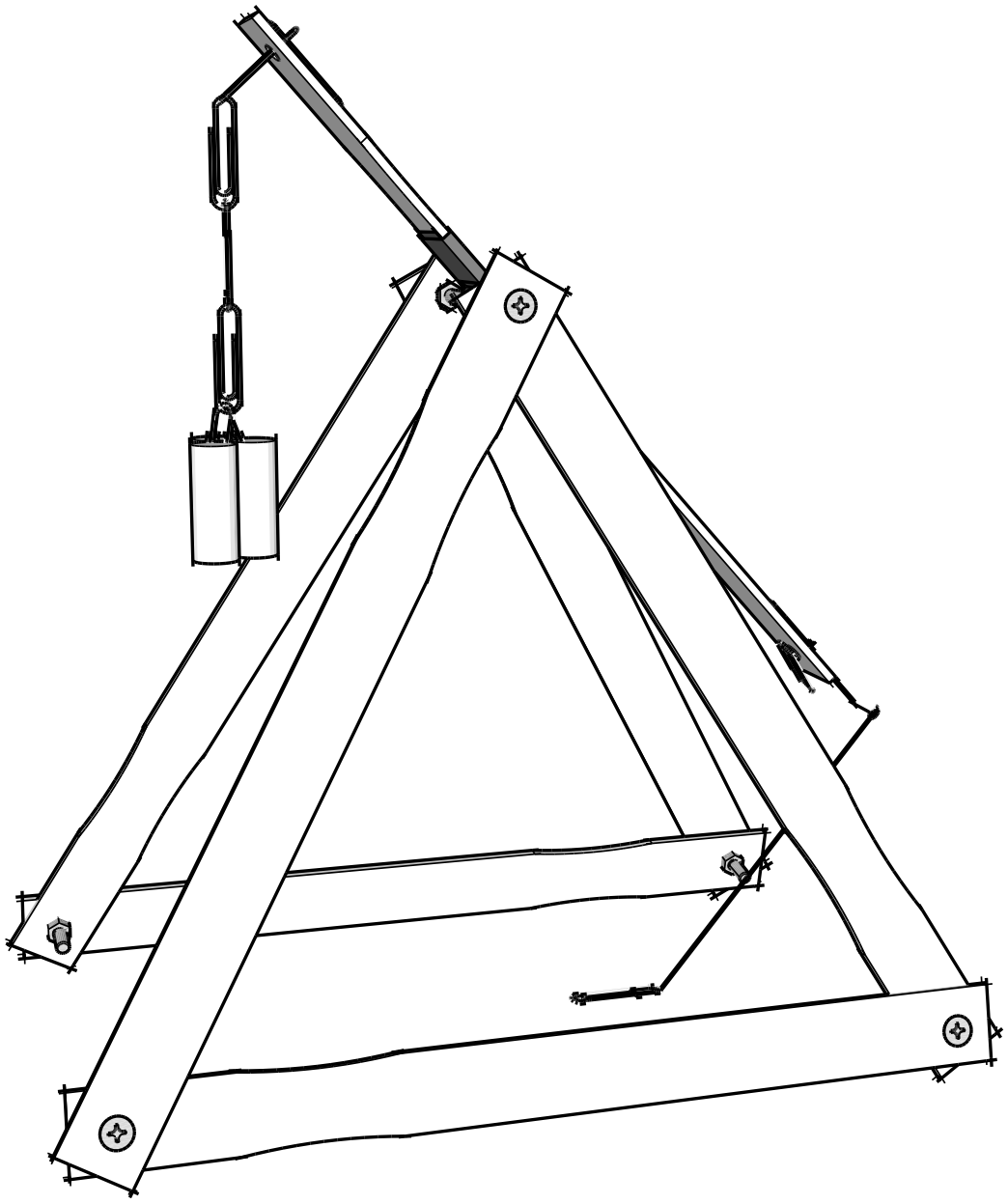
