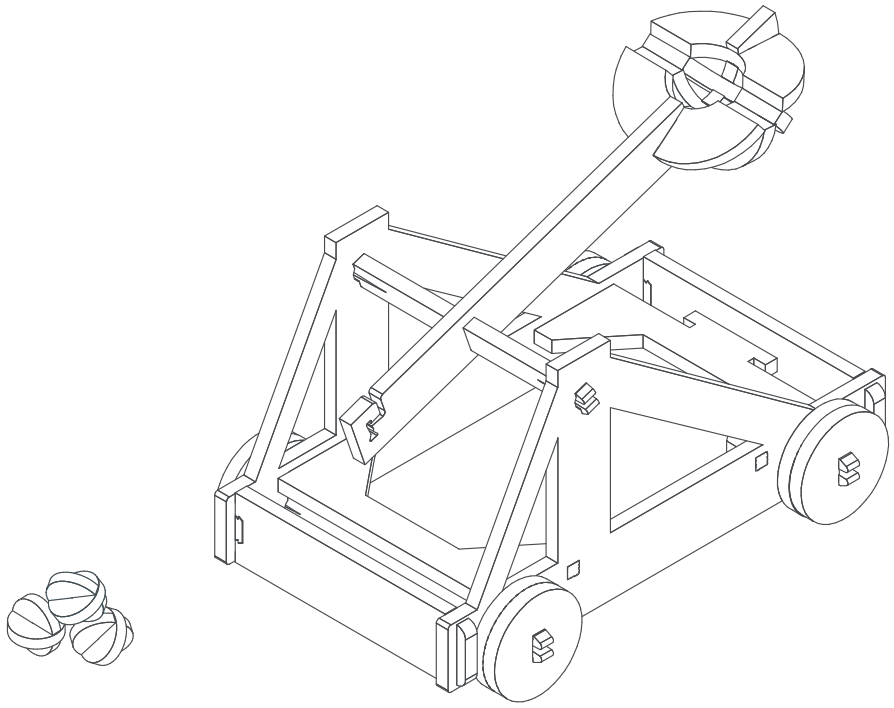
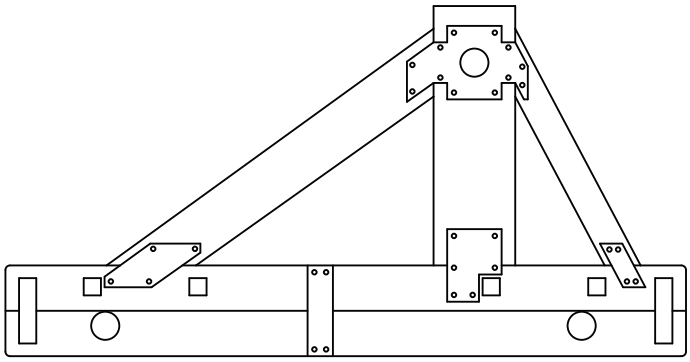
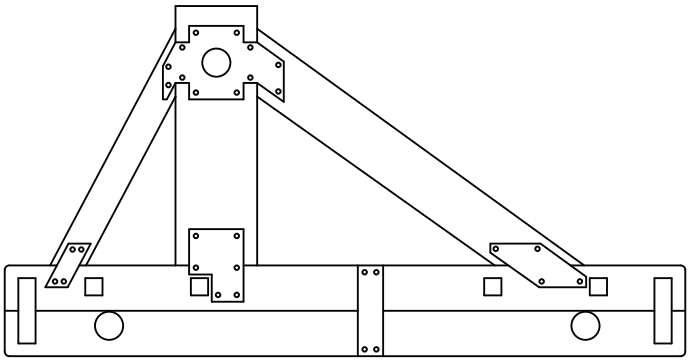
Catapult



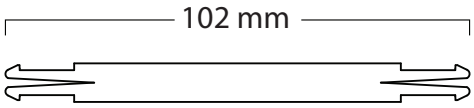
WARNING! Small parts.
Not suitable for children under 3 years old.



