

Catapult Rubric

Group Member Names: _____

	4 / 3	2 / 1
Team cooperation	Two or three members choose to work together cooperatively.	Two or three students select a group and work together with some prompting from teacher to keep focused and on task.
Design	The sketch is detailed. Sizes and materials are labelled.	The catapult is agreed upon by all members of the group and the design is sketched.
Construction & Operation	Catapult is sturdy and built well. Catapult can withstand numerous firings without breaking it.	Catapult is not sturdy and not put together well. Needs to be repaired on occasion.
Calculations	Force, initial velocity, velocity components in x and y directions, range, and height can be determined and shown for the catapult given any configuration of targets.	Some calculations can be made
Targets	Catapult can strike the target in one shot.	Catapult comes close to striking the target. Takes more than one shot to accomplish the task.
Precision	Catapult can make the same shot multiple times.	Catapult attempts to make the same shot multiple times.

Catapult Project Report:

Diagram:

Include an annotated vector diagram of the motion of the ball.

Purpose

This is a statement of the problem to be investigated.

Equipment

- A list of all laboratory equipment used in the investigation.
- A detailed and labeled diagram to illustrate the configuration of the apparatus.

Procedure

- Identify and name all experimental variables,
- Briefly describe how the independent variables are controlled.

Data

- Table of launch angles, heights, and ranges
- Practical Data: measured directly from the experiment.
- Theoretical Data: derived values obtained by way of mathematical manipulations

A sample calculation must appear describing the method of obtaining all derived values.

- Include the units for physical measurements

Data Collection:

Practical: launching angle, max height and range of flight.

Theoretical: Initial velocity, max height, range, time to highest point and time of flight.

Data Analysis

- Include all graphs, analysis of graphs, post laboratory calculations and percent errors.
- All graphs should have a title, labeled coordinate axis and units.
- Unusual results or trends should be noted and explained

Conclusion

- Summarize results.
- Explain the possible source of uncertainties
- Suggest changes in experimental design which might test your explanations.