



Winches and Pulleys

Yr 6 DT

What I should already know:

- Some materials are stronger than others
- Structures need to be stable
- Wheels and axles help objects move
- Designs should solve a problem



Key Facts:

A pulley changes the direction of a force, making it easier to lift or move heavy objects.

A winch winds a rope around a rotating drum to lift or pull a load using less effort.

Strong, stable structures and carefully chosen materials help a lifting mechanism work safely and effectively.



At the end of this topic, I will know:

- Explain how pulleys and winches help move heavy objects.
- Investigate different mechanical systems.
- Design a lifting mechanism for a specific purpose.
- Select suitable materials and tools.
- Build a strong and stable structure.
- Test and improve your design.
- Evaluate your final product against design criteria.

Vocabulary

Mechanism	Parts working together to create movement.
Mechanical system	A group of moving parts that work together.
Pulley	A wheel with a grooved edge and rope used to change the direction of a force.
Fixed Pulley	Stays in one place and changes the direction of a pull.
Movable pulley	Moves with the load and reduces the effort needed.
Winch	A drum with a handle used to wind rope and lift or pull objects.
Axle	A rod that allows a wheel or drum to turn.
Drum	he cylinder around which the rope winds.
Stability	How well a structure stays upright.
Reinforcement	Making a structure stronger.
Prototype	A first model used for testing ideas.
Friction	A force that slows movement between surfaces