

Amazing Ancient Greek Inventions

Year 5 History and Science • The Catapult and the Vending Machine

The Ancient Greeks were skilled inventors. They used their knowledge of maths, materials and forces to build machines that solved problems. Two surprising examples are catapults and coin-operated water dispensers.

1. The Catapult

Around 399 BC, engineers working for Dionysius I, ruler of Syracuse (a Greek city in Sicily), developed powerful machines for shooting arrows. Over time, Greek engineers also created catapults that could launch heavy stones.

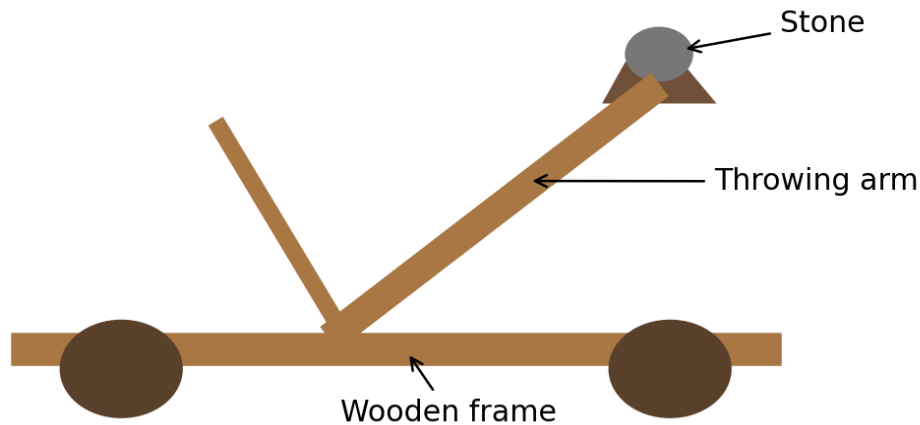


Illustration: a simplified stone-throwing catapult. Ancient Greek designs varied.

How did it work?

A catapult stores energy before releasing it suddenly. Some early Greek machines used a strong bow. Later designs twisted bundles of rope or animal sinew tightly to store energy. When released, the mechanism fired an arrow or hurled a stone. The force made the object travel through the air.

Why was it important?

Catapults helped armies attack city walls and defend fortifications from a distance. Greek engineers had to test materials, measure distances and improve their designs. Their inventions influenced later Roman siege machines.

Did you know? The early Greek gastraphetes, meaning “belly bow”, was a powerful crossbow-like device that helped inspire later catapults.

2. The Vending Machine

Hero (or Heron) of Alexandria was a Greek-speaking inventor and mathematician who lived in Roman Egypt during the 1st century AD. He described a clever coin-operated machine that released a small amount of water for people visiting a temple.

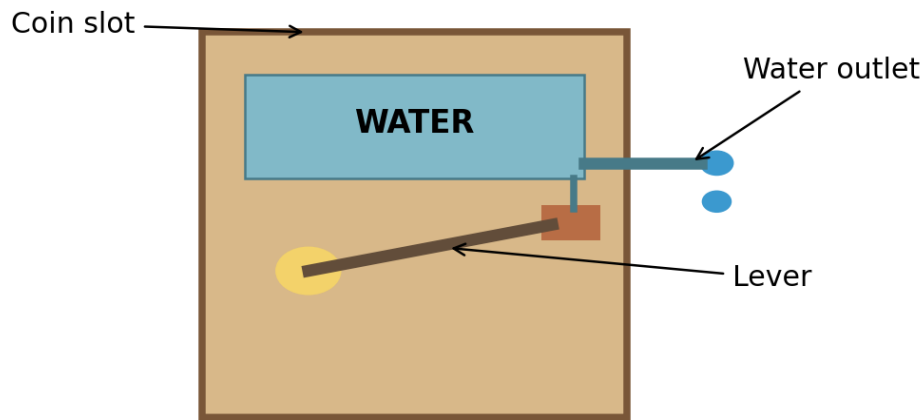


Illustration: simplified inside view of Hero's coin-operated water dispenser.

How did it work?

1. A person dropped a coin through a slot.
2. The coin landed on a small tray connected to a lever.
3. Its weight tipped the lever and opened a valve.
4. Water flowed out through a pipe.
5. The coin slid off the tray, so the valve closed and the water stopped.

Why was it important?

This machine worked automatically without a person handing out the water. It used gravity, a lever and a valve rather than electricity. The same basic idea—paying to make a machine dispense something—is still used in vending machines today.

Did you know? Hero also wrote about machines that used air, water and steam. Some were designed to amaze visitors to temples and theatres.

Compare the inventions

Feature	Catapult	Vending machine
Main purpose	Launch projectiles	Release water after payment
Science idea	Stored energy and forces	Gravity, levers and valves
Ancient Greek link	Engineers in Syracuse	Hero of Alexandria

Think like an inventor!

1. What made the catapult useful during a siege?
2. What happened when the coin landed on the vending machine's tray?
3. Which invention needed stored energy, and which used gravity?
4. How are modern vending machines different from Hero's machine?