Year 11 Bridging work

Dear year 11's who will be our year 12's in September!

Here are some tasks that you can complete to ensure you are prepared to become a fully-fledged PD student!

Theory

Using the following link – download the free resources from Eduqas website and start to make revision materials from these. This is the exam board we will use and we will go through this in much more detail but the more familiar you are with their terms and key words the easier it will be to apply that understanding in September and eventually the exam.

https://resources.eduqas.co.uk/Pages/ResourceSingle.aspx?rId=1077

Specification

Familiarise yourself with the specification, we have to teach it to you so you might as well understand what is being asked of you. Remember this is a joint specification so you only need read the Product design parts and not the fashion and textiles!

You will find it at the link below

https://www.eduqas.co.uk/ed/qualifications/design-and-technology-as-a-level/#tab_overview

Exam Practice

You will need to learn lots of new techniques for answering longer answer questions and the ability to justify each point. You may have used the anacronym PEE (Point, Evidence, Explain) this will be very useful to you. We often have a lot of the Explain, analyse, justify questions about products so a task to help you with this is the following:

- Pick an everyday object
- Analyse and justify the materials used and manufacturing methods used for suitability

(i.e. a toothbrush is injection moulded from PP and over moulded with an elastomer)

  - Injection moulding is a good choice from a mass-produced product due to the high demand from consumers and can produce quickly, efficiently and is cost effective
  - the production method is quick and leaves little room for human error
  - The elastomer over moulding creates a non-porous and easy to grip handle, great for a brush that gets wet when in use
  - PP is a non-toxic polymer so will not contaminate or poison the user
  - Set up cost are high for injection over moulding process so producer will need to make a lot of products to reclaim costs.
  - PP has a good strength to weight ratio enabling it to resist the compressive and torsive pressure of daily brushing
  - The brush has a pigment which fades as the bush needs to be replaces which is a good hygiene and safety feature for the consumer.
  - ETC

Alternatively

- Pick an everyday object
- Complete a life cycle analysis (EMTUD) of the environmental impact at each stage.

(I.E a toothbrush)

Extraction –

  - Polymers are made from crude oil and take a lot of energy to extract.
  - They are then processed and cracked taking a lot of energy and releasing harmful chemicals into the atmosphere
  - An alternative would be to use recycled polymers using 5% of the energy taken to make originally and cutting down on that

Manufacture

- They are then made into polymer granules which takes up more energy which are then places into an injection moulder with pigment and created. This uses a lot of energy to run.
- Factories could have a closed loop system that reuses any waste from the injection moulding process to ensure less waste and not fill land fill sites.

Transport

- All toothbrushes need to be kept hygienic and not contaminated so need to have packaging.
- Packaging is usually a LDPE bag which uses more polymers and energy and end up in land fill. An alternative would be card which is easily recycled.
- The lorries that take the products to the shops are normally diesel also using a finite resource of crude oil. These could be converted to use Bio diesel which is a sustainable alternative and comes from rape seed in lots of cases.

Useful Life

- For hygiene reasons toothbrushes are used for only a 3-month period and then thrown away. They could be labelled with the Mobius symbol to help make them easier to recycle
- Using an electronic toothbrush would create a smaller amount of waste as you just have to replace the head, although these have more parts which are harder to recycle (see new oral B recyclable heads!)
- The colour changing pigment in the bristles help tell you how long they are useful for, this helps to stop excess waste and throwing away the head/ brush too early.

Disposal

- Most brushes are thrown into the bin and go to landfill contributing to the oceanic and land pollution often seen.
- Local councils could create a scheme that allows people to put them into their recycling as opposed to the bin and reduce land fill. The polymers are easy to recycle so could be labelled to make it easier to do this with the mobius symbol

If you did one of these a week you would have a really good bank of case studies that would help you with your exam. The majority of the time it is an everyday object they use that you have to analyse and doing this well now will help you to get a better understanding of products and their design. You will also find that a lot of the statements used above are similar so you can copy and paste!

It will help you to revise the way to lay out the longer answer questions and to really look at products. You will also get quicker the more you practice ☺

Problem solving

Look at everyday problems and come up with solutions, this will help to develop your independence and enable you to work more effectively in your projects we will set you. I would take 5 minutes a day to solve an everyday problem – look at life hack videos as inspiration.

Design skills.

Practice all of the following to help become a better designer. Use YouTube videos and keep having a play.

- 1 point perspective
- 2 point perspective
- Isometric – download paper from internet
- Oblique
- Colouring pencils
- Spirit markers if you have some
- 3d design – google sketch up or mind craft
- Exploded diagram – like in the Haynes manuals
- Orthographic – you all need practice at this!!

And finally have some fun and I will see you in September!