

**Zombie Siege Machine**

**9-12**

# **Duration:** 60 minutes (10-minute review, 15-minute design/build, 20-minute test)

# **Objective**

A horde of zombies are approaching your base, design and build a model siege engine to propel items out to fight the horde.

# Image result for accuracy vs precision**Engineering Constraints**

* You can only use your budget to purchase select materials
* Everyone on the team needs to contribute and sign off on design
* Must follow Engineering Design Process in order

# **Engineering Design Process**

1. Define the Problem – What is the problem or challenge you are trying to solve or fix?
2. Benchmarking – What do I have to work with? What solutions have been done already? What can we do similar?
3. Specify Customer Requirements – What does my final design need to be successful?
4. Brainstorm Solutions – What are possible solutions to the problem or challenge?
5. Choose the Best Solution – Which solution is the best (think time to build, effectiveness, perimeter covered)?
6. Design a Prototype – You must design your concept before building.
7. Build a Prototype – Build your concept from you approved design.
8. Test – Did it work?
9. Redesign – What could make my design better?

# **Extension Activities**

* Test accuracy & precision with targets spaced out.
* Test longest distance.
* Review leftover budgets.

