

Free Fall Data Analysis

1. Break video into picture frames

With the video recorded, the first step is to separate it into many frame of pictures.

- a. Go to <https://www.onlineconverter.com/jpg>
- b. Select Video to JPG in convert option
- c. Convert and download pictures

2. Calculate each frame elapse

Now you may have many pictures, the next question is how many second does 1 picture occupy? You need to find the **EXACT** time of one picture.

- a. Find the total time of the video (**correct to milliseconds**)
- b. Divide the total time of the video by the total picture number to get the time taken of 1 picture
- c. Record into excel

3. Calculate the distance fallen of the ball

- a. Got to <https://imagej.nih.gov/ij/download.html> to download the correct version
- b. Install and open imageJ
- c. Open one picture in imageJ
- d. Select correct distance and set scale
- e. Measure the correct distance of the ball fallen
- f. Record into excel

4. Analyze data

- a. Calculate delta x
- b. Calculate velocity
- c. Plot the graph of distance versus time
- d. Plot the graph of velocity versus time
- e. Calculate the equation of each graph

Note: If you have any question, don't hesitate to contact me for help!
Have a nice winter break!