

# KS3 Resistant Materials—Project Scheme of Work 2018-2019

Unit title	Topic	Year Group	Length	<u>Target levels</u> <b>3 - 5</b>
Balloon powered boat.	Resistant Materials– Making with wood. (Softwood and Plywood).	7	3-4	
<u>Explore</u>	<u>Generate</u>	<u>Developing</u>	<u>Planning</u> An understanding of planning will be gained with the production of a step by step plan.	<u>Evaluating</u> Boats will be tested in water and evaluated against the performance.

**ICT SKILLS**

ICT skill can be used to produce homeworks.  
Use of 2D design to draw the wing shape and décor.

**Making**

Pupils will develop their skills in using wood based materials. These skills will be useful in the future studies in Resistant Materials. Their end of module levels will be assessed by way of the Pen rack project.

**HEALTH AND SAFETY**

H&S will be dealt with through demonstrations and supervision during activities.  
H&S issues- Tenon saw, Coping saw, Pillar drill, Screw drivers, Abrasive paper -dust.

**EXTENSION WORK**

Pupils will spend more time testing their boats and could modify them to improve performance if time allows.

**ACTIVITY**

Pupils will be making a Balloon powered boat which will be tested in water troughs to provide a fun end to the mini project.

Homeworks will pick up on theory knowledge.

**SKILLS AND KNOWLEDGE**

Selecting wood and looking for defects. Using a ruler and try-square. Using a Tenonsaw. Using abrasive paper.  
– safe & correct use of a pillar drill.

-Using plywood, Using a coping saw.

- Using screws and screwdrivers.
- An understanding of applying varnish.

**PERSONAL LEARNING and THINKING Skills**

Effective participants- All pupils will contribute to the class as they work on machinery and tools.  
Pupils will think logically if they are going to manage the decisions needed to make a Boat.

Creative thinking- Pupils will, through step by step homework plans, demonstrate their ability to communicate effectively and creatively.

**TECHNICAL LANGUAGE**

Softwood, Plywood, Dowel, Pillar drill,  
Tenon saw, coping saw, screws, screw-driver, varnish.

**Expected Prior Knowledge**

Very little– starting from scratch.

**Differentiation**

Pupils will be differentiated by either marking, cutting and shaping wood from first principles or having help to cut and shape. Templates available for less able on 2D Design.

Lesson	Learning Objectives We are Learning to (WALTs)	Strategy Focus	PLT focus	Teaching Activity	Outcomes Plenary (WILFs) (Assessment)	Health and Safety	Resources	
1	Identify woods and understand properties. Use a range of tools and machinery safely and accurately. Use CAD 2D Design	Investigation	E P	-Produce written sheet about types of wood. – Mark out and cut hull shape. Smooth with abrasive paper. – Drill 12mm hole in hull and glue dowel in. –Use 2d Design to incorporate your initials or similar onto the plywood boat wing. Save the design into drop in to allow batch production of wings. - Pupils will be taught about how to configure ROLAND CAM machine. – Drill 2 3mm holes in top of wing and countersink. – Screw wing to hull. Shape two floats. Glue floats in place. – Teacher to drill air holes and pupils to varnish. -Produce a 3D rendered drawing of the finished boat -Testing of the boats on water troughs. H wk– Each week the pupils will produce a step by step plan of the work undertaken.	Accurate, safe use of tools and machinery.  Ability to follow all H&S instructions.	Use of all machinery and tools to be carried out with supervision, demonstration and in accordance with H&S guidance.	150mm by 30mm by 15mm pine.	
2		Making	EP					60mm by 120mm 3mm plywood.
3		Generation of ideas	EP CT					40mm Dowel
4		Making	E P					Screws
5		Making	E P					Full stock of hand tools.
6		Generation of ideas	E P					Pillar drill
	Planning (throughout for Homework).	E P	CAM machine (CNC Router)					
		C T for all h/wks.	Clear water based varnish.					

Examples of Year 7 Work

