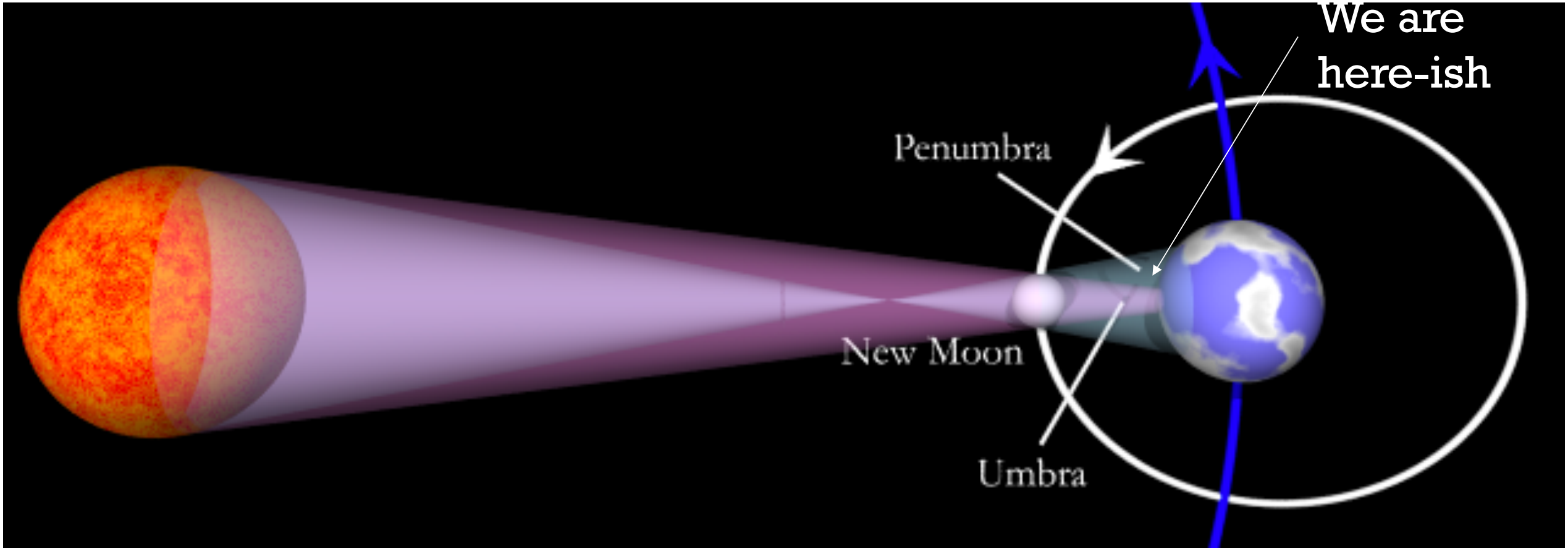
- Take out your WS7 and Giancoli problems
- Talk in your pairs:
  - Air resistance causes objects to slow down the faster they go. In what circumstances might the fact that air resistance exists be a good thing, for safety purposes?