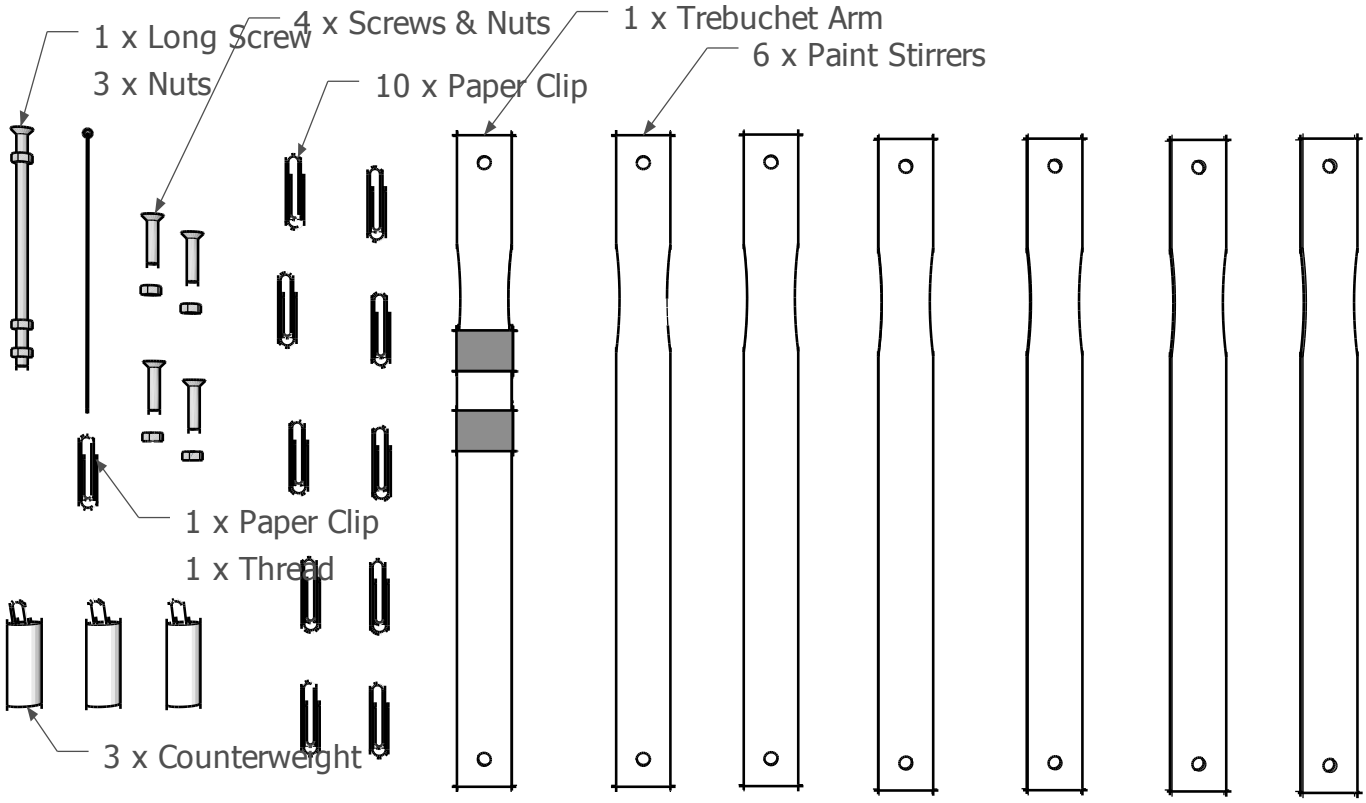
TrebuKit

