Yr7 Resistant Materials (RM) Knowledge Organiser Rotation 3 Summer 1

Enquiry question:

How do prototypes help us ensure the most valid solutions for designs?

Big Ideas in Design Technology:

Possibility and Validity and judgement of value

Key Learning: Which metacognitive strategy will you use to learn, remember and recall this information?

Designing

Designers and manufactures have a responsibility to create products that are **sustainable.**

Ideas are used or discredited depending on how well they address the **design brief** (what the customer wants) and the **design specification** (what the product should look like)

Making

Prototypes are a mock-up of a final design. They give a clear indication of colour, size and how a product will work.

A prototype can identify issues with the final product.

Tools are identified to achieve the final outcome.

Evaluating

Ideas should be evaluated as they are developed.

Technical Knowledge

A **tenon saw** is a hand saw used to cut straight lines.

A **band facer** is a sanding machine use by industry for removing roughness and preparing wood.

Key Vocabulary

Prototype	A first physical version of a design
Existing products	A product that already exists on the market
Research method	Information that can be collated to help solve a problem
Design specification	A list of what the product needs to include
Pillar drill	A pillar drill is drill bit that is fixed to a rotating handle that can be lowered and raised
Band saw	A band saw has a continuous, long sharp teeth blade
Band facer	Used to remove waste material, to sand and 'finish' a product.
Fret saw	A thin bladed machine that is used to cut intricate curves
Mood board	A visual tool that communicates ideas through pictures
Timber	Wood that has been made into beams
Ever green	A tree that remains green and functional all year round
Coniferous	Cone shaped tree that grows needle or scale like leaves
Deciduous	A tree that sheds leaves seasonally

Yr7 Resistant Materials (RM) Knowledge Organiser Rotation 3 Summer 1

Can you find a way to remember this information, and test yourself every day to see how much you can remember?

There is a metacognitive strategy, sometimes called spaced retrieval, or the Leitner System.

Here is a YouTube video that may support your understanding of this strategy:
https://www.youtube.com/watch?v=d9u3KxGCio8&ab_channel=JonHutchinson

What does PPE stand for?	Personal, protective clothing
What does 'hazard' mean?	A potential risk
Why is it essential to be trained on how to use each tool and piece of machinery?	To keep yourself and other safe and to avoid an accident from happening
Describe what you should do if there is an accident in the workshop	Alert your teacher straight away and follow their instructions with what to do next

Name at least 4 pieces of equipment / machinery for this project	Pillar drill. Tenon saw. Band facer. Fret saw. Chisel. Bench-hook. Metal rule. Tri-square.
What are the key safety rules for using them	Wear PPE, keep fingers and hands away from blades and moving parts. Hold materials securely as per demonstration
If the machine is not cutting or sanding well, what could be wrong?	Blade, drill bit or belt made need changing. Let your teacher know
Give some top tips for using the fret saw	Keep fingers outside of the taped box, firm pressure down to keep wood in place, change direction gradually—no sudden twists of the wood, cut just outside your line

What is a prototype?	A first version of a design
Name 2 types of research methods	Researching existing products, mood board
Describe some of the different methods to finish your bookends	Sanding, waxing, staining, painting
Consider some of the ways that a wooden bookend can be modified (changed)	Possible modifications: Shaping the ends of the bookend Moving parts, adding another function e.g. holds a small vase, charging port for electric devices