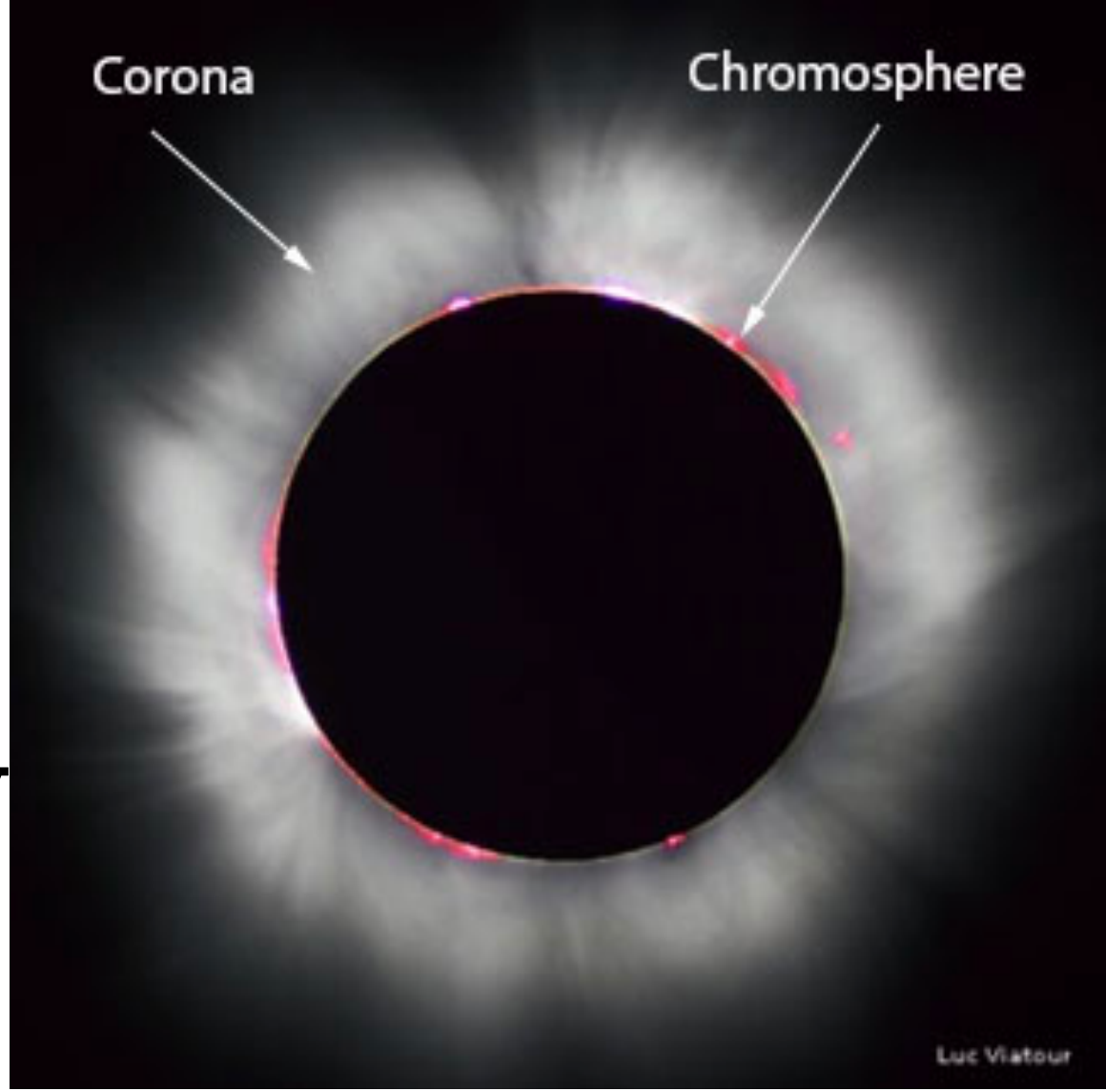
GOALS FOR TODAY

- Talk about the eclipse!
- Free fall concepts
- Bouncy ball part 2

THE ECLIPSE!



- The **corona** is the outer atmosphere of the sun
- The **chromosphere** is the thin layer of the sun's atmosphere just above the photosphere
- When the moon completely covers the photosphere, this is called **totality**



- The faster an object goes, the larger **slowing effect** air resistance has on slowing the object.
- **Object shape/area** also plays a role
- Without air resistance, things would fall faster and faster without anything to slow them!