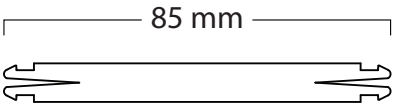
A1 x 1



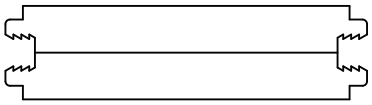
A2 x 1



B1 x 2

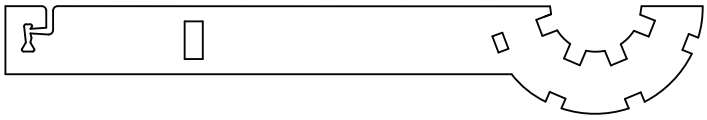


B2 x 1

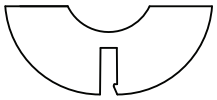


C x 2

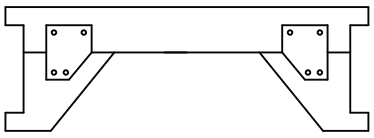
D x 4



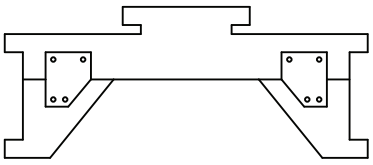
E x 1



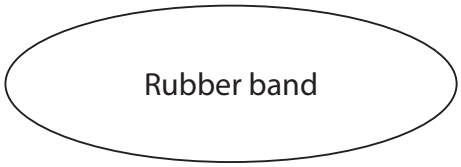
F x 4



H1 x 1



H2 x 1



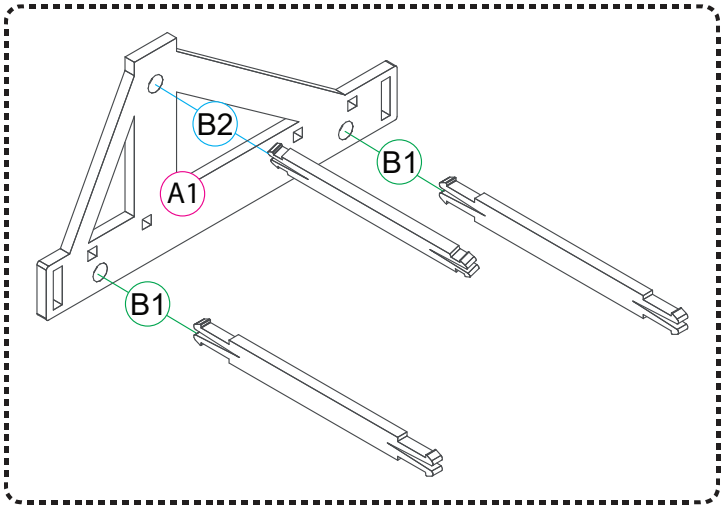
I x 1

J x 4

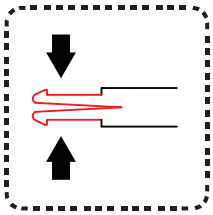
K x 6

Assembly Recommendations:

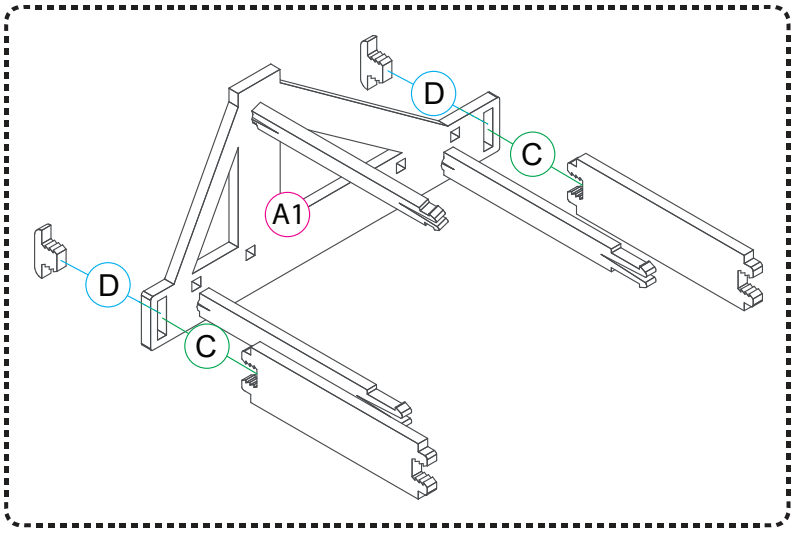
If the detail has a pattern on one side, ensure that it faces outward.
Make sure that details with serrated clips are fully pressed in.
No glue is needed for assembly.
Enjoy the process.



