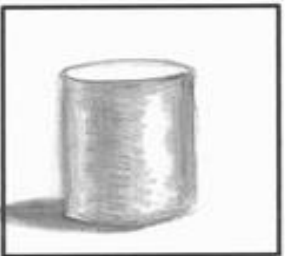
Crosshatching



Stippling

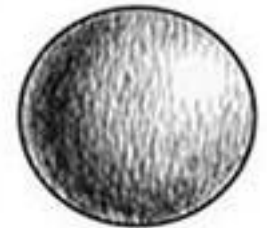
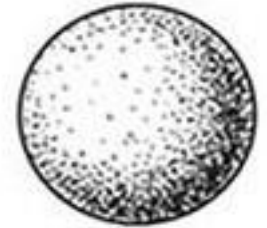
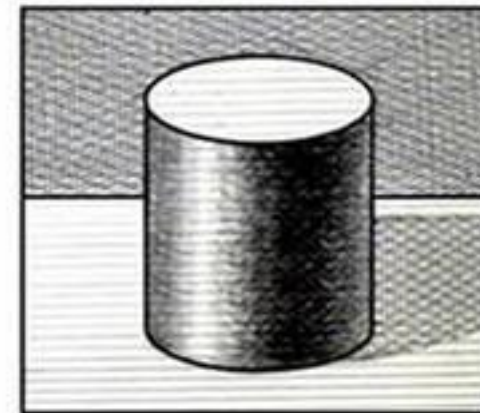
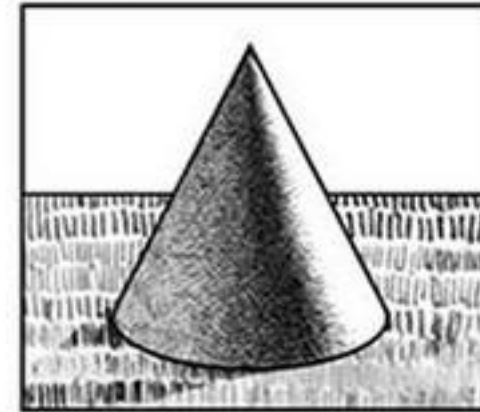


Blending



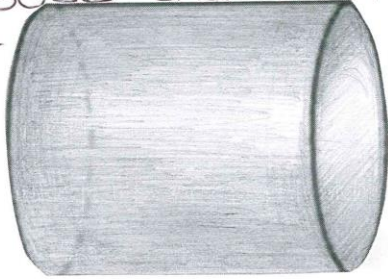
Rendering shade, tone and texture

TASK: Now practise some rendering techniques. Use a sharp pencil to show different tones and textures. You can also try this with coloured pencils.



Blending

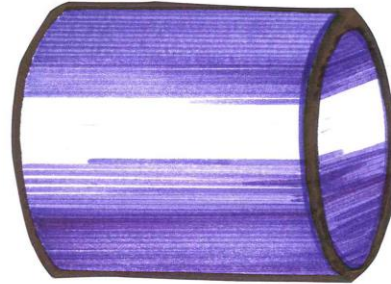
Pencil should be dark at the top and base and then blend until light in the middle.



Colour

Dark black outline.

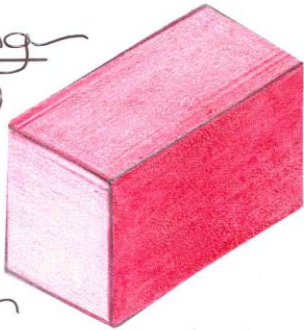
Colour at the top and bottom. No colour in the middle.



Colour, tone, shade

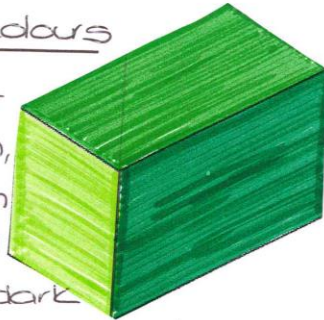
Blending

Coloured pencil is light on one side, medium on one side and dark on one side.



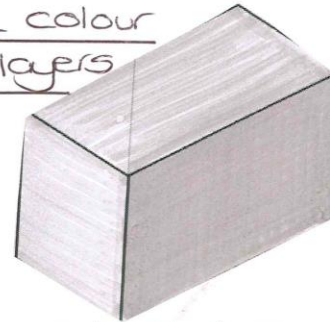
3 colours

Light green, medium green and dark green pens have been used.



