

UKS2 Design and Technology Detailed Progression of Skills and Knowledge Year 6

Structures: Playgrounds

Year 6 D&T Unit: Pupils design and build playground apparatus using frame structures. They explore stability, cladding, and landscape features, developing creativity and problem-solving through iterative design.

Prior learning: Structures: Bridges

Suggested next steps: Textiles: Waistcoats

Lesson	Learning Objectives	Core Knowledge	Core Skills	Key Vocabulary
1: Designing a new playground	To design a playground with a variety of structures.	Know that different structures serve different purposes in playgrounds.	Create annotated designs showing a variety of apparatus ideas that meet design criteria.	apparatus, design criteria, playground, structure
2: Building structures	To build a range of structures.	Understand how to create stability using joints and materials.	Construct frame structures using card, dowel, and connectors.	frame, stability, join, structure
3: Perfecting structures	To improve and add detail to structures.	Know that cladding improves structure and appearance.	Refine and reinforce playground structures, adding cladding and details.	cladding, reinforce, join, improve
4: Playground landscapes	To create a surrounding landscape.	Understand that landscape features enhance design realism.	Add base and landscape elements such as grass, sand, or water areas.	landscape, base, apparatus, detail

Electrical Systems: Steady Hand Game

Year 6 D&T Unit: Pupils learn about simple electrical circuits and components while designing a steady hand game. They explore conductors, insulators, and how to create an interactive product.

Prior learning: Electrical systems: Torches

Suggested next steps: Electrical systems: Doodlers

Lesson	Learning Objectives	Core Knowledge	Core Skills	Key Vocabulary
1: Exploring electrical systems	To understand how electrical circuits work.	Know that a circuit needs a power source, wires, and components to work.	Construct a simple circuit with a bulb, switch, and buzzer.	circuit, battery, wire, component, electricity
2: Designing a steady hand game	To design a game with an electrical circuit.	Understand how to design for a user and include an electrical element.	Sketch a design including the wire path, handle, and circuit layout.	design, user, circuit, wire
3: Building the circuit	To construct a working electrical game.	Know how conductors and insulators affect circuit performance.	Assemble and test the circuit for the steady hand game.	conductor, insulator, test, assemble
4: Finishing the game	To evaluate and improve a finished product.	Understand how to evaluate functionality and appeal.	Test and refine the game based on peer feedback.	evaluate, feedback, improve, design

Digital World: Navigating the World

Year 6 D&T Unit: Pupils explore how technology aids navigation, using programming to design a digital navigation device. They use CAD, coding, and problem-solving to develop and present their product.

Prior learning: Digital world: Wearable technology

Suggested next steps: Digital world: Smart devices

Lesson	Learning Objectives	Core Knowledge	Core Skills	Key Vocabulary
1: Exploring navigation technology	To research how navigation devices work.	Know examples of navigation tools and their digital components.	Research GPS, mapping, and sensors in modern navigation.	navigation, GPS, digital, map, satellite
2: Design criteria for navigation	To develop design criteria for a navigation device.	Understand how user needs influence product design.	Define design criteria for an age-appropriate navigation device.	criteria, user, purpose, design
3: Programming navigation functions	To program a simple navigation function.	Know how code can control direction and display.	Use software to code directional commands and outputs.	code, program, input, output, direction
4: Developing a CAD model	To create a digital model of the navigation device.	Understand that CAD supports precision and planning.	Design a 3D model of a navigation device using CAD tools.	CAD, model, digital, design
5: Presenting navigation concepts	To present product concepts effectively.	Know how to communicate product purpose and function.	Prepare and deliver a presentation explaining product features.	presentation, concept, design, function

Mechanical Systems: Automata Toys

Year 6 D&T Unit: Pupils design and make a cam-driven automata toy, exploring mechanical movement and decorative features. They investigate how different cam shapes create varied motions.

Prior learning: Mechanical systems: Pneumatic toys

Suggested next steps: Mechanical systems: Pop-up books

Lesson	Learning Objectives	Core Knowledge	Core Skills	Key Vocabulary
1: Exploring cams	To investigate cam mechanisms and how they work.	Know that cams convert rotary motion into linear motion.	Experiment with different cam shapes and followers.	cam, follower, rotary, linear, mechanism
2: Designing an automata toy	To design a cam mechanism toy for a user.	Understand how to apply design criteria to a mechanical system.	Plan and sketch a toy with labelled moving parts.	design, plan, mechanism, user
3: Making the frame	To construct the frame and cam system.	Know how to accurately measure and assemble frame components.	Build a stable frame and insert cams and axles.	frame, axle, assemble, measure
4: Adding decoration	To decorate and refine the toy for purpose.	Understand how decoration enhances user engagement.	Add character features and test mechanical function.	decorate, evaluate, motion, movement