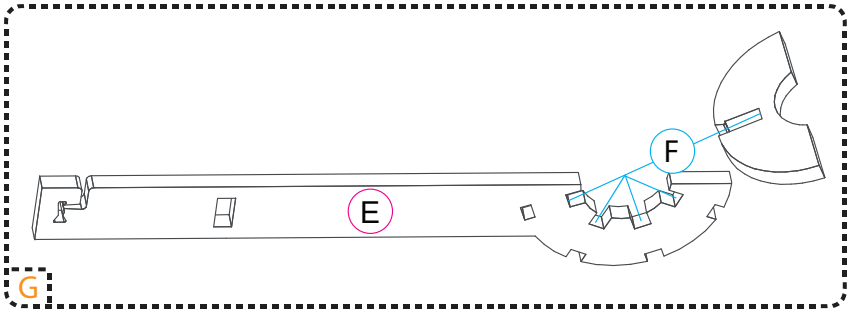
1 - A1, B1x2, B2
Attach parts B1 and B2 to A1.



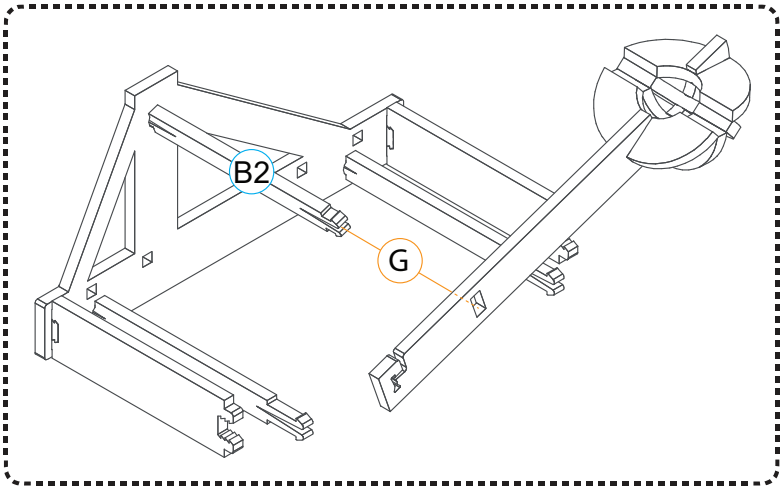
To make it easier to fit the clips into the holes of A1,
gently squeeze the prongs together while inserting them.



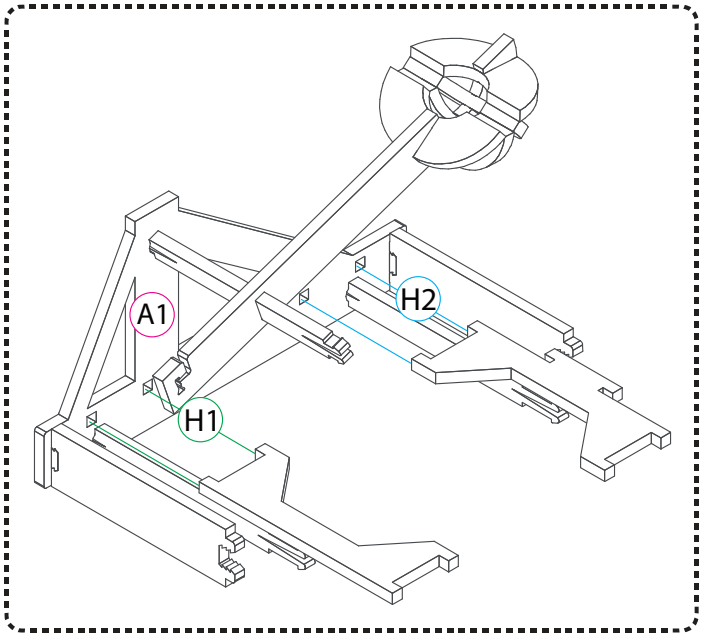
2 - A1, Cx2, Dx2
Place part C into the hole of part A1 and secure it from the other side with clip D.
Repeat the same with the other C and D parts.