AIR RESISTANCE

- **Terminal velocity** happens when the force of air resistance (drag force) = Force due to gravity –> maximum possible speed
- (Side note: terminal velocity for a baseball is 95 mph)

AIR RESISTANCE

COMMON MISCONCEPTIONS

- "Velocity and acceleration will always be pointing in the same direction."
  - **Velocity** refers to the **direction of movement, acceleration** refers to **direction that the movement is changing**

COMMON MISCONCEPTIONS

- "An object has zero acceleration at its highest point."
  - An object's *velocity* is 0 at its highest point

COMMON MISCONCEPTIONS

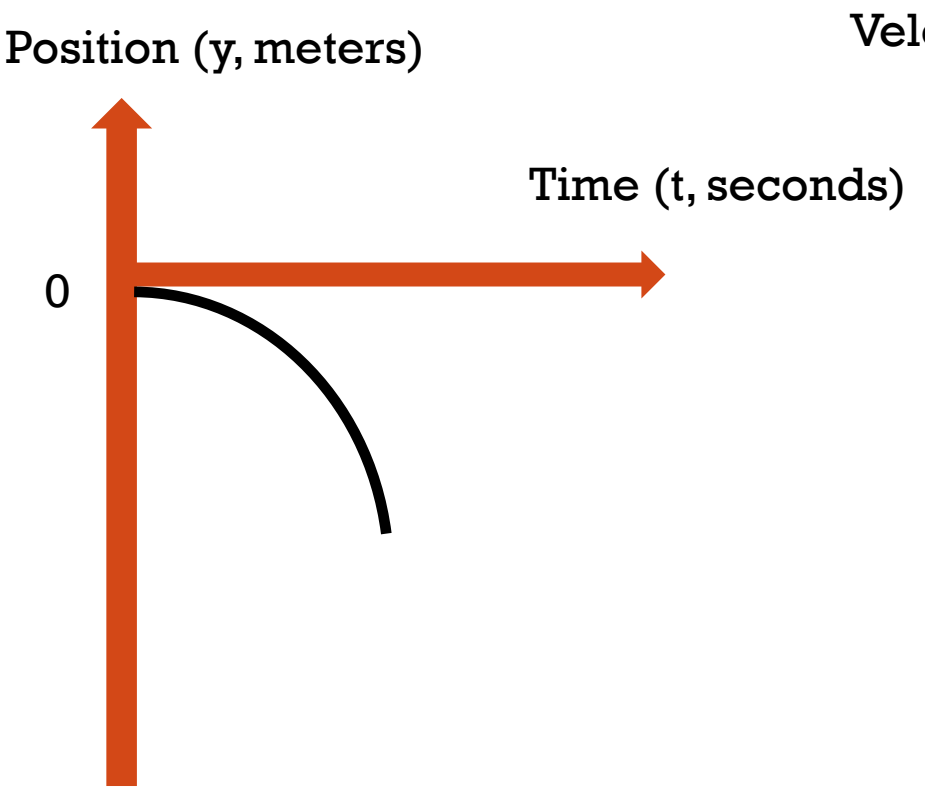
- "An object's acceleration is increasing as it falls."
  - Acceleration of an object in free fall is always -9.81 m/s^2. It's the *speed* that is increasing as it falls.

