Technical Knowledge

DESIGN & TECHNOLOGY ASSOCIATION

About technical knowledge

Technical knowledge is the body of knowledge and understanding that is specific to design and technology that needs to be developed and then applied when children are designing, making and evaluating products.





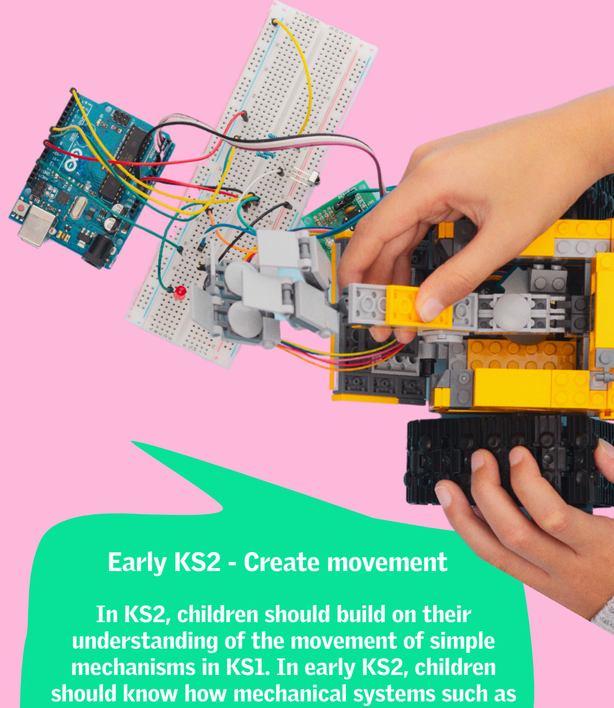
Technical knowledge	Key Stage 1	Key Stage 2
Making products work	**Across KS1 pupils should know:** • about the simple working characteristics of materials and components • about the movement of simple mechanisms such as levers, sliders, wheels and axles • how freestanding structures can be made stronger, stiffer and more stable • that a 3D textiles product can be assembled from two identical fabric shapes • that food ingredients should be combined according to their sensory characteristics • the correct technical vocabulary for the projects they are undertaking	**Across KS2 pupils should know:** • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • that materials can be combined and mixed to create more useful characteristics • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking **In early KS2 pupils should also know:** • how mechanical systems such as levers and linkages or pneumatic systems create movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products how to make strong, stiff shell structures • that a single fabric shape can be used to make a 3D textiles product • that food ingredients can be fresh, pre-cooked and processed **In late KS2 pupils should also know:** • how mechanical systems such as cams or pulleys or gears create movement • how more complex electrical circuits and components can be used to create functional products • how to program a computer to monitor changes in the environment and control their products • how to reinforce and strengthen a 3D framework • that a 3D textiles product can be made from a combination of fabric shapes • that a recipe can be adapted by adding or substituting one or more ingredients

KS1 - Stronger, stiffer and more stable

Children in KS1 should know how free-standing structures can be made stronger, stiffer and more stable.

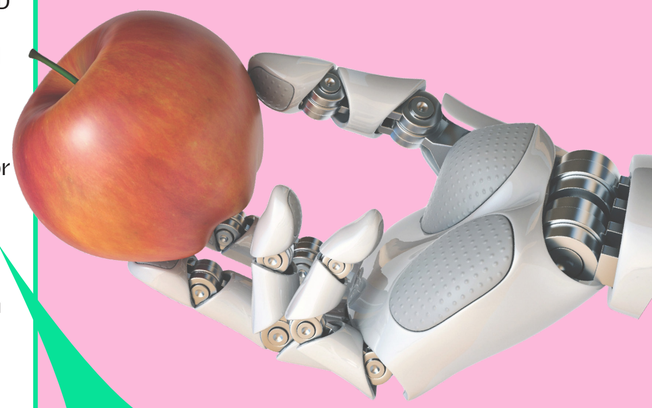
KS1 - Two identical fabric shapes

Children in KS1 should understand that a 3D textiles product can be assembled from two identical fabric shapes. This understanding should be applied when they are designing and making products e.g. a glove puppet or bag.



Early KS2 - Create movement

In KS2, children should build on their understanding of the movement of simple mechanisms in KS1. In early KS2, children should know how mechanical systems such as levers and linkages or pneumatic systems create movement.



Late KS2 - Create movement

In late KS2, children should know how mechanical systems such as cams, pulleys or gears create movement. Children should be able to explain why the mechanical components are suitable for the product they are designing and making according to the type of movement they produce.

Design and Technology Progression at KS1 and KS2