

STAR

- Introduction
 - Ryan Herbert
- Brainstorming & Design
 - Aaron Bolyard
- Construction
 - Heath Haddix
- Changes
 - Mike Butera
- Conclusion
 - Fatemah Bahman

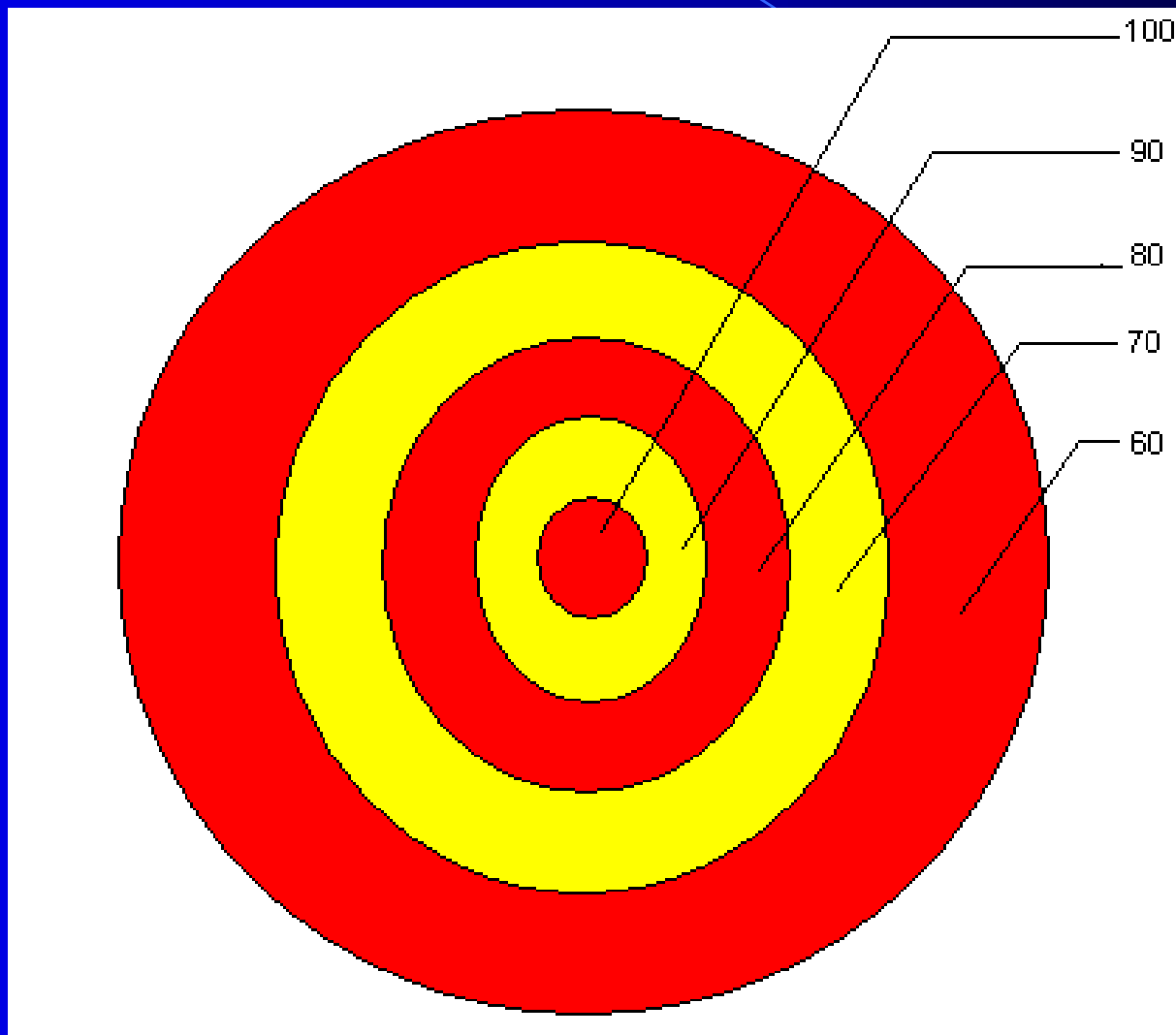
Goal's of the Project

- Build a catapult to launch a golf ball at a target
- Design catapult and record all changes made
- Safe design
- Cost efficient
- Accurate

Specifications

- Catapult had to fit into a 1.5 by 1.5 square box.
- Any materials could be used
- Keep cost of materials as low as possible
- Needs to launch a golf ball at a target 9 feet away with each ring being 3 inches in thickness