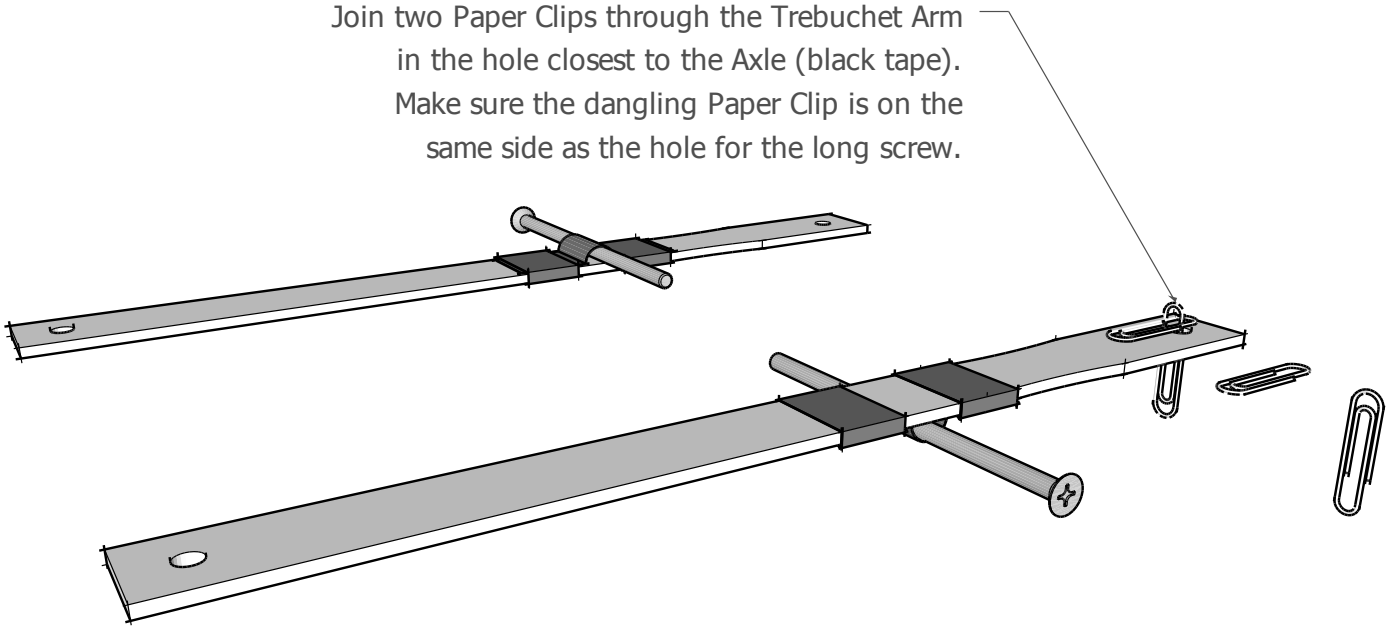
DFWTrebuchet.com



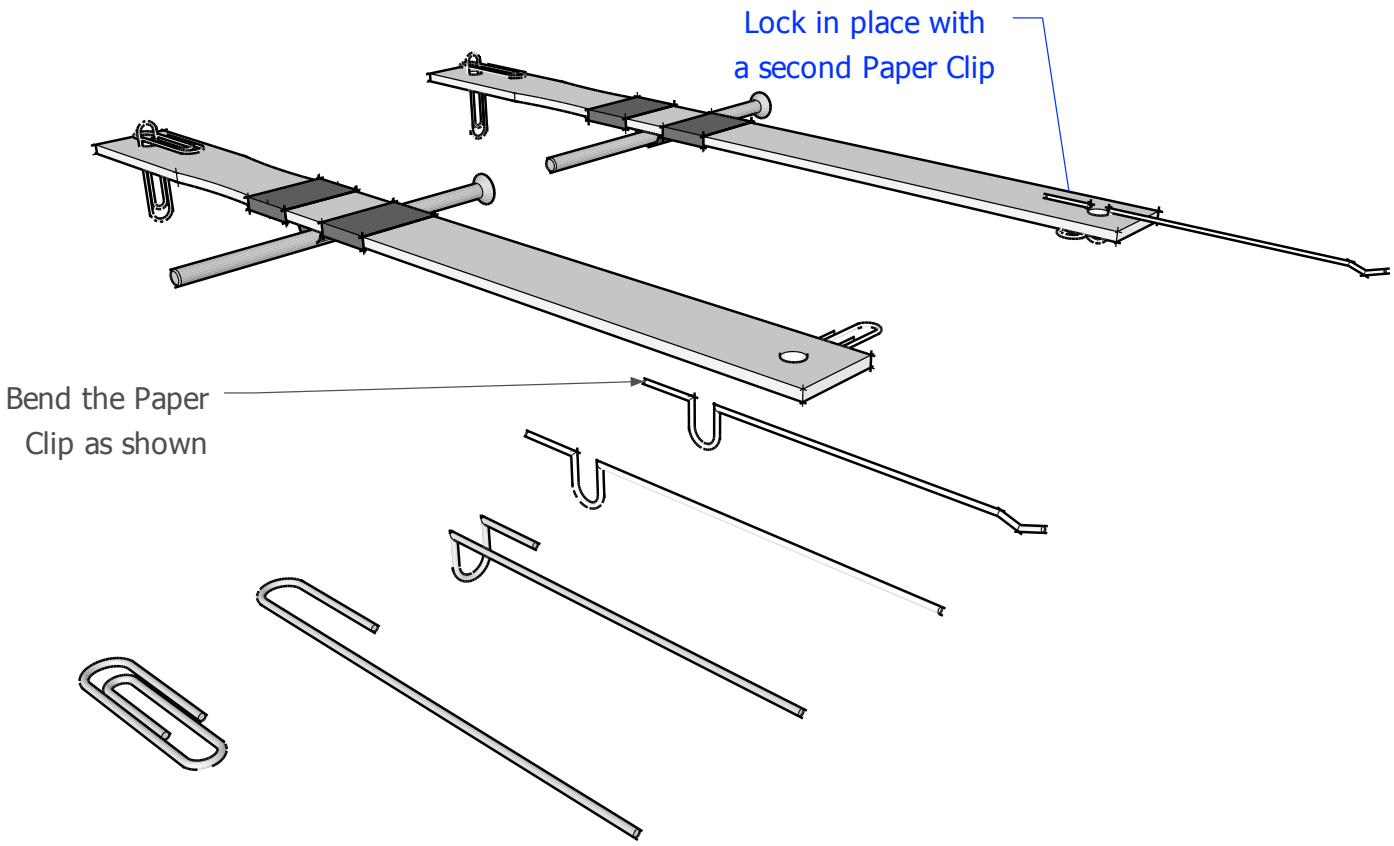
Parts List