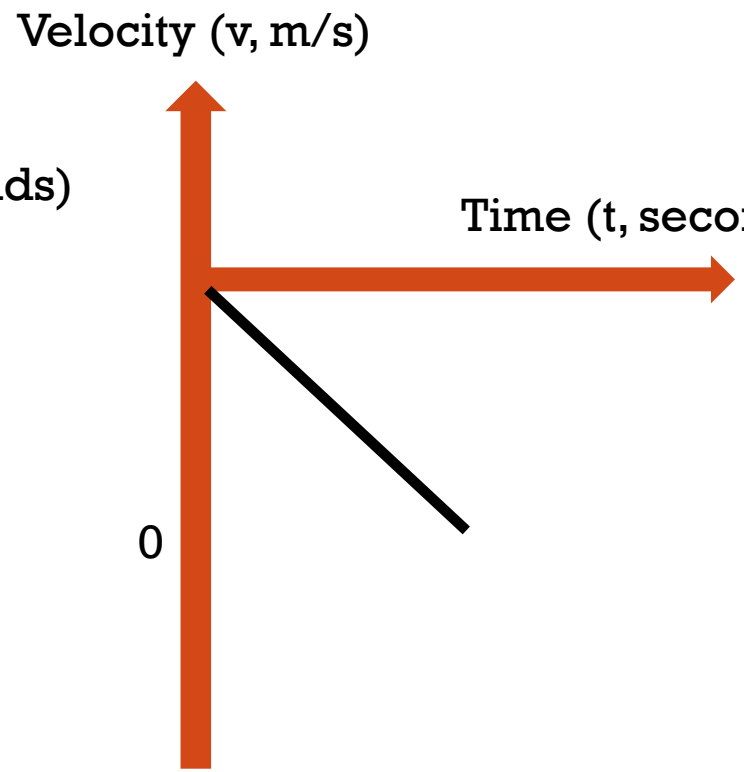
QUIZ 2

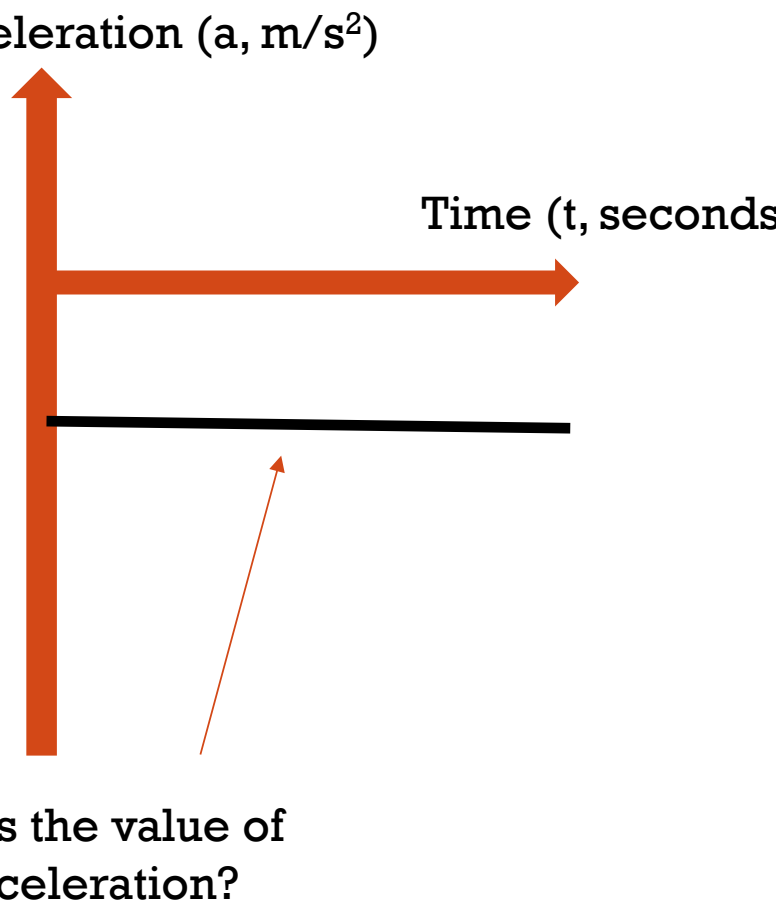
- Conceptual and numerical questions about kinematics/freefall

