



Art & Design

3D Design

Y12 Transition Pack 2026

***Architecture : Product Design : Furniture Design
Theatre Set Design : Interior Design
Exhibition Design : Automotive Design
3D Digital Design***



Equipment and Resources

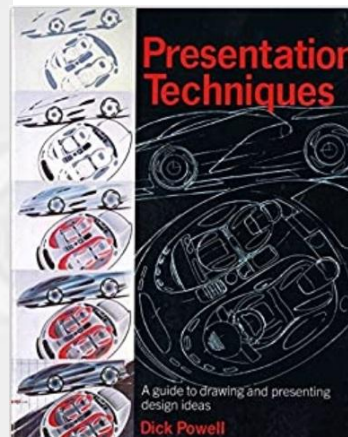
We endeavour to provide as much of the equipment as possible but there are some things that you must purchase and a few things that it would be in your interest to own.

Essentials

- A scalpel and 10A blades
- A range of drawing pencils from hard (H6) to softer (B6)
- Good quality colouring pencils.
- An A4/A3 sketchbook (whatever is convenient for you)
- An A3 portfolio carry case. (Can be purchased from the school or you can use your GCSE carry case)

Desirable

- A small storage container to keep your design tools and equipment. A standard toolbox which can be padlocked and easily transported.
- MS Publisher is the primary presentation software used for design folder work. However, it is possible to access software from home via the student gateway.
- The school uses Solidworks as the main method for 3D CAD modelling. Regrettably, we do not have student licences. However, this pack includes tasks that introduce you to an excellent FREE alternative called Onshape
- SketchUp is a free and very powerful 3D modelling application **which you need** to gain confidence in using



LESSON 1

What do I need?

- An A4/A5 notebook / sketchbook / paper
- A mobile phone / laptop / tablet with access to youtube
- A Pencil / sketch pencils
- Biro pen
- Ballpoint pen
- Rubber
- Sharpener

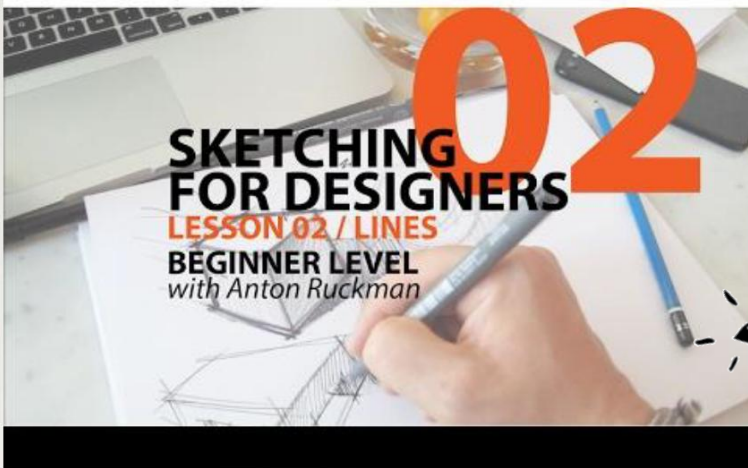
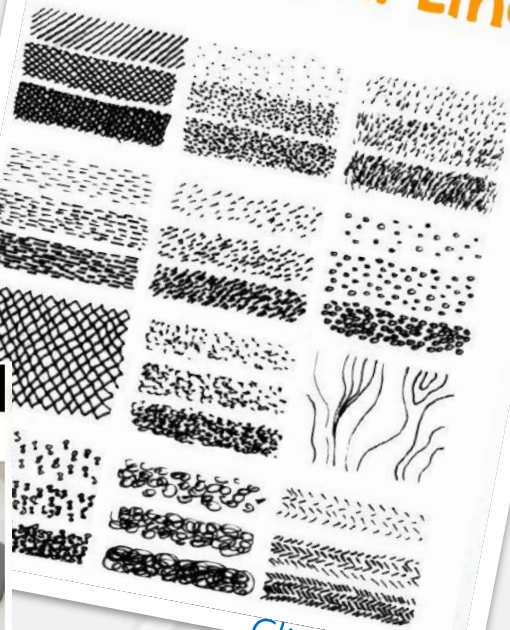


