

STEM Society Meeting
Wednesday, September 12
@ 2:09pm in room 223

2.1

POSITION, DISTANCE, AND DISPLACEMENT

STANDARDS

- 2.1 I can interpret and analyze the motion of an object moving with constant velocity.

MOTION?

How can you tell if an object is moving?



MOTION

Motion is relative!



MOTION

Motion is relative!

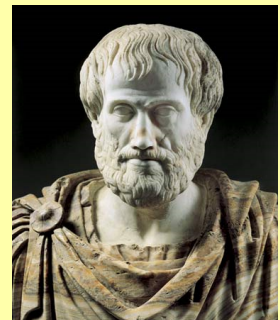


MOTION: Early Ideas

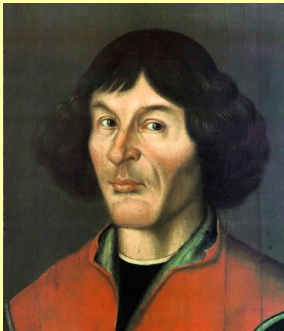
Aristotle

(384 - 322
BC)

Natural Motion
Violent Motion



MOTION: Early Ideas

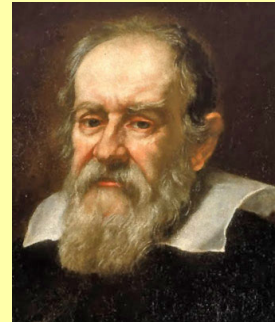


Copernicus
(1473 - 1543)

Sun is the center

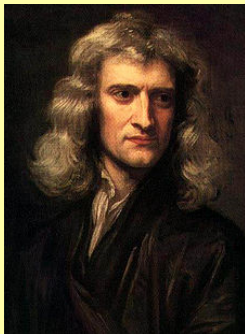
MOTION: Early Ideas

Galileo
(1564 - 1642)



Leaning Tower and Inclined Planes

MOTION: Early Ideas



Newton
(1643 - 1727)

Newton's 3 Laws of Motion

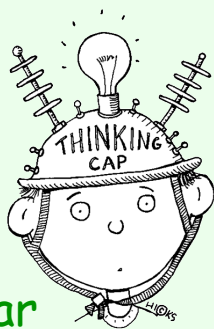
Vectors and Scalars

Scalars

Vectors

TIME	MASS	WEIGHT
TEMPERATURE	SPEED	VELOCITY
VOLUME	DISTANCE	DISPLACEMENT
		ACCELERATION

What is the difference between a scalar and a vector?



VECTOR

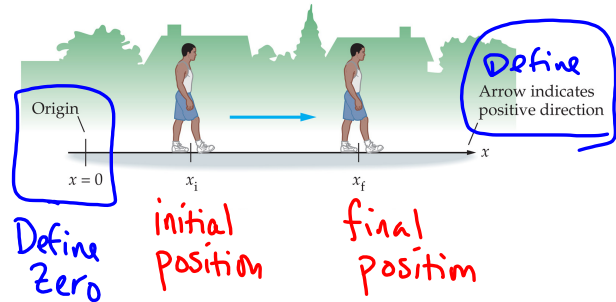


SCALARS VS. VECTORS

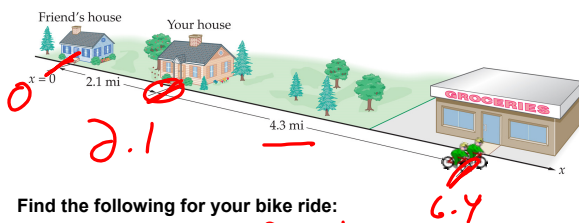
A **scalar** is a ^{magnitude} numerical value, expressed in terms of appropriate units.

A **vector** is a mathematical quantity with both a numerical value and a direction.
 magnitude

Setting Up A System



Distance and Displacement



Find the following for your bike ride:

- (a) The distance traveled. **8.5 mi**
- (b) The magnitude of the displacement from start to finish. **4.3 mi**
- (c) The displacement from start to finish.

$$\Delta x = x_f - x_i = 6.4 \text{ mi} - 2.1 \text{ mi}$$

$$\Delta x = 4.3 \text{ mi}$$

Distance and Displacement

Distance = Total Length of Travel

Displacement = ^ΔChange in position
 $= \Delta x = x_f - x_i$

PRACTICE PROBLEMS

UNIT 2 PROBLEMS (1-4)

Attachments

Despicable Me - Clip Vector's Introduction - Illumination.mp4