1 colour

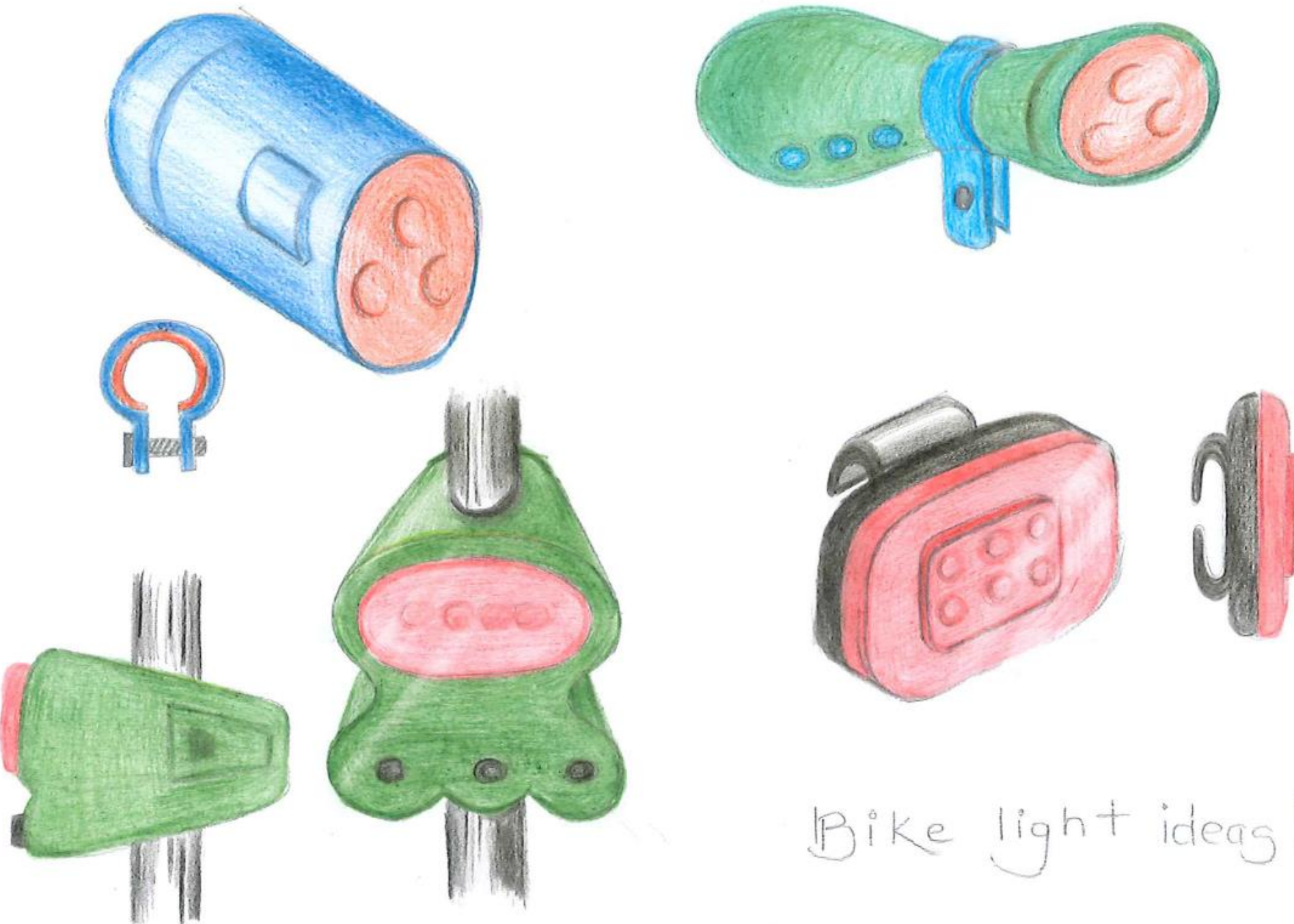
✓ 3 layers



1 coloured pen.

- 1 layer on light side
- 2 layers on medium side
- 3 layers on dark side.

TASK: Now practise some more rendering techniques. Use coloured pencils or felt tips to show different tones and textures.



TASK: Now draw 4 – 6 different bike light designs using isometric and oblique drawing techniques. Colour in very neatly with coloured pencils to make them look realistic. Use tone and shade/ light and dark. These should be your own designs and not copied! Draw each idea on a separate piece of paper and bring these to school or email them to me!

TIP – If you get stuck then look for inspiration by researching existing bike lights and other small electrical products on the internet.

Bike light ideas!