Click on the image to watch the tutorial and copy the techniques demonstrated



LESSON 2

LESSON 2: Lines



Click on the image to watch the tutorial and copy the techniques demonstrated



LESSON 3



Click on the image to watch the tutorial and copy the techniques demonstrated



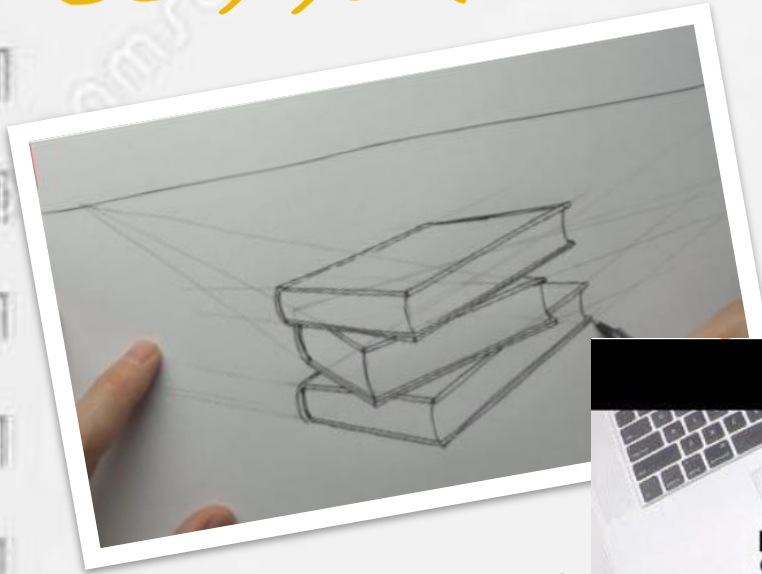
LESSON 4



Click on the image to watch the tutorial and copy the techniques demonstrated



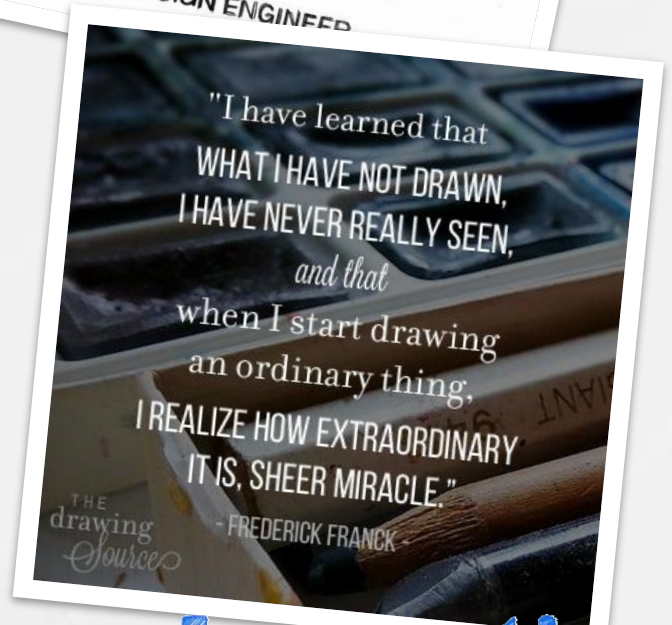
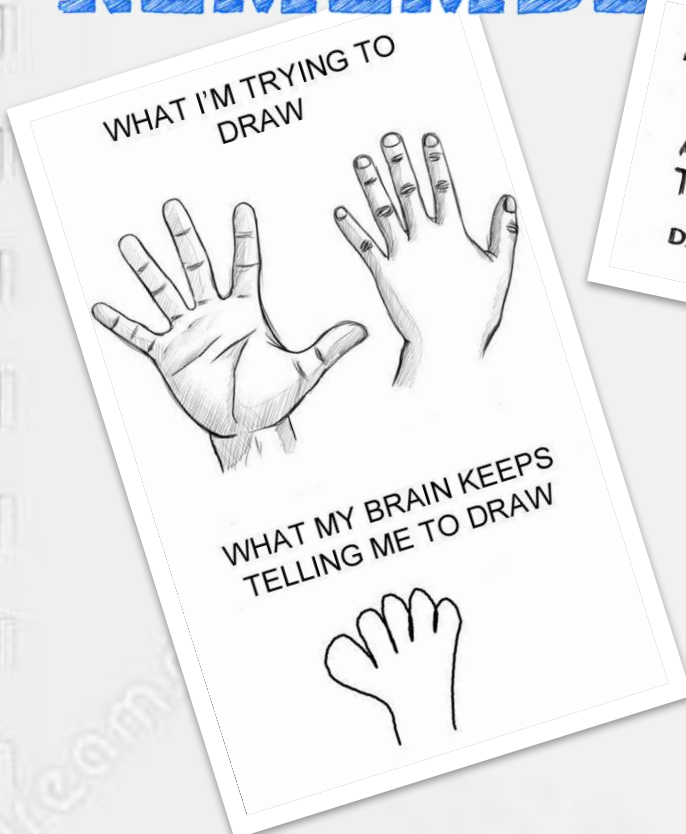
LESSON 5



