Topic Overview

Faculty/Subject: Innovation/DT

Year Group: 9

Topic: Paper engineering

What BIG IDEAS will you cover in this topic?

Students are asked to research Anthropometrics and ergonomics and trial a variety of Scaling Techniques. Students will test the functionality of each mechanism and create final samples. Students will need to rely on prior learning when using in and recalling information around using Craft knives and CAD softwares.

Student will look into information needed for later life when looking at the theoretical knowledge of where resources such as paper come from and how they are made.

What other <u>key concepts, knowledge and skills</u> will you learn in this topic?

- The paper making process
- Equipment, uses and health & safety
- Peer and self-evaluation
- CAD
- CAM
- Solidworks
- 2d Design
- Motion, Levers and mechanisms
- Paper engineering

What important <u>prior knowledge</u> will you use from your prior learning?

- Measured and marked out accurately.
- Identified the main stages of making any product.
- Had experience using CAD.
- Gained some understanding of the design process.
- Have a basic understanding and knowledge of some tools and equipment.

Where does this topic fit into the <u>curriculum plan</u> for this subject?

Students will follow on from simplistic CAD to using a drawing package (2D design /Solidowrks). They will also have a look at levers and mechanisms in real life and create some simple paper engineering mechanisms which will hold them in good stead for modelling should they choose to take the subject for GCSE. They will look at the theory behind paper making and see how it can be made on a large and small scale. They will also look at analysing a product which has been created

Assessment:
How and when will you be assessed on this topic?
What will the success criteria be?

- Class discussion, peer assessment and oral assessment.
- Teacher and student written assessment of practical work, technical language and evaluation.
- Self, peer, oral and teacher assessment methods as indicated within the scheme.
- Students will self-evaluate and set targets for future development.

What is the key <u>vocabulary</u> that you will need to know in this topic?

- As defined in objectives, activities and outcomes through writing, speaking, listening and reading.
- Through the activities in this unit, pupils will be able to understand, use and spell correctly words relating to: Papers, linear, reciprocating, oscillating, V-Fold, fibrous, pulping, sizing, mechanism, recycling, sustainable.

What is the structure of learning/lessons in this topic?

Theory/practical- Analysis what a existing chair is and collect primary ~Data

Theory/practical- compile data work out mean averages and create scale measurements for chairs.

Theory/practical-Design Isometric and Ergonomic chairs.

Theory/practical- Modeling using Crafte knifes a scale modell chair

Practical-Solidworks learn to extrude and draw on solidworks

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Theory/practical- Modeling using Crafte knifes a scale modell chair

Practical-x2 lessons. Laser cut final design

Theory- Evaluate