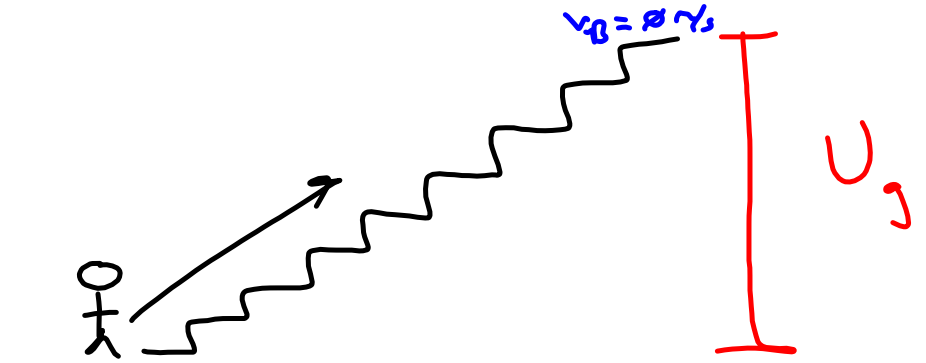
Energy Transfer and Power Lab



$U_{chem} \rightarrow U_g$

Measure?

- h ⇒ measure one stair, multiply by number of stairs
- mass
- time

$$\text{Power} = \frac{\text{Energy (or Work)}}{\text{time}}$$

Model Name:

Energy Storage and Transfer Model

Description:

Ways energy is stored and transferred between objects.

Properties:

- Measured:
  - Force (N)
  - displacement (m)
  - time (s)
  - mass (kg)
- Calculated:
  - Force (N)
  - Energy (J) → spring, gravitational potential, kinetic
  - Spring constant (N/m)
  - Power (W)

Representations:

- Written/verbal
- Graphically
  - Force - displacement → slope = k → area = W
  - Energy - height → slope = mg
  - Energy - (velocity)^2 → slope = $\frac{1}{2}m$
  - Energy - (displacement)^2 → slope = $\frac{1}{2}k$
- Diagrammatic
  - LOL Diagrams

Dot Product

$$\underbrace{\bar{F} \cdot \Delta\bar{x}}_{\text{(vector)(vector)}} = \underbrace{F\, d \cos\theta}_{\text{scalar}}$$