Click on the image to watch the tutorial and copy the techniques demonstrated



REMEMBER!



It takes time and practice

Contextual Studies

Investigate the work of a designer of **your choice**. (300 to 500 words)

- Biography (keep this to a minimum, small paragraph)
- What are their most significant products?
- What made their products more desirable than preceding products?
- What influenced them? (New technologies, nature, politics,)
- How have they influenced their design field?
- What do you like about their ideas?

This case study should be presented in an creative manner of your choice using images and annotation to describe, explain and evaluate.

This can be presented as a PowerPoint presentation. across 2 or more slides

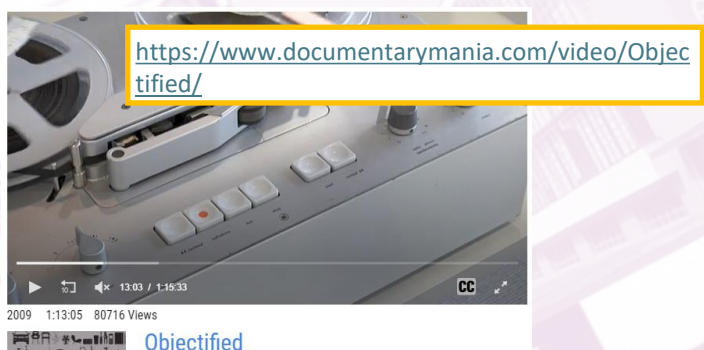
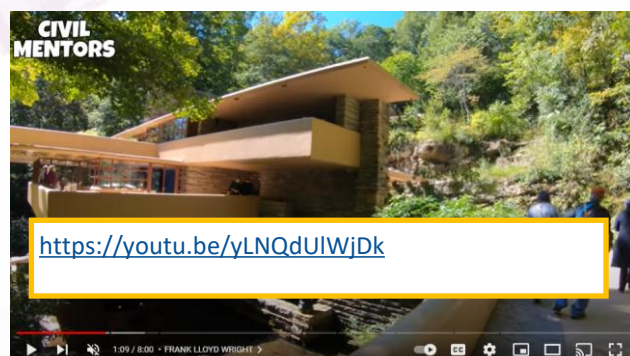
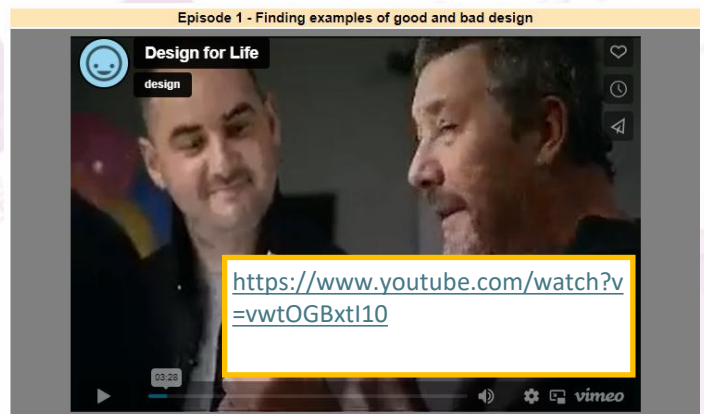
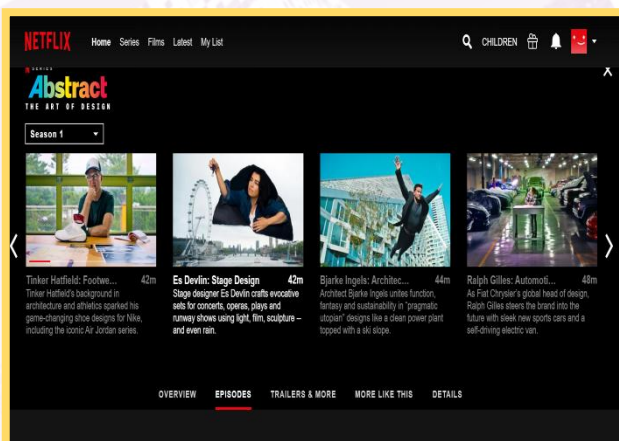
Consider
If you have a particular interest in an area of design (footwear, architecture, automotive design) then you might choose a significant designer from that design field. It might be more challenging but also more rewarding for you

