# PHYS 210 - General Physics I


- Base Groups
- Work!
- Work-KE Theorem
- Power

## BASE GROUPS

bGdG:

What's the most exciting thing you plan to do over the break?

bG work:

1. Take the quizzes that your fellow Base Group members wrote on their last Base Group Ticket!
2. What is meant by *power*? What is the SI unit of power? What is this unit in terms of SI Base Units?

RQ # 11!

- The Work done by a conservative force is independent of the path taken; it depends only on the beginning & end points. So, the work done on a closed path is zero.
- Such forces can be written in terms of a potential energy function, U, such that

$$\Delta U = -W = -\int_{x_o}^{x} F(x)dx$$

## FOR CONSERVATIVE FORCES, WORK IS PATH INDEPENDENT

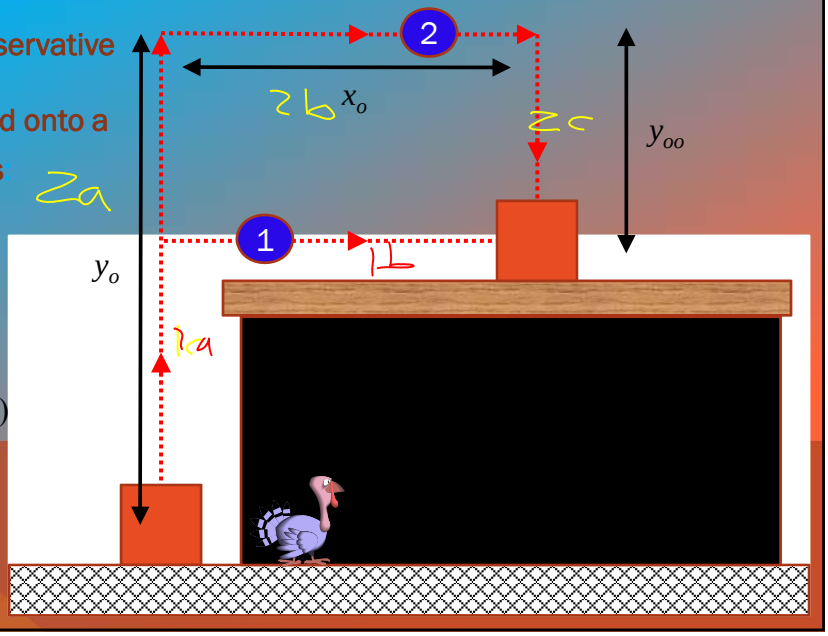
*E.g.*, the force of gravity is conservative

Side view of a block being lifted onto a table along two different paths

$$W = \vec{F} \cdot \Delta\vec{r}_{tot}$$

$$W_1 = W_2$$

(work done by gravitational force)



# POWER

The RATE at which work is done by a force (rate at which energy is expended) is the (instantaneous) power, P:

$$P = \frac{dW}{dt} = \vec{F} \cdot \vec{v}$$

The units of P are W = J/s

# Have a great Thanksgiving Break!