

Grange Park Primary School Year 4 Spring 1 Design and Technology

Levers and Linkages (mechanisms): Constructing an Ancient Greek catapult

Key People and Events

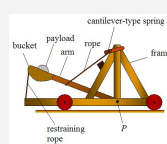
400 BC	Diodorus Siculus, a Greek historian, was the first to document the use of a mechanical arrow firing catapult (early Ballista) in 400 BC.
400 BC to 325 BC	The Mangonel was adapted by the Romans to be used in warfare and throw objects over 1000 feet.
850-900 AD	Vikings used catapults in battle to conquer vast parts of Europe.
1210 AD	Counterweight Trebuchet catapult built from an early design from China dating back to the 3rd century.

Key types of Catapults

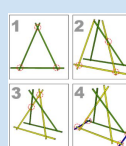
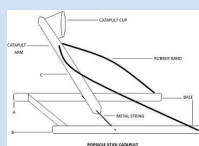
Mangonel	Consists of a large wooden arm that is pulled back and released by a winch, launching a projectile held in a bucket. The weapon has a lot of power but is not accurate.
Ballista	Catapult similar to a crossbow that propels a large projectile with extreme accuracy using built up tension from an attached rope.
Trebuchet	Designed for maximum power and distance. Uses a long arm attached to a counter-balance at one end, and a sling attached to the other. When the counter weight is lifted and released it creates energy.

Key Knowledge and Skills

Identifying the different parts of a catapult mechanism



Creating a prototype by joining materials



Adapting materials to fit a purpose and design criteria



Joining materials to create a historical functioning model



Key Vocabulary

catapult	An ancient military device that can throw objects or missiles at high speed.
linkages	A mechanism made by connecting together rigid links or levers.
levers	A rigid bar that pivots about one point and that is used to move an object or create force. It can also be pushed or pulled to operate a piece of machinery.
fixed	An object that is fastened securely in a position .
propel	To cause something to move forward or onward by means of a force or when a force is applied.
torsion	The twisting of a part to create force.
payload	Another word for the object, missile or projectile that is thrown by the catapult.
counterweight	An equal weight or force used to counter another weight or action.
mechanism	A system of parts all working together and having a particular function to make a machine work or operate
tripod	A three legged stand to support a piece of equipment.
winched	To lift a heavy object by turning a handle or winding up a rope or chain.

MANGONEL



TREBUCHET

