ÜberPult Lab Sheet Dictionary

Assumption: something that is taken for granted as being true. A belief or logical construct underlying a plan or decision.

Ballista: the first catapult used by the Greeks, based on the bow and arrow, but of a much larger size. This model of catapult used two wooden arms, tightly wound ropes (torsion force), and a cord to assist in the hurling of deadly projectiles, such as spears, at an enemy.

Catapult: from the two Greek words "kata" and "pultos". "Kata" means downward and "pultos" refers to a small circular shield carried in battle. Katapultos was then taken to mean "shield piercer". Also referred to as a "siege engine".

Hypothesis: (assumption in ancient Greek) a proposed explanation for a phenomenon. A prediction that can be tested and is based on an observation or experience.

Siege: a prolonged military blockade and assault of a city or fortress typically coupled with artillery bombardment.

Theory: a theory is generally accepted as valid due to having survived repeated testing. A scientific theory is an established and experimentally verified fact or collection of facts about the world.

Torsion: a motion or state where one end of a part is twisted about a longitudinal axis, while the opposite end is held fast or turned in the opposite direction.

Trebuchets: 12th-century France saw the creation of the trebuchet. An extremely powerful siege engine that worked by counter balancing weights or stones to generate propulsion for a swinging wooden arm, used to launch giant stones at castle walls. Some examples of trebuchets in history are reported to have had arms of up to 50 feet in length and counterweights of 20 tons. These were able to launch objects of up to 300 pounds an estimated 300 yards.

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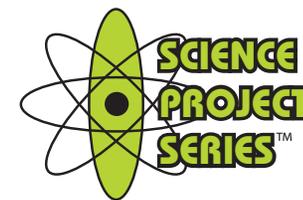
ÜberPult Lab Sheet

This is the work of: _____

Why and how to keep a Lab Sheet

- To prove or disprove your hypothesis, theory, or assumption, keep track of your experiments. Be sure to update your Lab Sheet after each experiment.
- Be sure to put your name and contact information on the front of your Lab Sheet.
- Always use a pen for all entries in your lab sheet including dates and page numbers.
- List all observations made during your experiment. Write down data directly in your lab notebook. You can also tape, staple or glue copies of data in your Lab Sheet book.
- If an experiment fails, be sure to note that it failed, and why. This is an important part of the learning process. By understanding why something doesn't work, it helps point us in the direction of what will work.
- Before each experiment, make notes of what you think the outcome will be. Warning: this can sometimes be a humbling experience.

The purpose of your experiments is to: Improve the performance of the Überpult. Start by testing the Überpult in its current embodiment and verify the average distance that a BirdHub can be launched.

Verifying Results: It is necessary to run experiments more than once to verify that results are consistent and not just an accident. Once you confirm that you are getting the same basic results each time you repeat the experiment, make a note in your lab book and continue on to the next test.

1. Test what effect shorter throw arms have on performance.
2. Test the effect of longer throw arms.
3. Test the effect of making the throw arm more rigid.
4. Now try making the throw arm more flexible.
5. Repeat the most successful tests from above with weight applied to the base of the Überpult to keep it static (stable). Try using 2 small books.

Warning: Always wear eye protection when testing

Date [ ]   Test Performed _____

What I assumed would happen: _____

_____

What actually happened: _____

_____

Date [ ]   Test Performed _____

What I assumed would happen: _____

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What actually happened: _____

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Date [ ]   Test Performed _____

What I assumed would happen: _____

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What actually happened: _____

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Date [ ]   Test Performed _____

What I assumed would happen: _____

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Date [ ]   Test Performed _____

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What actually happened: _____

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Date [ ]   Test Performed _____

What I assumed would happen: _____

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What actually happened: _____

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