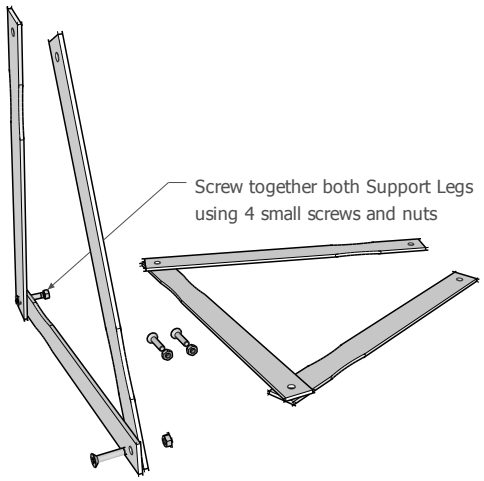
Counterweight



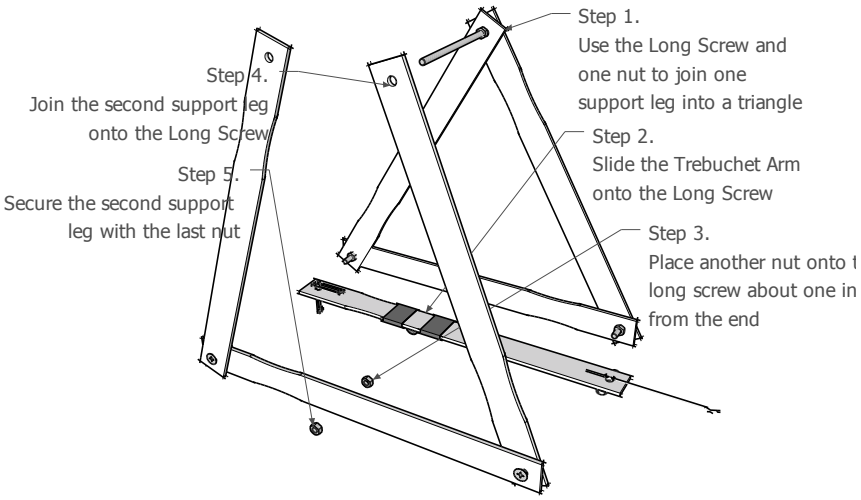
Release Pin



