

# Physics 1c.

Why do we learn physics?

- to understand how the universe works.
- to create devices and gadgets.
- Fun to solve problems!

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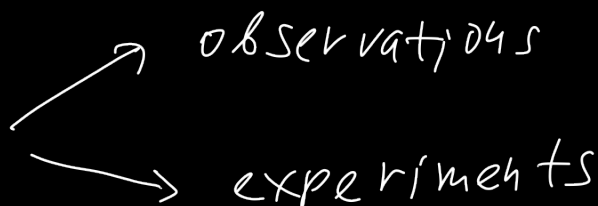
Many physical phenomena:

gravity, motion, sunrise,  
lightning, tornado, rainbow...

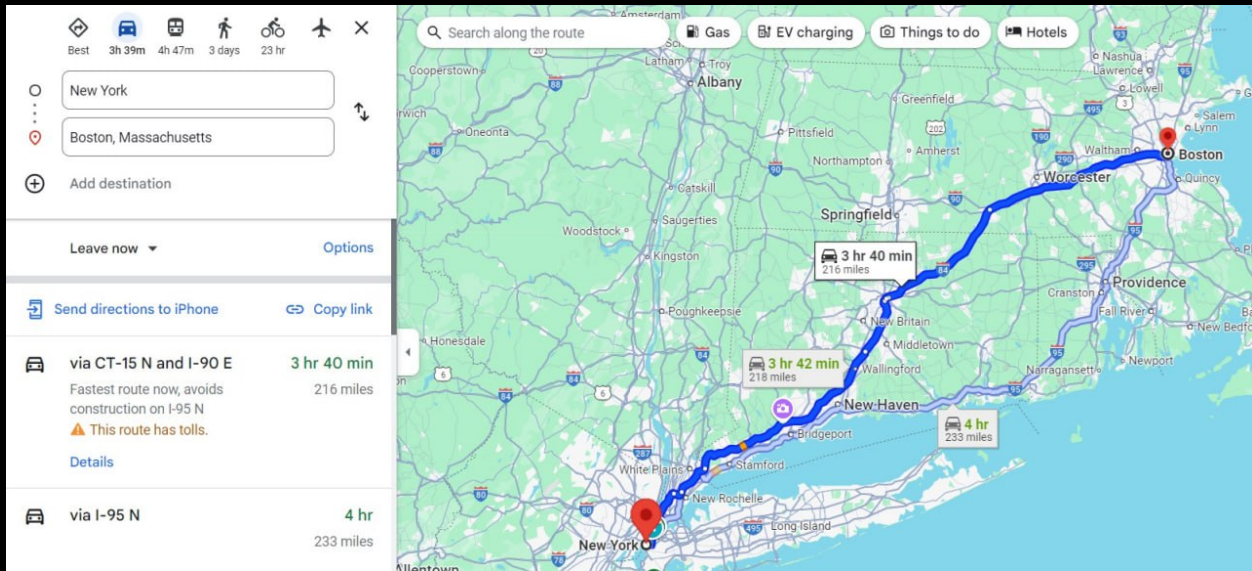
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Explain them using  
basic principles or  
physical laws.

To reveal:



Experiments  $\longrightarrow$  measurements!  
 $\longrightarrow$  physical quantities



time  $\rightarrow$  hours, minutes, seconds, days.

length feet,

$\Rightarrow$  Metric system:

length: m, cm, mm, km, hm

mm  $\downarrow$   $10^{-3}$  m  $\downarrow$   
 $\downarrow$   $10^{-6}$  m  $\downarrow$   $10^{-9}$  m

Note: 1 m, 10 inches; ~~10~~ 10 inches = x m.

# Scalar and vector phys. quantities

Scalar vs. Vector

(Magnitude)

(Magnitude + direction)

distance (length along the path)

displacement  $\vec{d}$

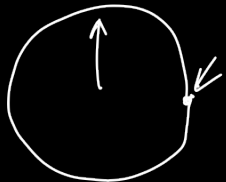
speed  
work.  
time.

A  $\rightarrow$  B

velocity

Force.

acceleration.



$$R = 100 \text{ m.}$$

$$\vec{d} = \vec{0}$$



$$L = 2\pi R = 2 \times 3.14 \times 100 \text{ m} = \underline{628 \text{ m.}}$$