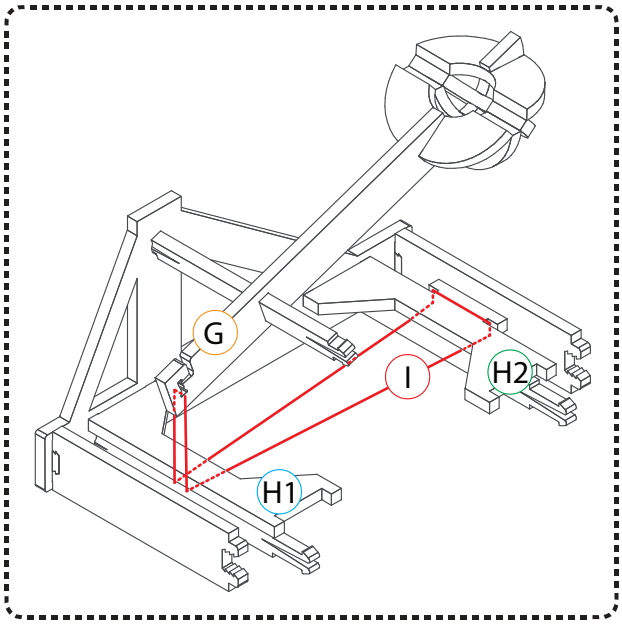
3 - E, Fx4 = G
Attach four F parts to E by pressing them into their individual slots.
The result will be the arm of the catapult, which we will refer to from now on as part G.



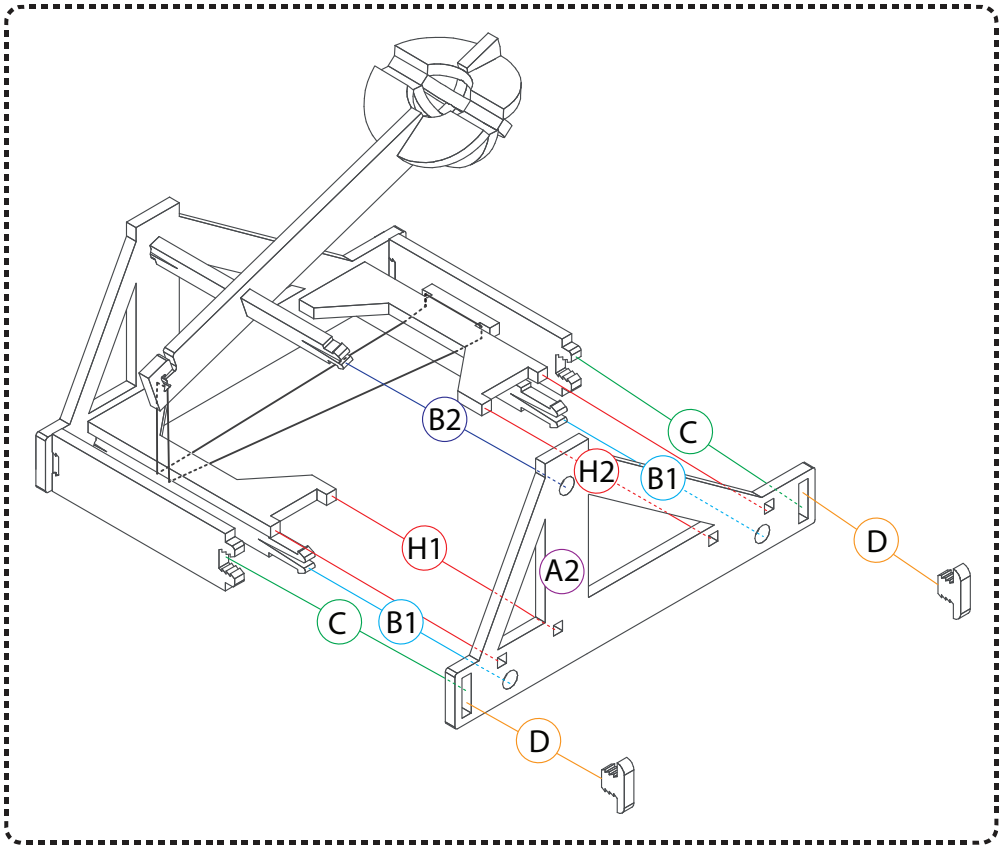
4 - G, B2
Insert the hole of part G into part B2 and push it approximately to the center of B2.



