# Parachute Drop Project

## Grading Rubric

The outcome of this project is worth 1 test grade.

Group Members:

1. _____
2. _____
3. _____
4. _____

Block: _____

| | Requirements | Possible points | Points received |
|---|---|---|---|
| | Title of Graph | 10 | |
| | Label each axis<br>(x-axis scale, y-axis scale, variable names) | 20 | |
| | Table of Values | 20 | |
| | Ordered Pairs<br>(correctly plotted) | 20 | |
| | Type of Data (Discrete or Continuous?)<br>Explain. | 5 | |
| | Paratrooper returned<br>(in good shape) | 5 | |
| | Prediction by trend line<br>(Label the coordinates of your predictions at 540cm) | 10 | |
| | Evaluation<br>(complete back page) | 10 | |
| | Team Work<br>(Everyone worked together! ☺) | 5 | |
| | | | |

# Evaluation of Group's Mission: Save your army man!!

1. Write a proportion to find the time it takes to save your army man from the 2nd floor which is approximately 540 cm. Show your work.

2. Did you accomplish your mission? How did you do it?

3. If not, what could you have done better?

4. What factors occurred which could not have been predicted?

5. What was your overall learning experience?

# Parachute Drop Activity Directions

*The outcome of this project is worth 1 test grade.*

1. Receive paratrooper mission. See Power Point presentation.
2. Assign Group Roles & Responsibilities: timer, Recorder, Pilot, Measurer. Each person will gather & return all materials pertaining to their responsibilities.
   a. Timer – (needs a graphing calculator) Signal the pilot when to drop the paratrooper. You will also time the time it takes for the paratrooper to land.
   b. Recorder – (needs a blank data sheet) Record the time for each drop.
   c. Measurer – (needs a meter stick) Measure & indicate the height from which the paratrooper will drop as indicated on the data sheet.
   d. Pilot – (needs a paratrooper with parachute & meter stick) Drop the paratrooper at specific heights with the help of the Timer & Measurer.

3. Collect & record data together.
   a. For each height indicated on the Table of Values, the Recorder records the time it takes for the paratrooper to land. After all three trials per height, the Recorder shares the intel with the group members. Find the average time for each height & record on your table.
   b. Return the paratrooper to Ms. Ulrich. Note that this is part of your grade.

4. Plan your "window". (*You will plot the average drop time for each drop height.*)
   a. Since you need to make a prediction for a drop from the 2nd floor & from the band stand, 540 & 700 must be included in your height.
   b. Independent vs. Dependent variables? Does the time of drop depend on the height? Or does the height depend on the time of drop?
   c. Place the independent variable on the x-axis. Place the dependent variable on the y-axis.
   d. Use a maximum drop time of 9 seconds. What is maximum value for the drop height?

5. Graph your data.
   a. Claim your poster-sized graph paper from Ms. Ulrich. Create a scatterplot of the average drop time for each drop height.
   b. See the rubric for all items required on your graph.
   c. After all points are plotted, draw the trend line.
   d. Using the trend line, predict how long it would take for your paratrooper to land from the 2nd floor (540 cm). Label the coordinates of this point.
   e. Answer #1 on the back of the rubric.
   f. Submit poster graph to Ms. Ulrich.

6. Next class day, we will drop the parachutes from the 2nd floor to the commons. After the drops from the 2nd floor are recorded, complete your group evaluation on the back of the rubric. **Every member of the group is responsible for turning in their own rubric!**

# Data Sheet

| Drop Height (cm) | Time of Fall (sec) | | | Time of Fall (sec) |
|---|---|---|---|---|
| | Trial 1 | Trial 2 | Trial 3 | Average |
| 0 | | | | |
| 75 | | | | |
| 100 | | | | |
| 125 | | | | |
| 150 | | | | |
| 175 | | | | |
| 200 | | | | |
| 250 | | | | |