



Design and Technology

Year 5 – Mechanisms

How can I design and make a water-powered toy?

Design Brief

Design, make and evaluate a new water-powered toy that can successfully travel across a pool of water.

Key Vocabulary

buoyant	To be able to keep afloat.
streamlined	To have a form that presents very little resistance to a flow of air or water.
hacksaw	A saw with a narrow fine-toothed blade set in a frame.
self-propelled	To be able to move by its own power.
dowel	A thin rod of wood.
water resistant	To be able to resist the penetration of water to some degree but not entirely.

Key Skills

- A bench hook or a clamp can be used to secure wood before cutting it with a saw.
- It is easier to saw the wood if you make a couple of grooves in a downward motion before sawing back and forth.
- Allow time for the glue to cool for before holding the rest of the toy. Always work with an adult when using the glue gun.

What I Should Already Know

- Hold the saw by the handle and always face the blade to the ground.
- Ensure the piece of wood is secure in the clamp before cutting it.
- Keep fingers clear of where the saw is cutting.
- Glue and sticky tape can be used for joining materials.



Key Information

- A toy is an object that is used primarily for providing entertainment. Simple examples are blocks, games, and dolls. Toys are often designed for use by children, although many are designed specifically for adults and pets.
- A hacksaw is a fine-toothed saw, originally and mainly made for cutting metal but can also frequently be used for cutting wood.
- Most hacksaws are hand saws with a C-shaped frame that holds a blade under tension. Such hacksaws have a handle, usually a pistol grip, with pins for attaching a narrow disposable blade.
- Wooden dowels can be used as toy axles, structural assistance for cabinet making, and assistance for mini wedding cakes.

Links to other Learning

- Geography - Rivers
- Science - Forces, materials
- Maths - measures
- History - toys (KS1)
- D & T - mechanisms all year groups

Key Questions

- Appearance/aesthetics - how will it look?
- Cost - how much money will it cost to buy?
- Customer - who is it for?
- Environment - can it be made from recycled materials? Can it be recycled once made?
- Size - how big or small is it? Is my design streamlined?
- Safety - is it safe to use by everyone? What are the safety aspects involved in making your toy?
- Function/purpose - how does it work?
- Materials - what are the most appropriate tools, equipment and materials needed to produce this product?
- Manufacture - how will you make it? What steps are required to create this product?



Hacksaw



Wooden dowel