Planetary Motion

Physics + ESS

Physics: Planetary Motion
May 24 & May 25

Agenda

1. Finding a new Earth
2. What is an orbit?
3. PhET Orbits and Gravity
4. Class Conclusions

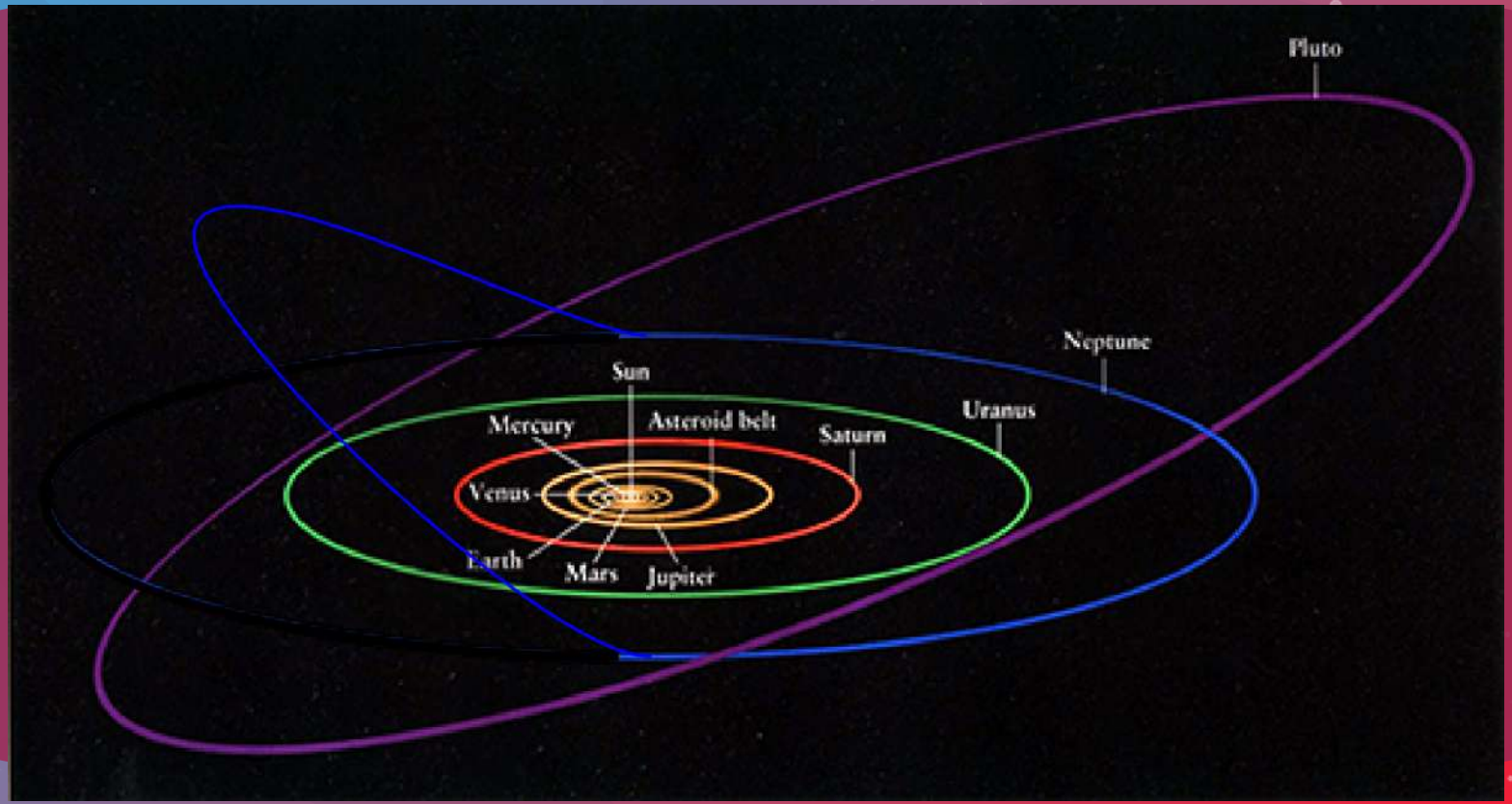
Warm Up

Take 10 minutes to complete “The Search for the New Earth on Google Classroom. What is an exoplanet? What is something new that you learned?

