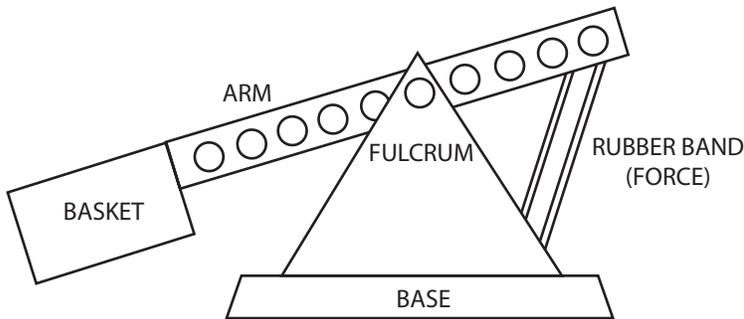


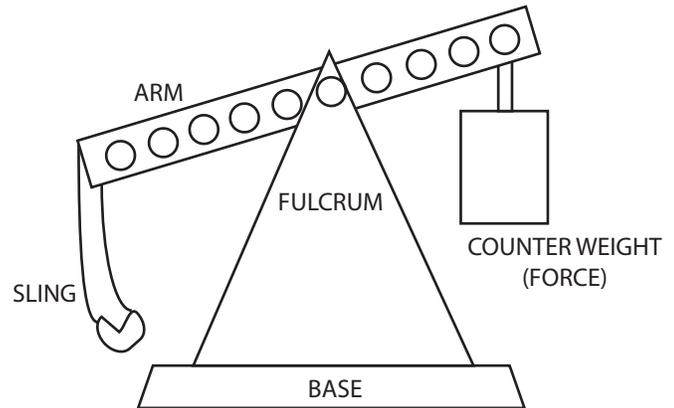
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Key Concepts for Building a Catapult

Rubber Band Catapult



Trebuchet



Base: Making a strong base is key to a catapult's strength. This is the part that the rest of the structure is built upon. Make sure all the pieces are fitted securely together. A wider and longer base will make your catapult more stable.

Fulcrum: This is the part that the arm moves around. Every catapult has a fulcrum point. Make sure that the arm can easily move around this point. Adjusting the catapult's fulcrum point affects the way the catapult works. You can adjust the fulcrum point by moving the arm in either direction.

Arm: The arm is the part that moves in a catapult. The object being launched is on one side of the arm and force is applied to the opposite side to launch the object. This part needs to be built very sturdy, as it tends to break first in many designs.

Basket/Sling: This is where the object is placed. The sling is a very important part for the Trebuchet.

Force: This is what moves the arm. It's like a push or a pull. The rubber band or counterweight has 2 different types of energy: Potential and Kinetic Energy. Potential energy is stored energy (when the rubber band is being stretched or when the weight is getting higher up.) Kinetic energy is energy when moving (when the weight drops or the rubber band is let go.) Usually, the greater the force, the further the object will travel.

Testing and Experimenting

Try building and testing different catapult designs. You can do this by:

- 1: Changing the arm length.
- 2: Changing the fulcrum point on the arm.
- 3: Changing the amount of force applied to the arm.
- 4: Making your structure taller.

Test out as many designs as you can and see what happens! You can record your data on the back of this sheet. Make notes on which designs launched an object the furthest or were the most accurate.