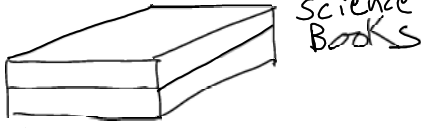


Nov 5

acceleration



science books

Two Jumps

	<u>Jump 1</u>	<u>Jump 2</u>
<u>How</u>	Bend knees	stiff legs
<u>Felt like</u>	normal jump	Hurt uncomfortable jarring
<u>Hurt or anything?</u>	No	Hurt knees hurt back

Speed start same in both
Finish both zero

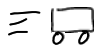
$$a = \frac{v_f - v_o}{\Delta t}$$

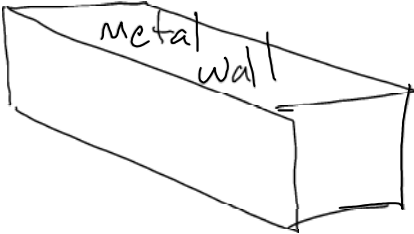
a - acceleration the rate at which you stopped

t - time time to stop

v_f final velocity

v_o starting velocity (velocity at time = 0 the start)

100 mph \Rightarrow 

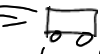


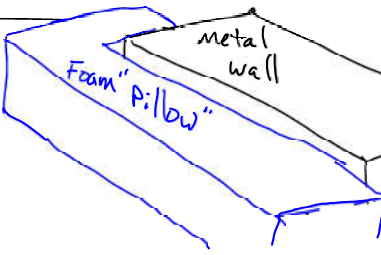
metal wall

$v_o = 100$

$v_f = 0$

$t = .25 \text{ sec}$

100 mph \Rightarrow 



Foam "Pillow"

metal wall

$v_o = 100 \text{ mph}$

$v_f = 0$

$t = 2 \text{ sec}$

$$a = \frac{v_f - v_o}{\Delta t}$$

Delta means (the change in...)
the change in time

metal wall

$$a = \frac{v_f - v_o}{t} = \frac{0 - 100}{.25 \text{ s}} = \frac{-100}{.25} = \boxed{-400 \frac{\text{mph}}{\text{s}}}$$

$$a = \frac{v_f - v_o}{t} = \frac{0 - 100}{2} = \frac{-100}{2} = -50 \frac{\text{mph}}{\text{s}}$$

What was different
between springy knees
and stiff knees?

$v_f = 0$

$v_o =$ same (but we don't
know how much)

$t =$ springy knees
(pillow wall) *more time*

$t =$ stiff knees
(metal wall)

The Egg Drop Project

$$a = \frac{v_f - v_o}{t}$$

$v_f = 0$ (hits the
floor)

v_o - decrease the
velocity at which
it hits

t - Increase the
time to stop

The Egg Throw

Egg
⇒ •

