Design & Technology Department Schemes of Work
Knowledge Organiser:

Design Brief: A clock manufacturer would like you design and make your own version of a clock from sustainable materials you can obtain yourself. It is important that you make sure that the final design meets all the requirements that you identify for such a product. For instance, if you decide to design the clock that is for a young child, it should meet all of the criteria for this type of user.

RETHINK	Do we make too many products? Design in a way that considers people and the environment
REUSE	Use a product to make something else with all or parts of it.
RECYCLE	Reprocess a material or product and make something else
REPAIR	When a product breaks down or doesn't work try to fix it
REDUCE	Cut down the amount of material and energy you use as much as you can
REFUSE	Don't use a material or buy a product if you don't need it or if it's bad for people or the environment

Key words- Environment, Sustainable, Mechanism, Moulding, Composites

P.P.E
Personal Protective Equipment

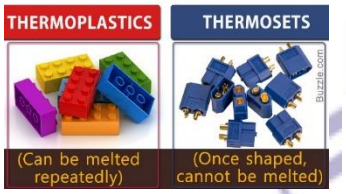
P.P.E for Resin Casting
Gloves, Apron, Safety Goggles, Facemask,

RESEARCH SECTION
Examples include;
- Task Analysis
- Product Analysis
- Consumer Profile

The Design Process

- **Situation** – What is the problem you are going to solve?
- **Brief** – How do you propose to solve the problem?
- **Analysis & Considerations** – Analyse the problem. Who, what, why, where, when? Are there any constraints you will need to consider? For example materials, cost or size?
- **Research** – Investigate the problem. Existing products, disassembly, target audience, materials. Use different sources. Internet, libraries, interviews.
- **Specification** – Use your research to create a **specific** list of criteria that the design **must** meet.
- **Design Ideas** – Use your specification to sketch initial ideas. Be creative and innovative.
- **Development** – Develop your best idea. Consider size, materials, aesthetics, ergonomics, safety, environmental impact, and construction details.
- **Final Design** – A detailed presentation of your solution including.... Working drawings, CAD / CAM, Plan for making
- **Prototype** – Model all or part of the design. This will allow you to check whether the design actually works!
- **Evaluation** – Evaluate your design against the specification. How successful is the design? Ask the opinion of others. Suggest modifications and areas for improvement.

Materials



Manufactured Boards
Strips or pieces of wood (chips/dust) glued and pressed with heat to form boards or sheets.

Sketching Techniques

Third angle Projection

One Point Perspective

Isometric Projection

Plastics:
There are 2 types of plastic THERMOPLASTIC & THERMOSETTING.
Thermoplastics are polymers (chemical compound with molecules bonded together in long chains) that can be melted and formed many times. Examples include – HIPs, Acrylic Polypropylene and ABS (Acrylonitrile Butadiene Styrene)

Clock Mechanism:
POLYPROPYLENE CASE / RUBBER WASHER / BUILT-IN HANGER / CENTRE FIXING NUT / SPINDLE.