

# JANUARY 27, 2020

## WELCOME TO SEMESTER 2!

- **BELL RINGER:** PLEASE START A NEW BELL RINGERS PAGE IN ASTRONOMY PART 1. PLEASE LABEL THE FOLDER ASTRONOMY. (IF YOU'RE CONFUSED, I WILL SHOW YOU HOW TO DO THIS WHEN CLASS STARTS)
- THEN NAME AS MANY OF THE PLANETS IN OUR SOLAR SYSTEM IN CORRECT ORDER AS YOU CAN.
- **TODAY'S PLAN:**
  - BELL RINGER
  - OUTLINE OF THE SEMESTER
  - BEGIN ASTRONOMY UNIT



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# ASTRONOMY

A night sky photograph featuring the Milky Way galaxy stretching across the frame. The galaxy's core is visible as a bright, dense region of stars and dust. The foreground shows a dark silhouette of a landscape, including hills and trees, under a starry sky.



# A HISTORY OF LOOKING UP

- THE PURPOSE OF ANCIENT ASTRONOMY WAS TO TELL TIME OVER LONG PERIODS AND NAVIGATION
- CIVILIZATIONS WITH CALENDARS
  - MAYAN: NEARLY PERFECT MEASUREMENTS OF **SYNODIC PERIODS (500 BCE)**
  - EGYPTIANS- 12 MONTHS: 30 DAYS EACH MONTH (2500 BCE)
  - GREEKS: ADDED MONTHS WHENEVER THEY NEEDED EXTRA TIME (400BCE)



# SEASONAL CHANGES/CALENDAR

- **ROMAN CALENDAR 509-27BCE**
  - 10 MONTHS, 29/31 DAYS EACH
  - WOULD ADD A MONTH EVERY TWO YEARS
- **JULIAN CALENDAR: 45BCE**
  - 12 MONTHS (ONE NAMED AFTER HIMSELF) 30/31 DAYS EACH
    - PLUS THE LEAP YEAR- ONE DAY ADDED EVERY 4 YEARS
    - STILL TOO LONG! 11 MINUTES LONG



# CALENDAR

- GREGORIAN CALENDAR (1582)
  - NAMED AFTER POPE GREGORY THE XIII
  - CATHOLIC ASTRONOMER CALCULATED
    - 12 MONTHS + LEAP YEAR
    - EVERY CENTURY YEAR NOT DIVISIBLE BY 400 IS NOT A LEAP YEAR
      - Ex 2000 WAS A LEAP YEAR; 2100 WILL NOT BE
      - HOW OLD WILL YOU BE IN 2100?



# NAVIGATION

- STARS LOOK DIFFERENT:
  - AT DIFFERENT TIMES OF THE YEAR
  - FROM DIFFERENT PLACES ON EARTH
    - STARS ARE IN DIFFERENT PLACES WHEN VIEWED FROM MONTANA VS FLORIDA
    - EXAMPLES: MOANA AND ODYSSEUS IN THE ODYSSEY





# THE STRUCTURE OF OUR SOLAR SYSTEM

- **GEOCENTRIC:** EARTH CENTERED
  - ORIGINAL IDEA THAT EVERYTHING MOVES AROUND THE EARTH
  - WRONG
- **HELIOCENTRIC:** SUN CENTERED
  - OUR SOLAR SYSTEM ROTATES AROUND THE SUN
  - GREEK ASTRONOMER :  
**ARISTARCHUS** (312-230 BCE)
  - **NICOLAUS COPERNICUS:** 1543  
PUBLISHED A PAPER ON  
HELIOCENTRICITY



# A SHORT HISTORY OF LOOKING UP

- IMPORTANT PEOPLE TO REMEMBER:

- **ARISTARCHUS** (320-230 BCE) FIRST IDENTIFIED HELIOCENTRICITY
- **NICOLAUS COPERNICUS** (1473-1543) INDEPENDENTLY IDENTIFIED HELIOCENTRICITY
- **GALILEO GALILEI** (1564-1642) CREATED THE FIRST TELESCOPE(!)
  - MOON IS BUMPY AND THE SUN HAS SPOTS
- **JOHANNES KEPLER** (1571-1630) PUBLISHED LAWS OF PLANETARY MOTION
- **ISAAC NEWTON** (1642-1727) LAW OF GRAVITATIONAL ATTRACTION

## Geocentric vs. Heliocentric