As a 'primer' in the history and value of design, you will take some time to watch TWO of the following suggested videos.

There is a wealth of information available to you through the web and you should take time to explore the vast wealth of inspirational design and designers whose work we rarely hear about.

This course does not stipulate which designers and design movements (like at GCSE) so take this opportunity to discover what you find interesting or provocative from the world of 3D design.

Below are some suggestions of documentaries about design and designers that will help you with the above task.



Sketching & Graphic Communication

You will explore drawing for many different purposes using a variety of media and techniques and will use sketchbooks to underpin your design work. The importance of drawing, used in its widest sense as a recording tool and means of exploring visual language, is emphasised in this qualification.

You will, of course, develop your ideas in CAD software at some stage in your design process but this course places particular focus on evidence of sketching being present.

It is not necessary, however, for you to demonstrate technical mastery in sketching. Only that you can employ sketching in an appropriate way to explore, record and communicate your ideas effectively.

Sketching, like any skill, needs frequent practice and application or you risk losing confidence. The tasks below are there to ensure you build and maintain your drawing skills in preparation for September.

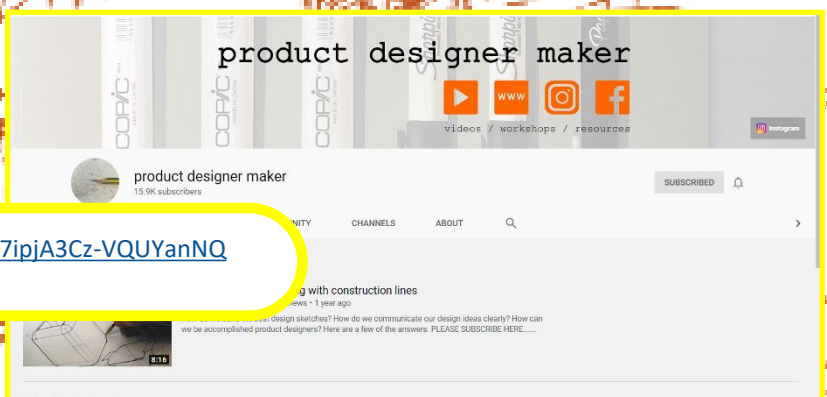
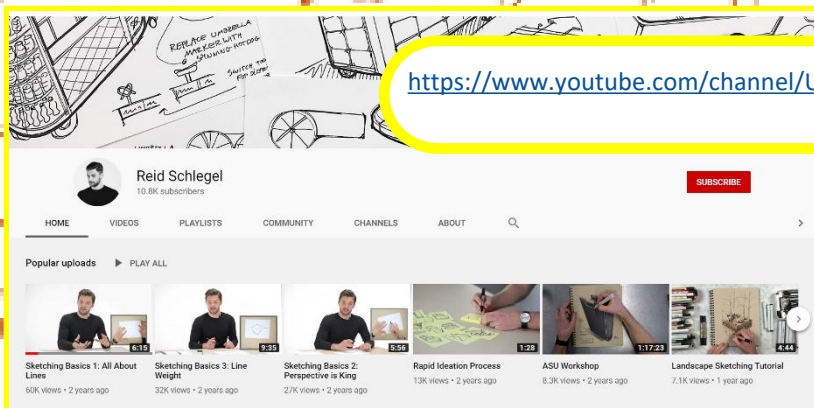
Use the online tutorials below and follow the drawing exercises practiced by these designers. These sketches should be completed in your sketchbook.

