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## Free Fall Apparatus #FREFAL

### Warning:

- **Not a toy; use only in a laboratory or educational setting.**
- **Contains small parts.**
- **California Proposition 65 Warning: This product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.**

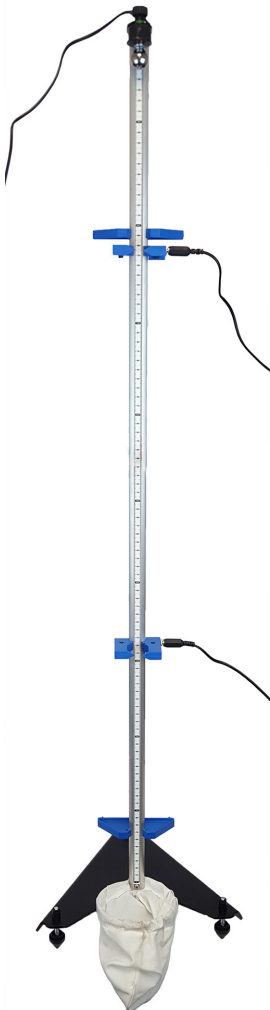


### Introduction

The Free Fall Apparatus consists of a stabilizing triangular metal base with detachable metal rod for support with level adjuster knobs and a 1-meter long aluminum graduated track. In the lower part of the track there is a basket used to catch the ball in free fall.

### Components

1. Extrusion with 1000mm scale
2. Solenoid, 5V DC operated
3. Steel ball, 19mm diameter
4. Molded support between scale and rod
5. Photo gates 3 each
6. Cloth bucket
7. Levelling screw



### Assembly

1. Attach the rod to the triangular base.
2. Attach the upper molded support part of assembled extrusion to the inner thread of the rod using the screw provided.
3. Check the levelling of the base with the help of spirit level and adjust with the levelling screws.

## How to Use

1. Adjust the distance between the photogates as requested.
2. Connect the photogates with a timer having “In & Out gate” or “Gate1 or Gate2” options.
3. Connect the solenoid to the 5V DC, current 1amp approximately.
4. Touch the steel ball to the metallic core of the solenoid. The solenoid is magnetized and will hold the steel ball in place until you push the release button.
5. Release the ball from the power from the solenoid using the push button.
6. The ball will release from the solenoid and will pass through the photogates.
7. Note the time required to travel between the solenoid and photogate 1 and 2.
8. Put the required values in the formula to calculate.
9. Repeat the above steps or next observations.

## Precaution And Maintenance

- Do not touch the photo diodes in photogates. Use a clean cotton cloth for cleaning the dust from the photodiodes.
- Make sure that the input voltage current ratings do not exceed 5 volts, 1 amp.
- Adjust the level with the help of levelling screws before use.

