



The Hobby Shop: Catapult Module

Catapult Web Guide

Instructor MASTER

Name _____ Date _____ Period _____

Directions: Enter the Hobby Shop at <http://www.knowitall.org/hobbyshop>. Click on the water hose and balloons to start the Catapult activity. As you work with the catapult, answer the following questions.

1) What objects does the trebuchet launch? (2 points)

balloons

2) What are you trying to hit with the projectiles? (2 points)

targets/hay bales

3) What is the velocity of the balloon measured in? (2 points)

m/s (meters/second)

4) Set the velocity to 13 m/s and set the angle to 65 degrees.

a) How far does the balloon travel? (3 points)

19 meters

b) How long does it take the balloon to hit the ground? (3 points)

3.45 seconds

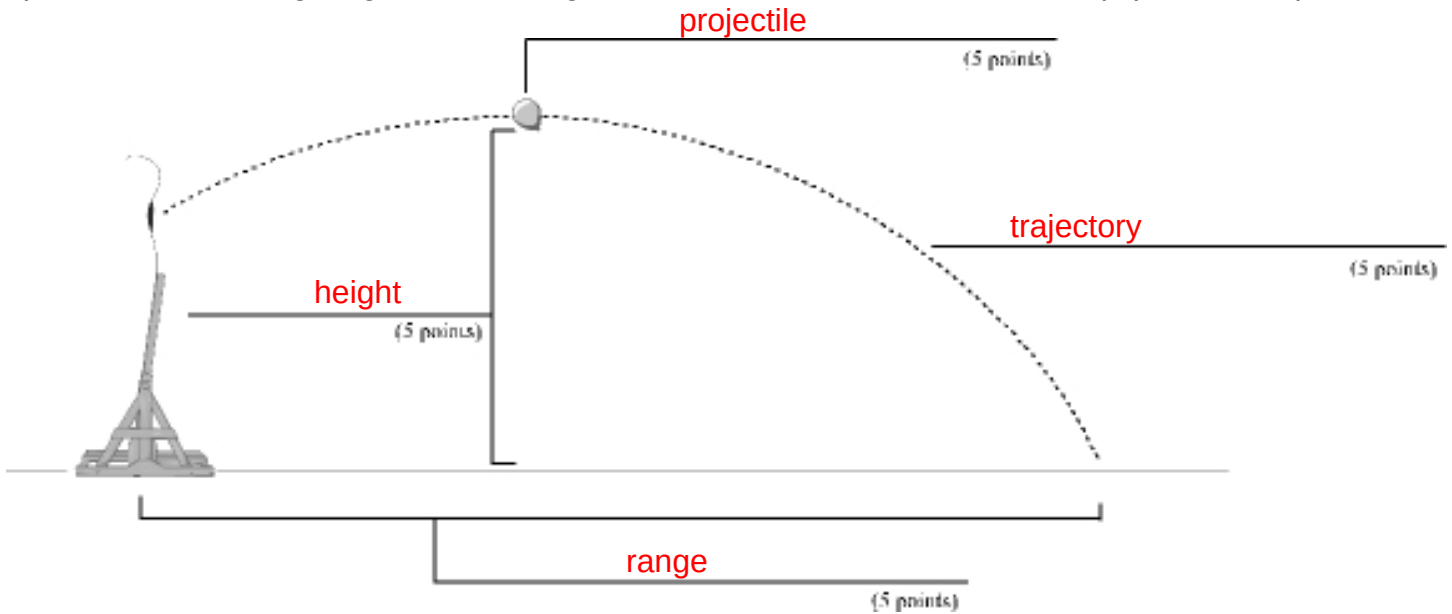
c) What is the height once the balloon lands on the ground? (3 points)

0 meters

d) What was the maximum height of the balloon? (3 points)

23 meters

5) Label the following diagram according to the definitions found on the site. (5 points each)



6) The study of the motion of projectiles is known as ballistics. (3 points)

7) The projectile is pulled back down to the ground by the force of gravity. (5 points)

8) Who properly explained the current belief that projectile motion consists of separable horizontal and vertical components? (2 points)

Galileo

9) What number represents the force of gravity? (2 points)

9.81 meters/second²

10) What is the law of inertia? (5 points)

An object will maintain its state of motion as long as no outside force acts upon the object.

11) What is the difference between a trebuchet and a traditional catapult? (4 points)

Catapults use twisted rope to provide tension to launch the projectile. Trebuchets use counterweights to provide the force needed to launch the projectile.

12) Name two ways that trebuchets are better than catapults. (6 points)

Trebuchets can throw longer distances and can throw heavier projectiles.

35 points participation.