The following techniques are important for you to practice.

- . **1 and 2 Point Perspective**– Draw an interesting example of architecture (choose wisely!)
- . **Isometric Projection**– If you can print off a grid that's great, but an estimated sketch is just as useful.
- . **Crating method**– Extremely useful when constructing complex forms.

As always, sketch freely without punishing yourself. Leave the disappointments and try again on a fresh area of the paper.

https://www.youtube.com/channel/UCL0khaYGLo16tbWYCF_2CcA



<https://www.youtube.com/channel/UCxyQKi7ipjA3Cz-VQUYanNQ>

Developing your SketchUp Modelling Skills

During your course you will use a wide variety of CAD tools to help you design and visualise your design thinking. One of the most versatile and, more importantly, free CAD applications is SketchUp. You have two options as to which version of SketchUp you can use;

.SketchUp Make (2017) is desktop based and benefits from having many freely available plug-ins that can extend your modelling power.

.SketchUp Free is a browser based version of the application. Advantages include that your models are stored in your school Microsoft One drive and you have easy access to the SketchUp 3D warehouse where you can import models. It is also the only option if you are restricted to using a tablet or Chrome laptop.

Instructions on how to get the SketchUp applications can be found [here](#)

Task I

Using the video tutorial and task PowerPoint resource (links below) model a garden studio with internal features and fixtures. You will use your final model as the basis for a 'back to client' presentation page.

[Task PowerPoint](#)

[Video tutorial](#)



Developing your Onshape Modelling Skills

The main piece of 3D CAD software used on this course is Solidworks which is an excellent tool for modelling and presenting ideas as well as creating files that can be sent to the laser cutter or 3D printers. However, we do not, as yet, have a licence for students to use this at home so it is important that you become confident in using a very similar browser-based CAD app called Onshape.

Onshape has nearly all the capabilities of Solidworks but with the advantage of being free and accessible through a web browser page. Models made in Onshape can then be brought into school for laser cutting, 3D printing or opening in Solidworks for photographic quality rendering.

The tutorial tasks below will introduce you to the basics of sketching and modelling most of which will be very similar to Solidworks and familiar for those who have used Solidworks before.

Task 1

Register an account with Onshape. Use your schools email to register for an Edu account