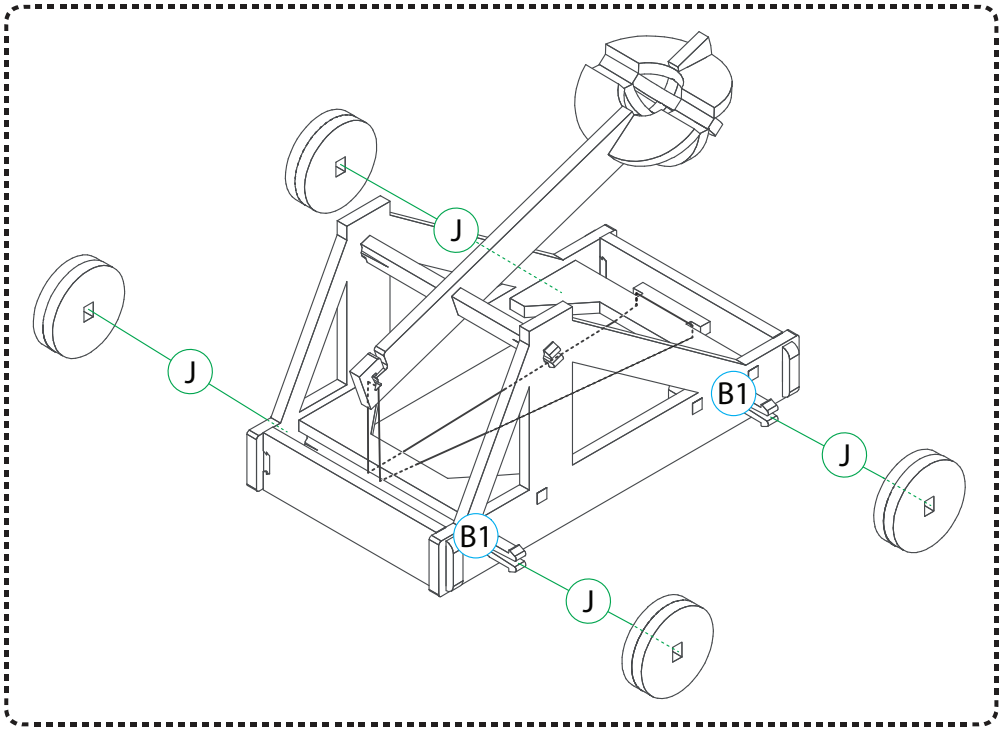
5 - A1, H1, H2
Insert the ends of parts H1 and H2 into the four holes of part A1.



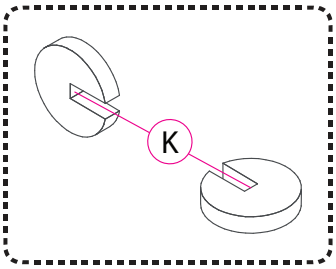
6 - I, H2, H1, G
Secure one end of the rubber band I behind the notches of part H2,
then stretch it under parts H2 and H1 to the attachment point on part G.

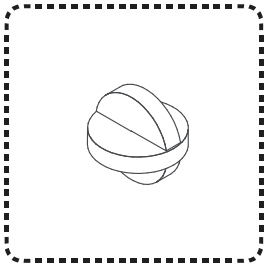


7 - B1, A2
8 - H1, A2 + C, A2, D
Insert both H1 and C notches into the holes of part A2, and secure part C with clip D.
9 - B2, A2
10 - B1, A2
11 - H2, A2 + C, A2, D
Insert both H2 and C notches into the holes of part A2, and secure part C with clip D.



12 - Jx4, B1
Place the wheel part J into one of the two notches on part B1 and, by squeezing the clip, push the entire wheel all the way in. Repeat the same process with the remaining three wheels.

