Skills Builder Curriculum Map Secondary

Lesson	Skills Developed
Assembly The life of Reginald Mitchell, the story of the Spitfire and Stoke on Trent's role in its story.	LISTENING, SPEAKING
History **The Spitfire: How did we get there?** Explore the history of the Spitfire. Discover the changes that were made to the Spitfire's design as the Second World War progressed	LISTENING, SPEAKING, PROBLEM SOLVING, TEAMWORK
Science **Forces in Flight** **Flight Variables** **Forces in Flight Investigation** Explore the four forces for flight. Investigate forces for flight by creating paper aeroplanes and changing one variable at a time. Investigate forces for flight by flying the paper aeroplanes and observing and measuring the results.	LISTENING, SPEAKING, PROBLEM SOLVING, CREATIVITY, ADAPTING, PLANNING, TEAMWORK
Science **Forces in Take Off and Landing** Learn about the forces in Take Off and Landing. Simulate the forces in Take Off and Landing with a BBC Micro:Bit.	LISTENING, SPEAKING, PROBLEM SOLVING, ADAPTING, PLANNING, TEAMWORK
Engineering **The Merlin Engine: Understanding the basics of a combustion engine** Learn how a combustion engine works. Investigate how a chemical reaction creates movement.	LISTENING, SPEAKING, PROBLEM SOLVING, ADAPTING, PLANNING, TEAMWORK

Engineering **Powerful Propellers: How the Spitfires' Propeller works.** Find out how the Spitfire's Propeller works. Create a model propeller using an electric circuit. Investigate the relationship between power (voltage/potential difference) and the speed of the propeller car in m/s.	
Engineering **Tilling Shilling Systems Engineer** Learn about Systems Engineering and how Tilly Shilling used Systems Engineering to fix the Spitfire's fatal flaw. Challenge your students to apply their understanding of pressure to the Merlin Engine's Carburettor.	
Engineering **Tilly Shilling's Engineering Challenge** Using the Systems Engineering approach create a prototype to solve a simple problem and explain how the problem has been solved.	
STEM Project **Design and Technology** **Why do Engineers have to be excellent at failing?** In this extra-curricular STEM project your students will have the chance to take part in a range of activities that will develop skills as an engineer. Your students will learn how and why the Spitfire improved over time, begin to understand why failure is part of the design process and explore why flight must become more sustainable in the future.