<https://www.onshape.com/en/education/sign-up>

Task 2

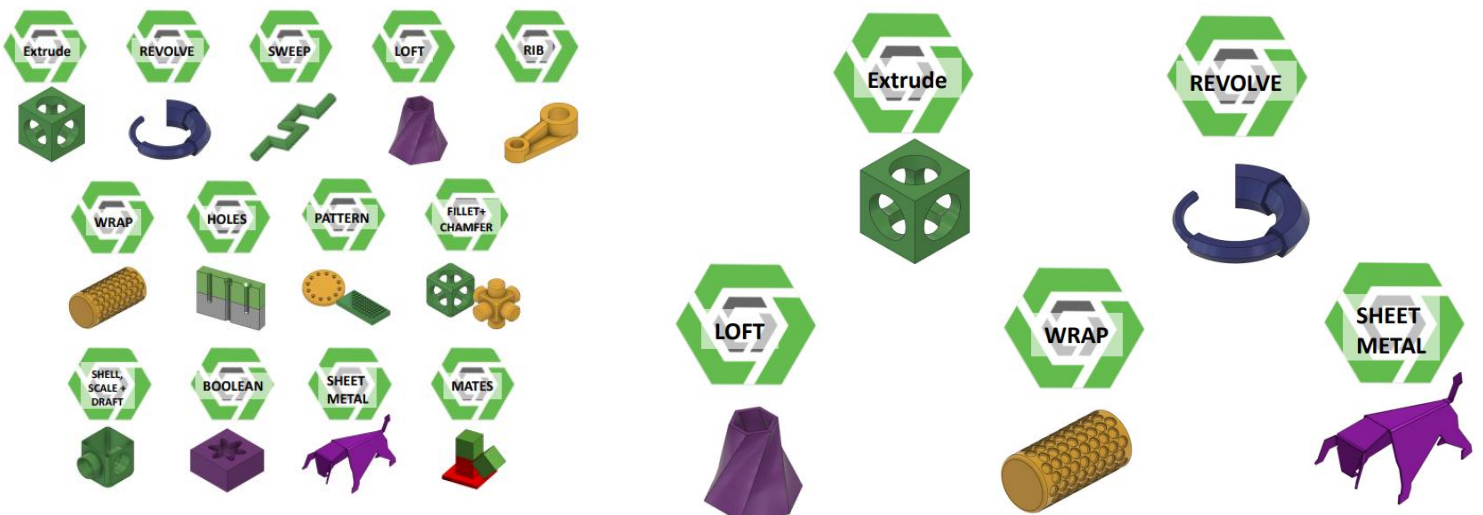
Click the following link which will take you to a tutorial homepage PDF file with a wide range of tutorials from absolute beginners to more advanced modelling.

[TEACH-PRODUCT-DESIGN-ONSHAPE-TUTORIALS.pdf](#)

Each of the key tools pictured links to YouTube videos which you should follow and save the result as evidence.

Complete the following topics

1. Extrude
2. Revolve
3. Loft
4. Wrap
5. Sheet Metal



Design research project

The following tasks will be used as the basis for your first design project when you start the course in September.

Please ensure that you prioritise these tasks when preparing for your commencement of you're a 'Level course

Design research project

Your task consists of 2 parts;

- .A research and drawn exploration of the given creative theme.
- .A designing task based upon the work of a designer of your own choice.

Text Stimulus

Explore the notion of contours. Contours represent the outline of shapes or forms such as the topography of land depicting relief and are a common way of showing elevation. Contours can depict the relief of the human face or body as used for forensic model making. The notion of contours could take on a more abstract and synesthetic interpretation, for example, exploring the notion of pitch contour as in the tonal variations of a voice or the sound of music. Your response could be a fresh interpretation of the theme