Target



Brainstorming

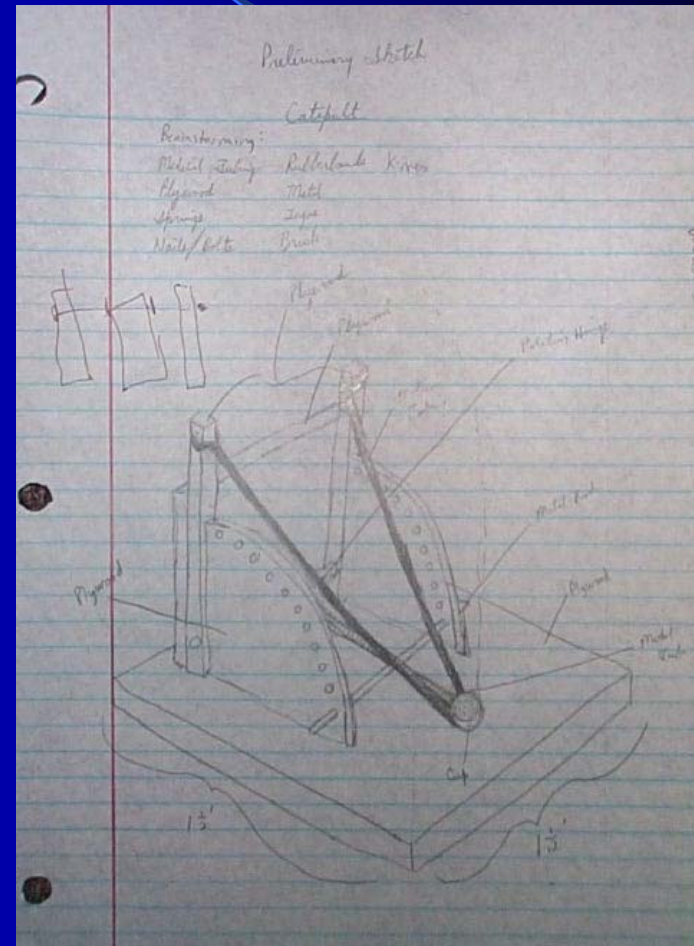
- Group Meetings
 - Discussed possible materials needed
 - No ideas left out
 - Decided where materials could be found
- Materials
 - Springs, medical tubing, rubber bands, wood, legos, nails/bolts, bricks, etc.

Design

- Design-type to be constructed
 - Consisted of similar sketches by group members
 - Basic design and measurements were completed
 - Kept design stable, safe, simple, and cost efficient

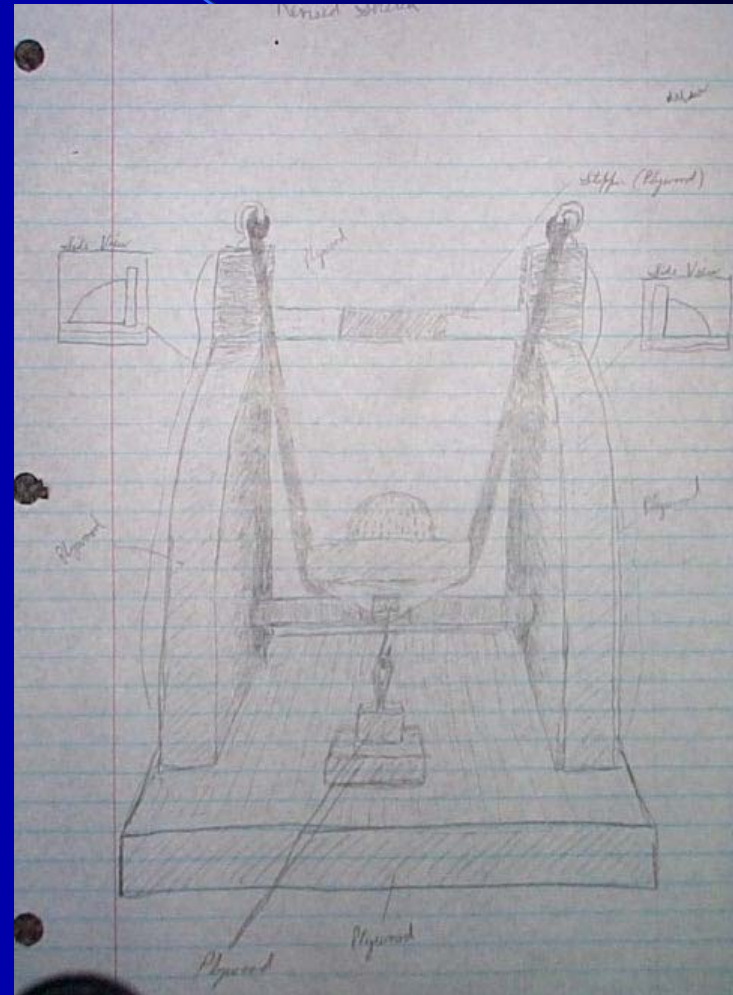
Preliminary Sketch

- Includes brainstorming ideas and first design



Revised Sketch

- Rough sketch of final catapult design



Construction

- Materials
 - ¾ inch plywood
 - 7 inch bolts
 - Locknuts/Screws
 - Medical Tubing
 - L-brackets
 - Eye bolts



Building Complications

- Building Location
 - Spacious environment
- Locating Materials
 - Material and tool availability
- Low Budget



Changes to Design

- Bungee chord to medical tubing
- Different trigger mechanism
- New stopper
 - More efficient for catapult launch
- New golf ball holder
 - Less friction

Trial Results

- Before Changes

- Bungee chords caused an inconsistency in distance and accuracy
- Release mechanism was inconsistent
- Out of 20 attempts, 75% of the time the golf ball shot too high

- After Changes

- Medical tubing improved accuracy and consistency
- Release mechanism more consistent
- Out of 20 attempts, the golf ball hit the bull's eye nearly 90% of the time

Summary of Design

- Sturdy
- Consistent
- Cost efficient
- Safe



Conclusion

- Design Process
 - Given specific restrictions
 - Brainstormed ideas
 - Sketched possible designs
 - Built the best design
 - Made changes as needed

Questions?