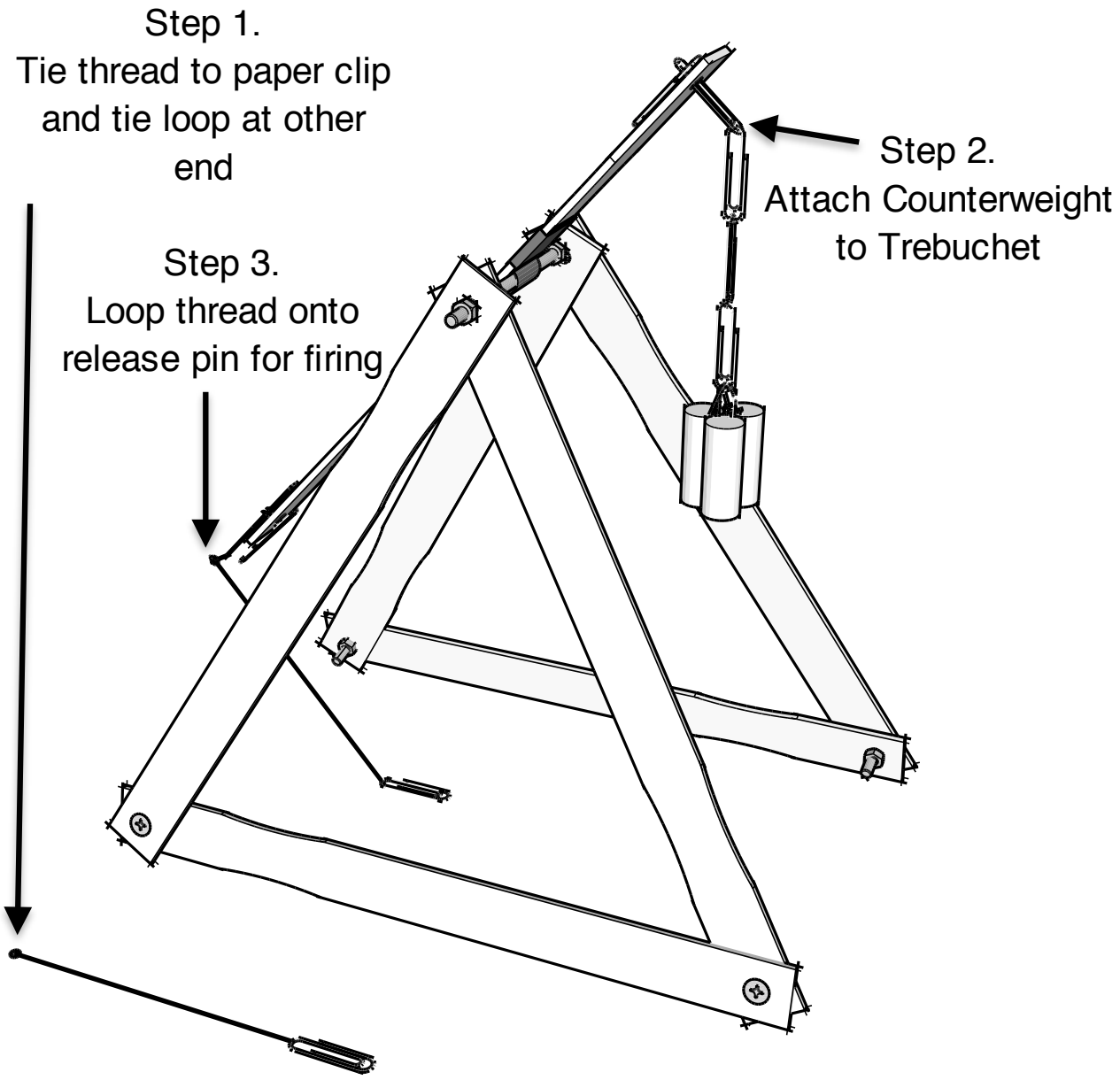
Support Legs



Support Leg Assembly



Final Assembly



Firing!

