

Blow Dart Lab

Name: _____

Horizontal Projectile Motion

Goal: In this lab we are going to attempt to calculate the speed of a dart from a dart gun. And predict where a dart will hit its target from various different positions.

Part 1: Calculating the velocity of the dart.

First draw a picture of the path that the darts followed from when they left the gun to where they hit the target. Include any measurements taken.

Then fill out the table for the two different colored darts.



Dart #1

X components	Y components
Δx	Δy
t	t
V_{xi}	V_{yi}
V_{xf}	V_{yf}
a	a

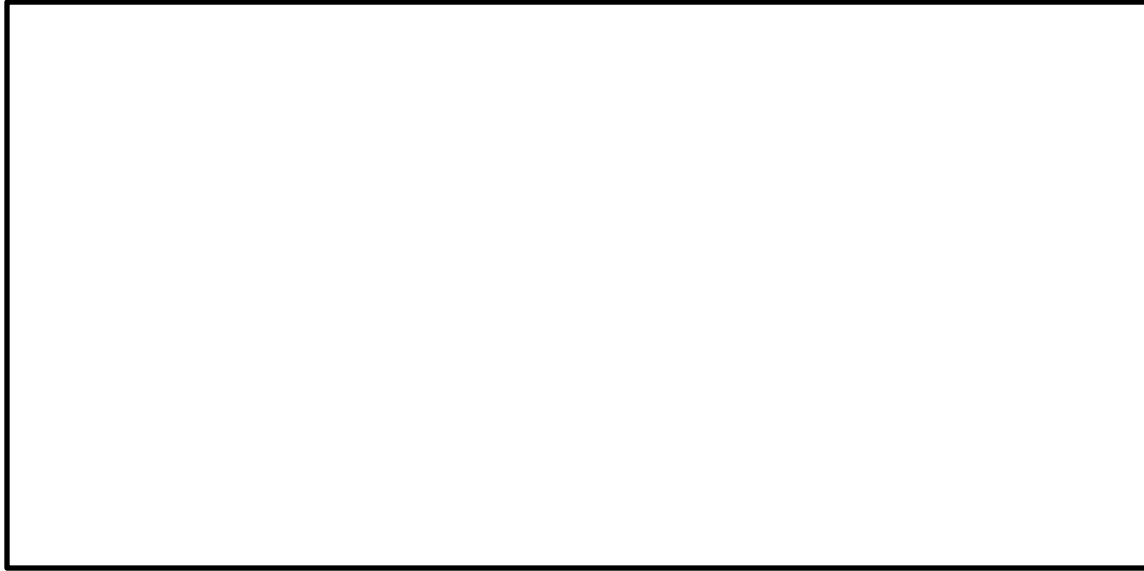
Dart #2

X components	Y components
Δx	Δy
t	t
V_{xi}	V_{yi}
V_{xf}	V_{yf}
a	a

Part 2: Calculating the new target point.

First draw a picture of the path that the darts followed from when they left the gun to where they hit the new target that is 1 meter further away. Include any measurements taken.

Then fill out the table for the two different colored darts.



Dart #1 (1 meter further away)

X components	Y components
Δx	Δy
t	t
V_{xi}	V_{yi}
V_{xf}	V_{yf}
a	a

Dart #2 (0.5 meters closer)

X components	Y components
Δx	Δy
t	t
V_{xi}	V_{yi}
V_{xf}	V_{yf}
a	a

How close were your measurements to being a “bulls eye”? Calculate your percent difference. (Percent difference is (actual – expected/ expected) x 100).

What might have caused any errors in your calculations?