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



ASTRONOMY

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

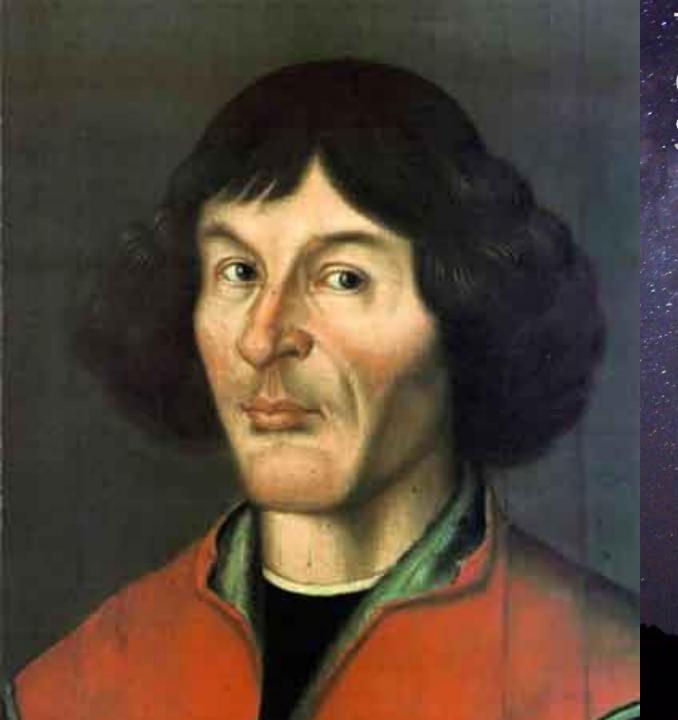
- ROMAN CALENDAR 509-27BCE
 - 10 MONTHS, 29/31 DAYS EACH
 - Would add a month every two years
- JULIAN CALENDAR: 45BCE
 - 12 MONTHS (ONE NAMED AFTER HIMSELF) 30/31 DAYS EACH
 - Plus the leap year- one day added every 4 years
 - STILL TOO LONG! 11 MINUTES LONG

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 (312-230BCE)
 - 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

