Law of conservation of energy.

$$E_i + W = E_f$$

$$(KE + PE_g + PE_e)_i + W = (K + PE_g + PE_e)_f$$

$$KE_i + W = KE_f$$

$$W = KE_f - KE_i$$

$$W = \Delta KE$$ WORK-KE THEOREM.

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$$ME_i + W = ME_f$$

ME = mechanical energy (energy which can be observed with an naked eye - macro; easily measured). In this course we will deal with ME only.
There are other types of energy: chemical, thermal, nuclear - which are micro in nature (atomic level).

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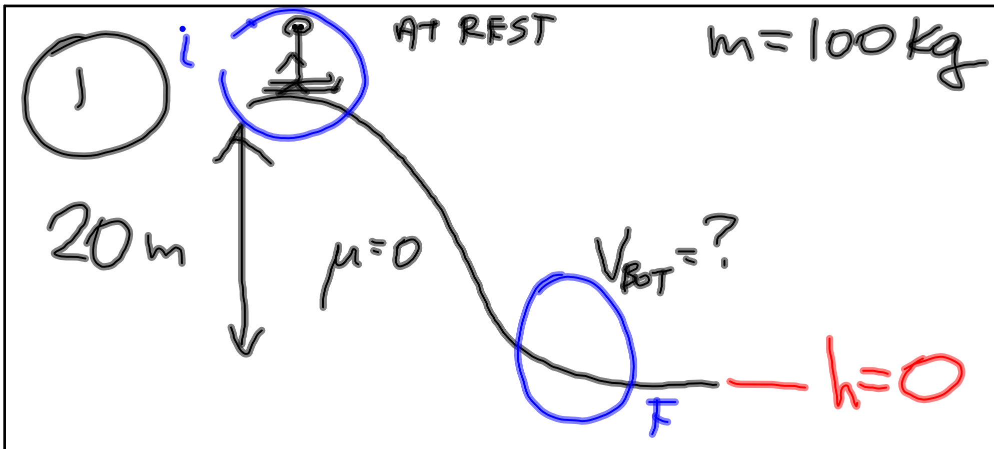

$$E_i + W = E_F$$

$$K_i + PE_{gi} = KE_F + PE_F$$

HW: Calculate the speed at the bottom of the hill.

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BECAUSE $\mu = 0$, SO $F_F = 0$, SO $W = 0$,

$$ME_i = ME_F$$

$$(100)(10)(20) = \frac{1}{2}(100)V_{BOT}^2$$

$$200 = \frac{1}{2}V_{BOT}^2$$

$$400 = V_{BOT}^2$$

$$V_{BOT} = 20\,\frac{m}{s}$$

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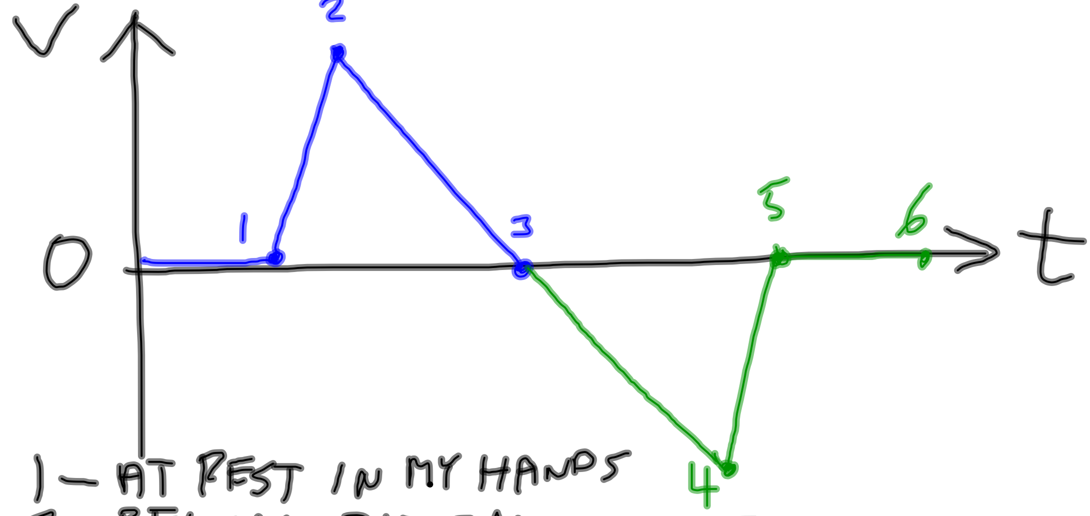
LAB: BALL TOSS.



1 — AT REST IN MY HANDS
2 — RELEASE THE BALL
3 — AT THE TOP
4 — GOT CAUGHT
5 — AT REST

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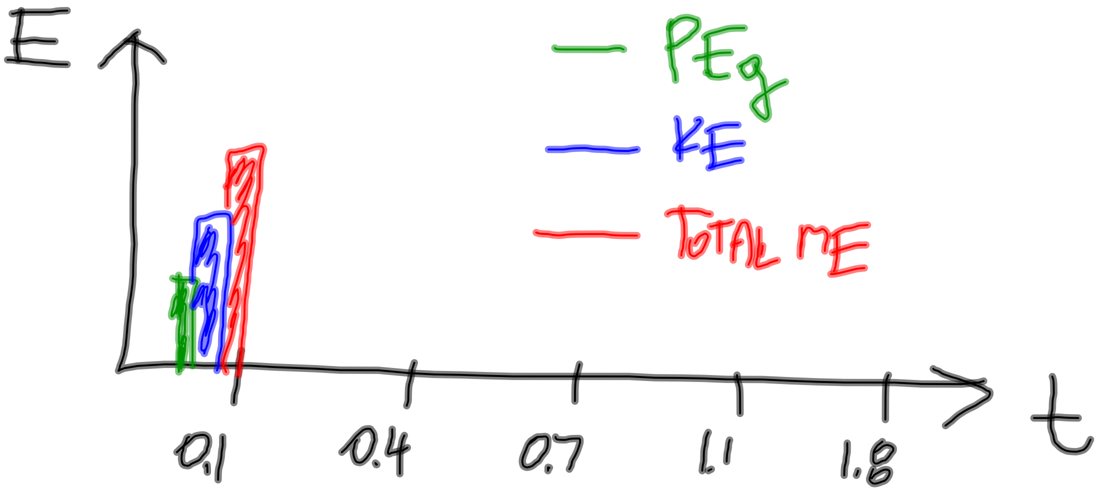
You need to graph by hand (using rulers) the following.
Construct a **bar graph**.
x-axis: time values from data table (5 points)
y-axis: value of PE_g - one color
value of KE - different color
value of TE - different color



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