

Spring	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Themes	Spring 1 - The Circle of Life						Spring 2 - Conflict				
Subject Area Topic	Engineering, Levers and Mechanisms						Design and Manufacture - Moving Product				
Weekly Focus	What is Engineering? Problem solving and sectors	Levers Effort, load, pivot and force	Mechanisms Motion, cams and linkages	Moving Prototype Design, assemble and test	CHECKPOINT Knowledge and working mechanism	MISCONCEPTIONS Repair, retest and explain	Design Brief User, purpose and specification	Prototype & Plan Develop, test and sequence	Manufacture Assemble, test and quality control	ASSESSMENT Moving product and evaluation	MISCONCEPTIONS Improve function, accuracy or finish
Powerful Knowledge	Engineers solve problems through research, ideas, prototypes, testing and improvement. Levers use effort, load and a pivot. Mechanisms transfer or change movement through rotary, linear, reciprocating and oscillating motion. Reliable products depend on correct pivot placement, alignment and safe assembly.						Product designers respond to a brief and specification for a user. Design decisions connect function, aesthetics, materials, mechanisms, safety and manufacture. Prototyping and quality control identify faults before a final product is tested and evaluated against clear criteria.				
Progression	Fluency: identify parts, motion and safe processes. Apply: construct and test a working mechanism. Mastering: modify the mechanism to improve force, movement, accuracy and reliability.						Fluency: follow a design-and-make sequence safely. Apply: manufacture a product that meets a brief. Mastering: independently diagnose faults, refine finish and justify improvements using test evidence.				
Notes / Links / Interleaving	Use Newcastle and North East engineering heritage, everyday mechanisms, physical lever models and moving card/board examples. Templates such as the kangaroo or submarine provide an access route, but pupils should adapt theme and design. Evidence: vocabulary, diagrams, practical observation, working prototype and improvement.						Use an age-appropriate client brief with choice of sport, vehicles, gaming, music, animals, street art or community messages. Plan supervision, PPE and lower-risk alternatives before manufacture. Evidence: brief/specification, ideas, prototype, safe processes, working product, test and evaluation.				
Access Visual instructions, completed model, part trays, meaningful design choices, supported cutting and an equivalent role when a tool is not appropriate.				Assessment HT3 Week 5 checkpoint / Week 6 misconceptions. HT4 Week 4 assessment / Week 5 misconceptions and product improvement.				Evidence Design decisions, safe practice, mechanism knowledge, a working product, testing, pupil voice and visible refinement after feedback.			