Reminders

Late Work due June 4

What is an orbit?



PhET Gravity and Orbits

What happened when we increased the mass of the Sun?

The orbit got shorter, the Earth moved faster

What happened when increased the mass of the Earth?

The orbit stayed the same

What happened when we increased the distances?

When the distance increased so did the number of days, greater distance = more elliptical orbit

PhET Gravity and Orbits

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What happened when we increased the distances?

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What can we change about an orbit?

- Mass of sun and Earth
- Length of time for an orbit
- Distance from center mass
- Move the positions of the masses
- Shape of an orbit

Physics: Planetary Motion
May 27/28

Agenda

1. Class Conclusions from Warm Up
2. Review Kepler's Law
3. Hunting for Earth 2.0 Parts 1, 2, 3

Warm Up

Take out your async from Wednesday. What are some of the things about Earth that make it habitable?

Reminders

Late Work due June 4

What makes Earth habitable?

- Sunlight
- Oxygen
- Water
- The atmosphere
- Gravity
- Temperature
- Stable rotation
- The moon
- Stable magnetic field
- Pizza and nachos
- Animals
- Plants
- Perfect distance from the sun
- Energy
- Gravitational pull to other planets
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How do we discover exoplanets?

- Radial Velocity “Reading the Wobble”
  - The planet is so big it tugs on the star to make it “wobble”
- Transits: Dips in the Light
  - https://www.youtube.com/watch?v=BFi4HBUdWkk
- Transit Spectroscopy: Reading the Light
  - https://www.youtube.com/watch?time_continue=32&v=vEZ1HJubimM&feature=emb_logo
- Gravitational Microlensing: Gravity’s ability to warp and bend starlight
- Direct Imaging: An Emerging Technology
- Cornographs: Dim the star to reveal a planet
- Starshade: https://youtu.be/vW8pi8WMu0s

The Rest of the Year

- Thursday, May 27- Normal Class
- Friday, May 28- Normal Class
- Monday, May 31- NO SCHOOL
- Tuesday, June 1- Normal Class
- Thursday, June 3- Normal Class
- Friday, June 4- Late Work due and “Final Question” due (will be posted for Wednesday async)
- Monday, June 7- Hour 1 Final (not required to attend if you aren’t taking it)

Final Exam Schedule

- Monday, June 7- 1st hour final, normal rest of the day
- Tuesday, June 8- HALF DAY
  - 4th hour final 7:22-8:52
  - 5th hour final 9:02-10:33
- Wednesday, June 9 - NO Asynchronous Assignment
- Thursday, June 10- HALF DAY
  - 2nd hour final 7:22-8:52
  - 3rd hour final 9:02-10:33
- Friday, June 11- HALF DAY
  - 6th hour final 7:22-8:52
  - 7th hour final 9:02-10:33

If you are not taking the final, you are not required to attend class

Physics: Planetary Motion
June 3

Agenda

1. Part 3 Review
2. Part 4 and 5
3. CER and Turn In!

Warm Up

Open up Hunting of Earth 2.0 and go to Part 3 (Star Characteristics). What planets seemed habitable from their Sun?

Reminders

Late Work due June 4
Final: June 7

Physics: Planetary Motion
June 3/4

Agenda

1. Part 3 Review
2. Part 4
3. Skip Part 5
4. CER and Turn In!

Warm Up

Open up Hunting of Earth 2.0 and go to Part 3 (Star Characteristics). What planets seemed habitable based on the distance from their Sun?

Reminders

Late Work due June 4

Lee Hour 6

- Hunting for Earth 2.0 Packet (minus Part 5) due Friday
- All late work due Friday
- I will grade Friday and then before the final
- Hour 6 Final: Your choice of reassessment of standards
- Question is due by the final time
  - If you are not taking it, indicate on the question and you don't have to come to class
  - If you are taking it, please come at 7:22am on Friday 6/11 to get started