How learning builds in Design and Technology

A guide for parents and carers | Years 3 to 6

Children learn to design, make and improve products for a purpose. Across Years 3 to 6, they apply knowledge of materials, structures, mechanisms, circuits, programming and food with increasing accuracy and independence.

Area	Year 3	Year 4	Year 5	Year 6
Designing and communicating ideas	Use a brief to plan a pneumatic toy or wearable product. Explain ideas through labelled sketches and simple computer designs.	Develop designs for a collar, pavilion and torch. Choose features that suit the purpose and explain material choices.	Research an animal's needs to plan a monitor. Use models and 3D computer design; develop car designs and adapt a recipe.	Develop ideas for playground structures, a game and a toy. Use templates and drawings from different views to explain how parts fit together.
Making and using tools	Choose materials for a working toy. Assemble components; prepare seasonal ingredients safely and follow practical instructions.	Measure, cut and join materials for stable frames. Sew and decorate fabric; assemble a torch with a working switch.	Build and test car prototypes. Program and model a monitor; prepare and cook an adapted sauce using safe food-handling routines.	Construct and refine stable models and a game base. Assemble a buzzer circuit; cut fabric accurately and sew a stuffed toy.
Understanding how products work	Explore how compressed air creates movement, how programs control wearable products and why food grows in different seasons.	Explain how frame structures stay upright, how stitches join and decorate fabric, and how a complete circuit powers a torch.	Explore how mechanisms move cars and how sensors monitor temperature. Explain how ingredient choices can improve nutritional value.	Apply structural knowledge to playground designs and circuit knowledge to a buzzer game. Use suitable seams and decoration for a three-dimensional textile product.
Testing and improving	Check whether a toy moves as intended and whether a program works. Taste seasonal ingredients and discuss the finished dish.	Check strength and stability, stitch quality and torch function. Compare finished work with the design and suggest improvements.	Compare car performance, correct programming errors and review model designs. Explain and evaluate changes made to a recipe.	Test and refine structures, circuits and stitching. Use feedback and design requirements to explain strengths and make purposeful improvements.

Revisiting knowledge

Children return to the same design process through different projects. Year 4 pavilion frames prepare them to build playground structures in Year 6. Sewing and decoration in Year 4 support the construction of stuffed toys in Year 6.

Applying learning in new contexts

Not every technical area is taught as a separate unit every year. Children revisit earlier knowledge when a later project needs it, while designing, making and evaluating in every year group.

Area	Earlier learning	Later application
Structures	Year 4 · Pavilions Build free-standing frames. Choose materials and joining methods for strength and stability, then add an outer covering.	Year 6 · Playground structures Apply frame-building knowledge to playground apparatus. Test and improve structures and secure them within a model.
Mechanisms and movement	Year 3 · Pneumatic toys Use compressed air to create movement. Design and build a toy with a working pneumatic system.	Year 5 · Slingshot car Return to moving products in a new context. Build and test car prototypes, comparing how design choices affect performance.
Electrical and digital products	Year 3 · Wearable tech Program and promote a product for low-light conditions. Year 4 · Torches Make a working circuit with a switch.	Year 5 · Monitoring devices Program a temperature alert and model a suitable case. Year 6 · Steady hand game Build and test a buzzer circuit within a secure game base.
Textiles and sewing	Year 4 · Egyptian collars Use cross-stitch, running stitch and appliqué to join and decorate fabric. Cut from a template and explain material choices.	Year 6 · Stuffed toys Develop templates for a three-dimensional toy. Join fabric with blanket stitch, add decoration and repair stitching where needed.
Cooking and nutrition	Year 3 · Eating seasonally Explore where food grows and when it is in season. Select and prepare ingredients for a seasonal tart.	Year 5 · Developing a recipe Build on ingredient selection and safe preparation. Adapt a Bolognese sauce to improve its nutritional value and evaluate the result.

Understanding users and making choices

Children consider who a product is for, how it should work and how it should look. They explore existing products and explain their choices. Projects also develop awareness of seasonal food, nutritional value and the reuse of materials.

Reflecting and improving

Children build from identifying what works and suggesting changes to testing products against clear requirements and explaining improvements. Discussion, labelled drawings, models and finished products help them show what they have learnt.

Based on Kempshott Junior School’s DT overview and unit objectives, informed by the Kapow Primary Design and Technology scheme.