Name _____ Partner(s) _____ Date _____

Physics 9 Lab
Space Shuttle Launch

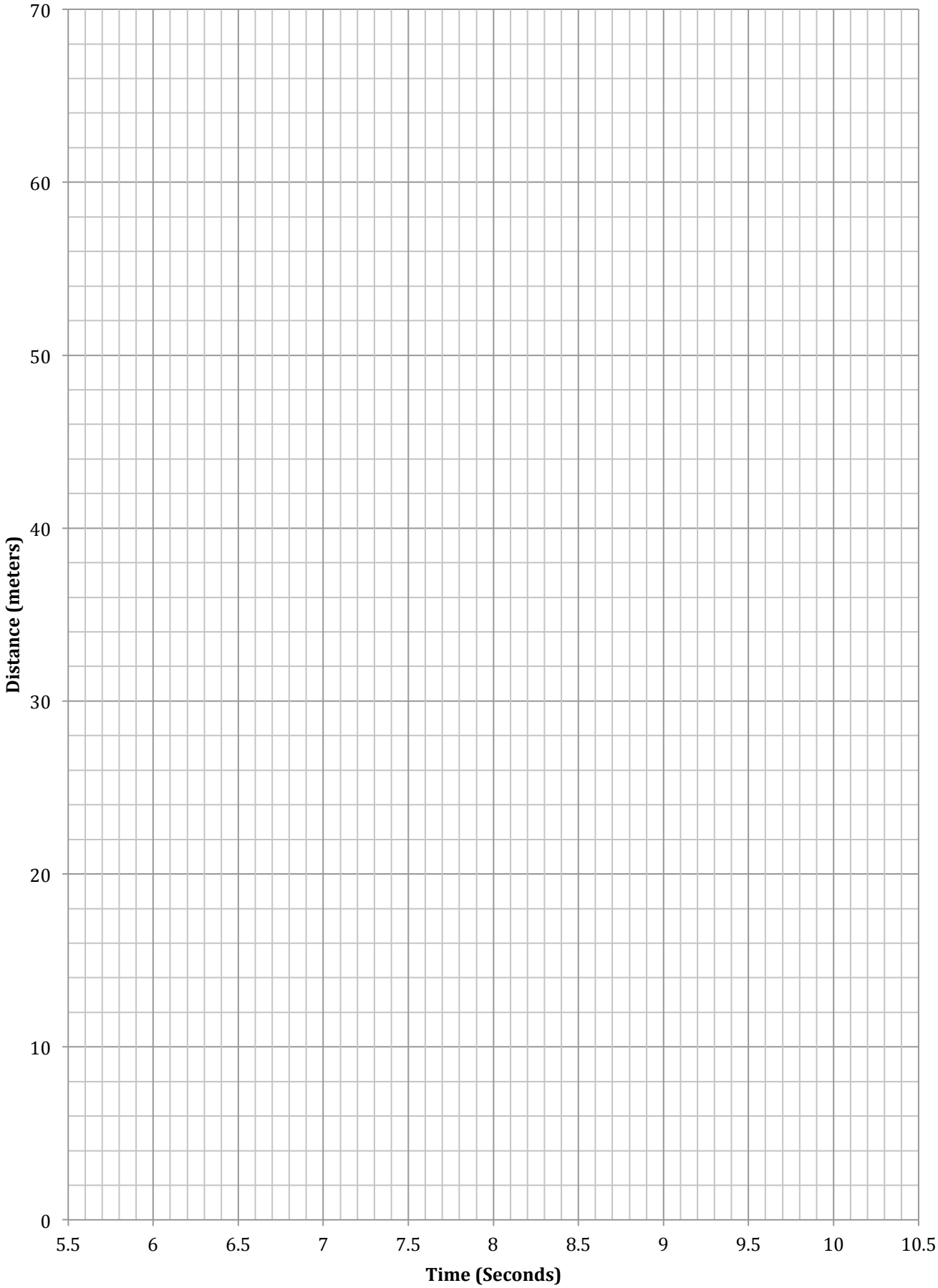
Purpose: To determine the velocity of the acceleration of the Space Shuttle Endeavor as it launches using graphical methods.

Procedure:

1. Start a computer and open the Physics 9 folder on the desktop. Open the video folder and double click on the Space Shuttle Launch Movie.
2. Watch the movie at least one time all the way through.
3. Start the movie at the beginning and use arrow keys on the keyboard to bring the movie to the point where Endeavor just comes begins to move.
4. You can move the video forward or backward one frame at a time using the keyboard arrow keys.
5. Record data for Endeavor in the table below. You don't need data for every frame but you must have **at least** 20 data points.
6. Show sample calculations for determining time below the table.
7. Graph the distance and time from your table.
8. Calculate the slope of the velocity graph. Show the calculation in the calculation section below.

Frame #	**Time**	**Distance**

Frame #	Time	Distance


70
60
50
40
30
20
10
0
Distance (meters)
5.5
6
6.5
7
7.5
8
8.5
9
9.5
10
10.5
Time (Seconds)

Calculations:

1. **Calculate the velocity at the beginning (about 6.5 seconds)**

2. **Calculate the velocity at the end (about 9 seconds)**

3. **Calculate the acceleration**

Summary:

1. From your previous lab, describe velocity (use math!)
2. From this lab, what did you learn about acceleration?
3. What is the acceleration? How did you find this?
4. What are your errors? (size and source)
5. What improvements could be made?