D&T- YEAR 8

			
Topic	**Head**	**Heart**	**Hand**
Product Analysis	**Product Analysis**—Progress from year 7 Titles explained only Use of ACCESSFM revisit	• I can use my **initiative** to analyse a product and communicate my ideas in full sentences.	• I can use ACCESSFM to analyse a product in more depth than I did in year 7. • **I can use internet research to compare and contrast 2 similar products.**
Health and safety	• To understand what a hazard and risk is within a workshop and that there are workshop rules in place • To know some methods of reducing H&S risks in D&T •	• I am organised enough to enable me to work safely in a Technology workshop.	• I will work safely in the workshop • I will avoid a range of hazards that are within a school workshop whilst using an increasing number of tool and processes. • I can safely use a larger range of tools and equipment than I did in year 7

Materials	Know and identify materials • **Woods** Man Made vs Natural (Pine, MDF) Properties (Softwood vs Hardwood) **Progression** • **Metals ferrous and non-ferrous** Timber Cuts • **Plastics** • Thermosetting vs Thermo • Sustainability • Single use plastic **Smart Materials** • Know what defines a Smart material • Name at least 2 from Polymorph, thermochromic pigment, smart alloys, photochromic pigments .	• I can use my initiative when using and choosing materials • I can use my initiative to come up with tests which show how the properties of smart materials change. • I can see real life uses for these materials.	• I can classify woods (soft and hard) metals (ferrous and non-ferrous) and plastics (thermo and thermosets) • I can show how the properties of Smart materials change when affected by an outside influence such as a change in temperature.
Graphics	**Revisit**— • Isometric, • rendering, • 2 point perspective • orthographic drawing	• Communication • Organisation and resilience to achieve accuracy • I know when it is appropriate to use a particular type of drawing technique	• I can produce a third angle orthographic drawing from an isometric or 2-point perspective drawing.

Wood joints mini task	**Practical Book end mini project** Revisit—Butt Joints, progress to butt-rub joint, know that butt-rub is stronger and why, then progress to finger joints	• Independent working • Organisation to work safely • I have the Resilience to produce a quality joint and I can identify where they are used on furniture in the home and school	• I can make a finger jointed book end with a good degree of accuracy to enable it to hold together.
Electronics	**Identification of LED and the use of resistor colour coding** • **Printed circuit board manufacture** surface mount technology (SMT), compare school production with industrial production. • Understand that Flow soldering is using in the mass production of circuit boards	• I am able to link what I have learned to products around the home.	• Maths—I can work out resistor values by using the colour coding system - worksheet • I can use a breadboard to build a series and parallel circuit using LEDs. • I can describe how a circuit board is made in school and using surface mount technology in industry.

Robotics and Programming	• Know how to write a precise program which will allow a robot to follow a set of instructions • Know open and closed loop programs • Use a decision command • Use a sub-routine **Sensors and activators** • I know that a sensor detects something from the environment for example an LDR is a light sensor. • I know that an activator makes something move for example a motor turns. • I know the difference between an analogue sensor and a digital sensor.	• I can use logical thinking to make a program work • I can identify products around the home and school which use programs to make them work	• I can write a precise program which will allow a robot to follow a set of instructions • I can recognise and write open loop programs, I can recognise closed loop programs by a feedback loop. • I can use a decision command. • I can write a sub-routine and include it in the main program • I can see sensors and activators in action demonstrated by the teacher. • I can use 1's for on and 0's for off in a program
Mechanisms	• I know different types of motion for example linear is straight line motion and rotary is circular motion. • I can recognise a range of mechanisms which convert one type of motion to another type of motion for example a cam converts rotary motion to reciprocating motion. • I know how to use mathematics to work out problems with gear ratios for example the speed of the driver or the speed of the driven gear given the number of teeth…	• Initiative • My knowledge of mechanisms can be used to understand how everyday items around the home work	• Starter sheet from Technology student: I can identify a number of common mechanisms found around the home. • I can use Focus on mechanical toys to explore different mechanism types. • Maths-I can perform gear ratio and velocity ration calculations

Propeller Launcher Project	• I know why aeroplanes fly and can demonstrate this action using a spoon help under a running tap. • Understand the meaning of Ergonomics as being human interaction with the environment, or in other words something which is ergonomically friendly is comfortable to use.	• Focus and working to tolerances. Resilience to get things correct. • Organisation of the work area and safe working practises	**<u>Practical</u>** • I can make a propeller using HIPs, line bender and 6mm dowel. • I can make an ergonomically friendly propeller launcher to test out my own propeller. • Health And safety: I can test it under controlled and supervised conditions so that no one gets injured.