Visual Stimulus



Stratification

Design research project

Task 1

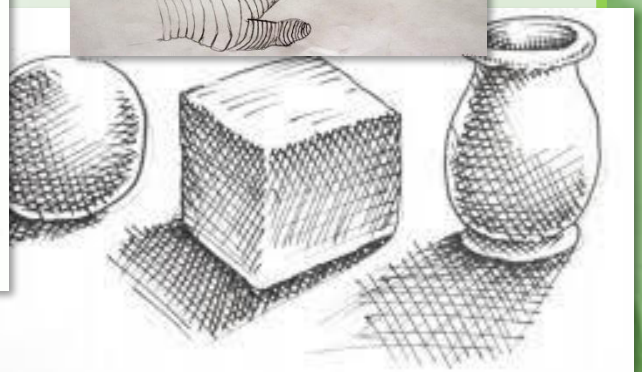
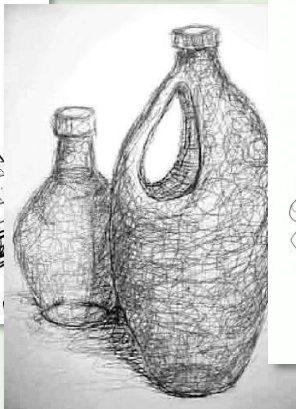
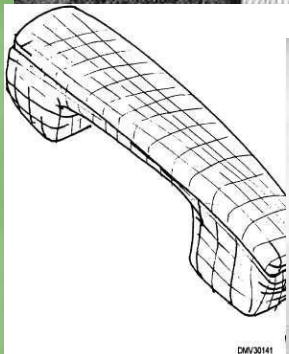
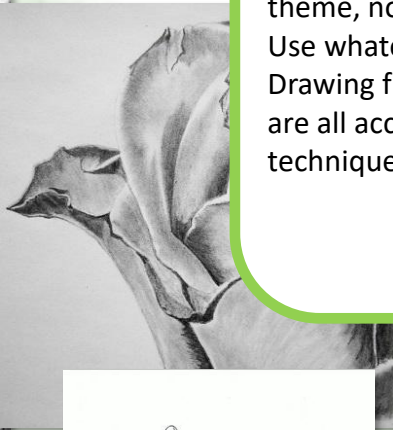
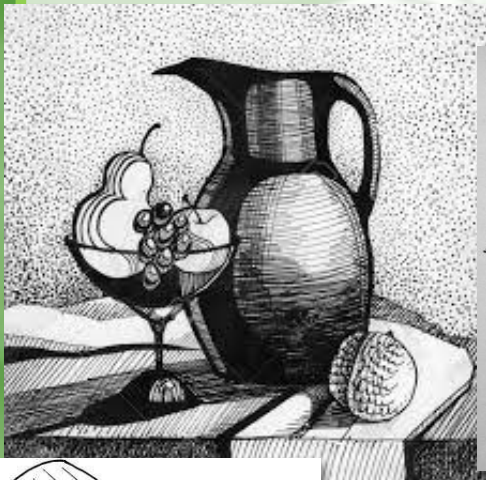
Explore one of the 2 inspiration sources you have been given (the visual or the written). Really try to understand what the concept means and, more importantly, how it appears visually. Consider how it manifests itself in geography, nature, science, art and popular culture. Present your research on 2 A3 pages, ideally in Publisher or PowerPoint. Have a plan to your presentation of images. Annotate and analyse regularly throughout the pages, especially if you find new and novel interpretations of the theme.

Task 2

Complete at least 4 pages of observational drawings from objects based on the theme. What those objects are will be based upon your personal exploration. Use a range of media pencil drawing, watercolour, biro, chalk or collage. The key thing is that you are experimenting with different styles, marks and effects. You may choose to fill pages with smaller drawings or use a whole page to produce a large scale study, it's up to you. If a drawing is disappointing, leave it and start elsewhere on the page. PLEASE DO NOT CROSS/ SCRIBBLE/ ERASE DRAWINGS FROM YOUR SKETCHBOOK.

Exploring Visual Language

Here you are using drawing as a way of exploring a theme, not to create final, polished works of art. Use whatever method you want to aid you with this. Drawing from life or an image, tracing or projecting are all acceptable if it allows you to explore the technique you want to do.



Design research project

Task 3

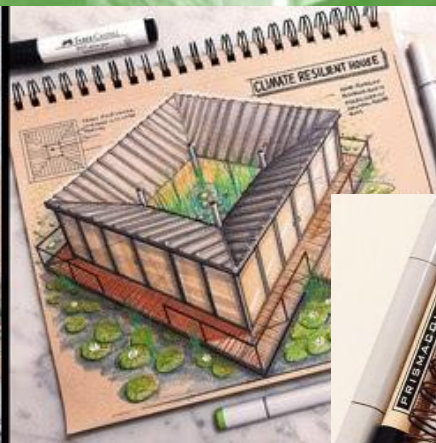
Create 2 A3 pages (or more) of sketch responses to your **personal** interpretation of the theme. To help you present your design ideas, look at the pages of the designer **Reid Schlegel**. Observe the way he presents loose sketches alongside finished drawings on each page.

The product that you will design will be one of the following;

Furniture

Lighting

Architecture



HEALTH WARNING

These are degree level sketch pages!

The examples on this page are obviously the work of designers who have been sketching and drawing for years.