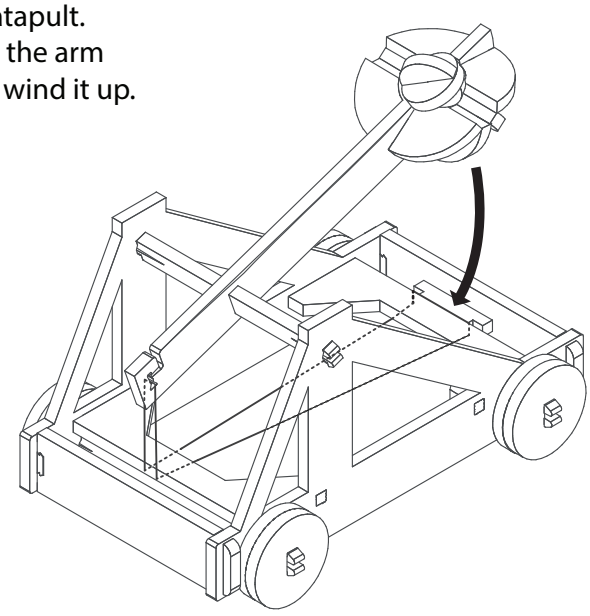




13 - K, K
By pressing two K parts together, you create a stone that can be fired from the catapult

To fire it, place the stone into the notch on the arm of the catapult. Push down the front of the catapult with one hand and pull the arm back against the rear of the catapult with the other hand to wind it up. To fire, release the hand holding the catapults arm.

If you want to increase the catapult's firing range, tighten the rubber band that was installed earlier by wrapping it multiple times around the notches on part H2.



Have fun playing!

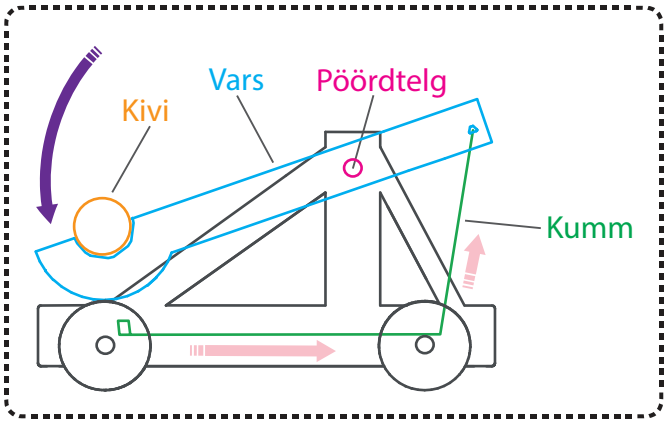
Catapults - Powerful Ancient Machines

Have you ever wondered how people in the past threw large stones and other things during sieges of castles? They used catapults! Catapults are powerful machines that were used thousands of years ago. They helped win battles and capture fortresses, and they were also used for many exciting experiments. Let's take a closer look at how catapults work and what their history is.

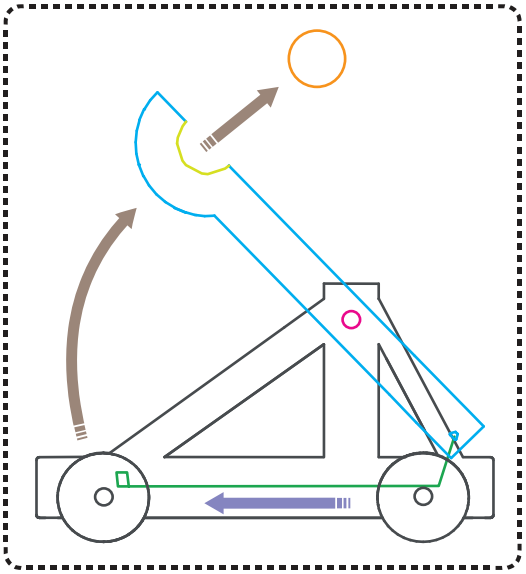
How Do Catapults Work?

A catapult is a machine that uses stored energy to throw objects far away. Here's a simple explanation of how a catapult works:

Storing Energy:
A catapult usually has a long arm attached to a rotating axle. One end of this arm is pulled tight with ropes or weights. In our toy, we replaced the ropes with a rubber band. When you press down on the arm of the catapult with your finger, the rubber band stretches. To stretch the rubber band, you use energy. This energy doesn't disappear; it's stored in the rubber band. This stored energy is called potential energy because it's ready to be used.



Firing the Catapult:
When the catapult is fired (when you let go of the arm), the stored energy turns into movement. The rubber band snaps back to its original position, and this movement means that the rubber band's potential energy becomes kinetic energy (movement energy). This means the energy moves from the rubber band to the arm, and since the arm is on a rotating axle, the other end of the arm gets a push.