BOUNCY BALL PART 2

GRAPHING FREE FALL IF WE JUST DROP THE THING



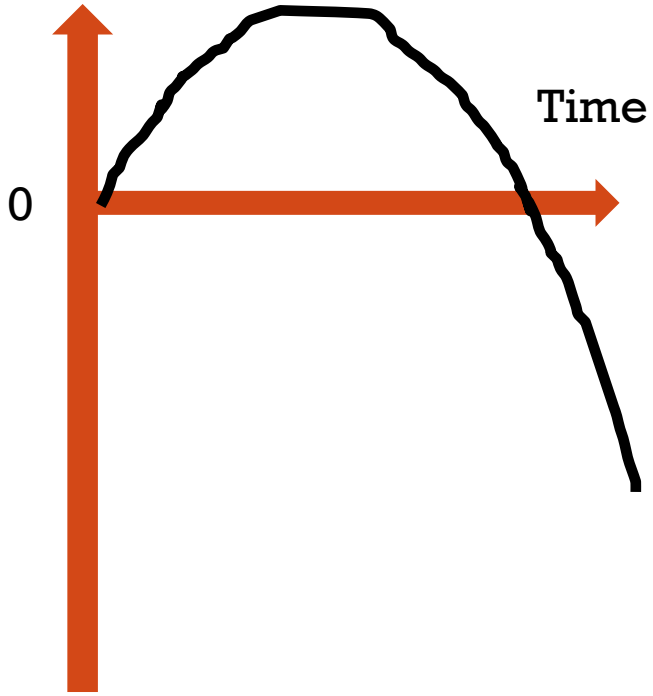




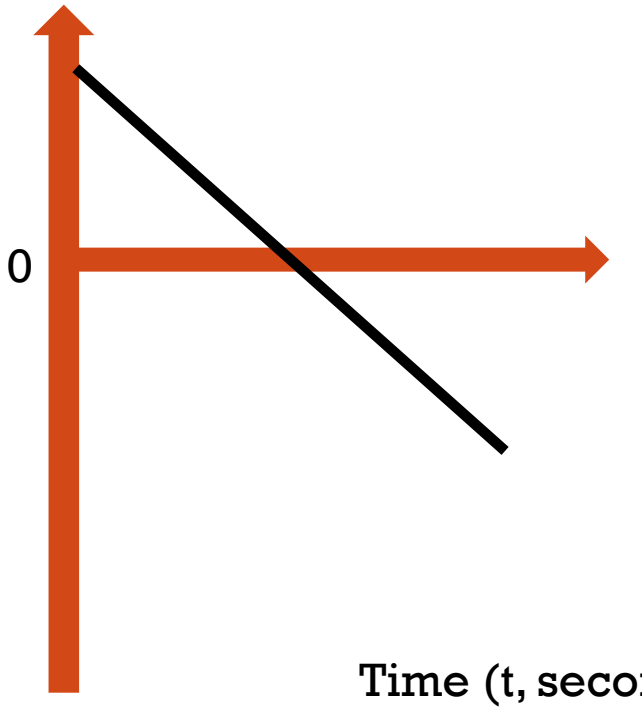
What is the value of this acceleration?

GRAPHING FREE FALL IF WE THROW THE THING UP

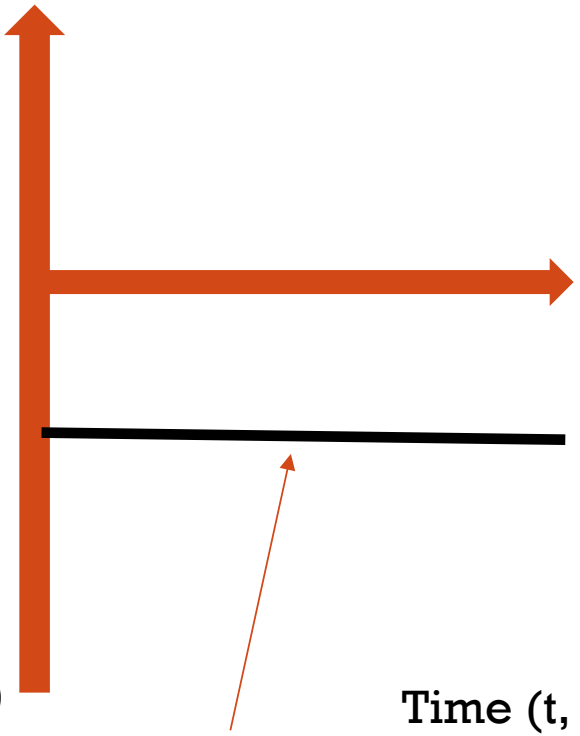
Position (y, meters)



Velocity (v, m/s)



Acceleration (a, m/s^2)



What is the value of this acceleration?

GRAPHING FREE FALL IF WE THROW THE THING DOWN

Position (y, meters)

Time (t, seconds)

0

Velocity (v, m/s)

Time (t, seconds)

0

Acceleration (a, m/s^2)

Time (t, seconds

What is the value of this acceleration?