1) Safety First! Wear eye protection and make sure no one is in front of or behind the TREBUCHET
2) Push and hold down the TREBUCHET ARM RELEASE PIN
3) Gently hook the LOOP of the INTEGRATED SLING BALLISTIC onto the RELEASE PIN
4) Gently slide the BALLISTIC (paper clip) into position between the SUPPORT LEGS and under the AXLE
5) Keep holding the BALLISTIC with your finger and check for hazards in front of and behind the TREBUCHET
6) Announce "FIRING!" and release the BALLISTIC.

Experiments

How far do you think your TREBUCHET will launch the PAPER CLIP the first time?

Guess	Actual

What do you think the MAXIMUM distance will be?

Guess	Actual

Launch the PAPER CLIP ten times and record the distance it traveled.

Toss 1	Toss 2	Toss 3	Toss 4	Toss 5	Toss 6	Toss 7	Toss 8	Toss 9	Toss 10

What will be the DIFFERENCE between MAXIMUM launches of two trebuchets?

Guess	Actual

Make adjustments to your trebuchet and launch the PAPER CLIP ten times again.

Toss 1	Toss 2	Toss 3	Toss 4	Toss 5	Toss 6	Toss 7	Toss 8	Toss 9	Toss 10

How consistent is the distance for your trebuchet?

Min	Max	Avg	StdDev

What happens if you change the angle of the RELEASE PIN?

What happens if you add or remove COUNTERWEIGHTS?

How much COUNTERWEIGHT do you think you can add?

Guess	Actual

How does the trebuchet FAIL when there is too much counterweight?

Measure the distance from the COUNTERWEIGHT to the AXLE on the TREBUCHET ARM.

Actual

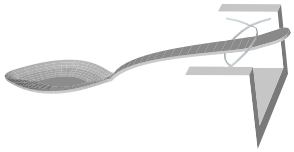
Try adding in a new AXLE SLOT closer or farther away from the COUNTERWEIGHT (you might have to reverse the stick).

How does a different AXLE SLOT DISTANCE affect the MAXIMUM DISTANCE?

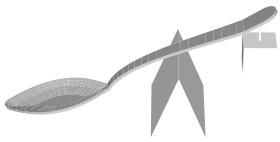
Throw MULTIPLE PAPER CLIPS with the same COUNTERWEIGHT,
how far do you think you will throw them?

# Clips	Guess	Actual

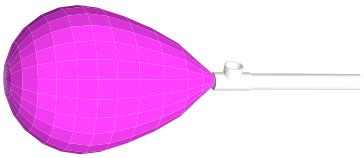
Medieval Siege Weaponry



Catapault
Powered by TENSION



Trebuchet
Powered by GRAVITY



Cannon
Powered by PRESSURE

General Glossary

TENSION – like a rubber band, something elastic that wants to return to a specific shape

GRAVITY – pulls MASS (weight) towards the center of the earth

PRESSURE – when something has FORCE all around it (like a balloon filled with air)

LEVER – like a see-saw or teeter-totter, it is one of the six most common simple machines (lever, pulley, inclined plane, wedge, screw, and wheel and axle) and can be used to multiply FORCE

FORCE – something pushing or pulling against something else

ENERGY – the ability to do WORK (move things around)

Trebuchet Glossary

THROWING ARM – acts as a LEVER to increase the FORCE on the ballistic.

AXLE – usually a THROWING ARM will rotate around a certain point called the AXLE

TRIGGER – a mechanism to release the POTENTIAL ENERGY all at once and launch the BALLISTIC

SAFETY – prevents the TRIGGER from releasing the COUNTERWEIGHT and BALLISTIC

BALLISTIC – whatever you are launching

COUNTERWEIGHT – something heavy connected to the THROWING ARM that provides POTENTIAL ENERGY to the trebuchet

POTENTIAL ENERGY – describes how much ENERGY is available to transfer to the BALLISTIC

SLING – used to connect the THROWING ARM to the BALLISTIC while ENERGY is transferred

RELEASE – the sling has to “let go” of the BALLISTIC so the ENERGY can be transferred

EFFICIENCY – how much POTENTIAL ENERGY was transferred to the BALLISTIC

DOWN RANGE – where you expect the BALLISTIC to land after firing