Medieval Siege Engines – Investigation

Using the generic LEGO frame for either a Trebuchet or Mangonel :
Select one aspect of the machines build and investigate how changing this feature alters the machines performance.

Can you improve the performance by increasing the mechanical advantage?

Counterweight weight . A mass, in grams or kilograms

Hinged/ fixed Counterweight. A type of counterweight that is suspended from the beam by one or two hangers (wooden boards, ropes, or metal straps).

Weight / shape of Payload, or Projectile.

Length of Throwing Arm - that part of the beam from the main axle (or fulcrum) to the release pin.

Length Of - Counterweight Arm - That part of the beam from the main axle (or fulcrum) to the release pin.

Beam Ratio- The ratio of the length of the TA to the length of the CA, expressed as TA:CA.
A typical beam ratio might be 5:1

Mass Ratio. The ratio of the mass of the counterweight to the mass of the payload, expressed as CW:P. A typical MR is 100:1.

Length of the sling and missile exit angle