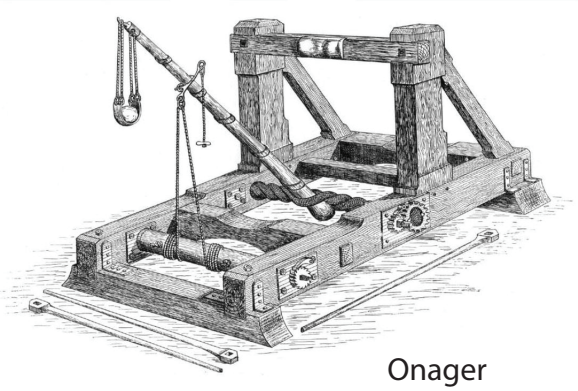


Throwing the Object:
At the other end of the arm is usually a spoon like holder where you place the object to be thrown (like a stone). The change in energy makes the holder move quickly upwards and forwards, throwing the object far away.

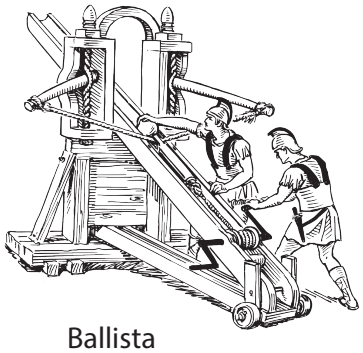
Catapults use physics principles, like potential and kinetic energy, to achieve their goal – throwing objects high and far. Remember one of the most important laws of physics, the "Law of Conservation of Energy," which means that energy can neither be created nor destroyed; rather, it can only be transformed or transferred from one form to another.

The Short History of the Catapults

Catapults date back to ancient times. The first catapults were used by the Greeks and Romans over 2,000 years ago. They called their catapults by different names, such as "ballista" and "onager." These machines were large and heavy but could throw large stones and other objects over high fortress walls.



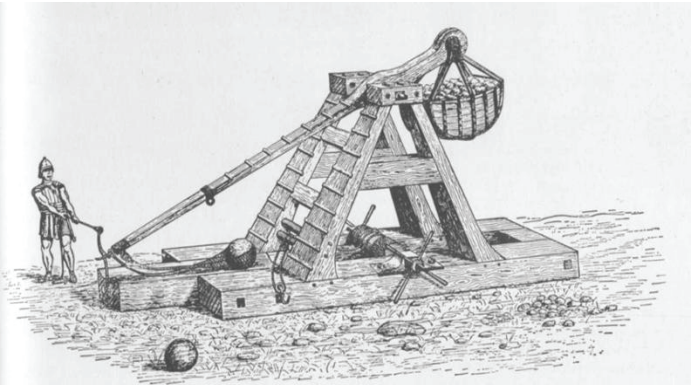
Onager



Ballista

The Greeks were the first to develop the ballista-type catapult around the 4th century BC. The ballista resembled a giant crossbow and could shoot both arrows and stones. The Romans improved on the Greek design by adding the onager-type catapult, which used a strong rope at the end of a rotating arm to throw objects. The onager could throw larger and heavier stones than the ballista.

In the Middle Ages (in Europe, around the 5th to 15th centuries AD), catapults became even more popular and were widely used. One of the most famous medieval catapults was the "trebuchet." This was a particularly powerful catapult that used a long arm and a heavy counterweight. The trebuchet could throw large stones, sometimes up to 300 meters away! This machine could crush castles and fortresses, making it very important in warfare. Sometimes, catapults were used to throw not only stones but also other objects, like flaming balls, poisoned animals, or even plague victims, to spread diseases among the enemy!



Trebuchet

The trebuchet was special because it used gravity and mechanical advantage to increase the speed and distance of the thrown object. The counterweight trebuchet was very effective and accurate, which is why it was considered a masterpiece of medieval engineering. Trebuchets were widely used in Europe until the invention of gunpowder, which brought about new and more effective weapons like cannons.

Catapults are a great example of human ingenuity and the ability to use physics principles to achieve goals. Even though these machines come from the past, they still offer excitement and learning opportunities today. The next time you see a catapult, think about how clever the people were who invented and built them!