Tour of the Solar System Prelab

MUST be completed before class on Friday, October 22

Students/groups who have not completed the prelab will not be able to participate in the lab

Goal: You will become a class expert on one of the planets, moons or belts of our solar system. You and 2-3 of your classmates will synthesize your research and design an informational poster on your assigned object during the in-class lab on Friday, October 22. You will then make a brief presentation of your results to the class on Wednesday, October 31.

This prelab should be done individually and submitted at the END of the class period on Friday, October 22 (after you use the information here to complete the lab). You may wish to bring your personal laptop to the lab period on October 22 to make the poster, or you can use one of the classroom computers.

Instructions:

Your assigned object, group of moons, or belt, is circled below.

1. Mercury
2. Venus
3. Earth
4. Mars
5. Asteroid Belt (in depth: Ceres, Vesta + 2 more)
6. Jupiter
7. Jupiter's Moons (in depth: Io, Europa, Ganymede, Callisto)
8. Saturn
9. Saturn's Moons (in depth: Titan, Encelatus, Mimas, Iapetus)
10. Uranus
11. Neptune
12. Kuiper Belt (in depth: Pluto, Eris, Haumea + one comet)

You will research your assigned object by visiting NASA's Solar System Exploration website and also by listening to an "Astronomy Cast" podcast on your object. You should take detailed notes as you do both of these (space and instructions provided below). You will be graded on their quality and thoroughness.

1. Visit NASA's Solar System Exploration website (solarsystem.nasa.gov). Here, you must:
   a. If you were assigned a planet: read the main tabs ("Overview", "In Depth", "By the Numbers", and "Exploration") in their entirety and visit at least four of the entries under "gallery"
   b. If you were assigned a group of moons: Read the "Overview" and "In Depth" tabs for the moons as a whole and all the tabs for the objects in the list above (get to these through "Critical Science Targets" at the bottom of the main page for the moons of a given planet).
   c. If you were assigned the asteroid belt: Read the "Overview", "In Depth" and "Exploration" tabs for "Asteroids". Read the Ceres (under dwarf planets) and Vesta (under "Science Targets" on the main page for comets) pages in detail (all tabs) and choose two other objects in the asteroid belt from the list of science targets on the asteroids page to read up on in detail.
   d. If you were assigned the Kuiper belt: Read the "Overview" and "In Depth" pages under "Comets". Read the Pluto, Haumea, and Vesta (under dwarf planets) pages in detail (all tabs) and choose one other object in the Kuiper belt from the list of science targets on the comets page to read up on in detail.

Your notes from your exploration of the NASA site for your assigned object(s). You may attach additional pages if you wish.

2. Listen to the episode of "Astronomy Cast" (astronomycast.com) on your assigned planet/moon/belt (list below) and take notes. You may attach additional pages if you wish.

Planet and "Astronomy Cast" Episode Number List:

1. Mercury (Episode 49)
2. Venus (Episode 50)
3. Mars (Episode 52)
4. Jupiter (Episode 56)
5. Jupiter's Moons (specifically the Galilean Moons Io, Europa, Callisto and Ganymede) (Episode 57)
6. Saturn (Episode 59)
7. Saturn's Moons (specifically Titan, Mimas, Iapetus, Encelatus) (Episode 61)
8. Uranus (Episode 62)
9. Neptune (Episode 63)
10. Kuiper Belt and Outer Solar System (Episode 64)
11. Asteroid Belt (Episode 55)

Your notes from the podcast:

3. Complete Table

Complete the following table for your planet/moon/belt. All red text should be altered or deleted. A blank table for you to fill in is on the next page.

Property	Value
Distance from Sun in miles (Sun → Planet for moons)	Will be a range for belts and moons
Distance from Sun in Astronomical Units (same as above)	Will be a range for belts and moons
Number of moons (moons → objects if belt)	
Missions	Ex: Viking (1978, Lander)
If Belts or Moons: Properties of [Insert Largest Object] (If planet, delete this row)	
Period of Orbit/Length of "year" (in days)	
Rotational Period/Length of "day" (in days)	
Mass in kg	
Mass in Earth masses	
Diameter in miles	
Diameter in Earth radii	
Surface Temperature range (delete row if no surface)	Ex: 800-1500F
Atmospheric composition	Ex: Methane, Carbon Dioxide
Types of geologic activity (delete row if no surface)	Ex: Plate Tectonics, Volcanism (cryo)
Force of gravity on its "surface" relative to Earth's	Ex: 2.5 times Earth
Superlatives	

Tips for completing the table

1. For each mission, you should specify the date and type of mission (orbiter, lander, flyby, atmospheric probe, rover, etc.) and dates. For example: Viking 1 (1976-1982 lander and 1976-1980 orbiter).
2. Superlatives are a statement containing most + an adjective (i.e. biggest, smallest, coldest, oldest, only etc.)).

Property	Value

4. Find Pictures

Assemble your 4 favorite pictures of your object or group of objects. For each, provide a link (you may wish to use tinyurl.com to make them shorter) and write out a 1 sentence caption.

Picture 1 link:

Picture 1 caption:

Picture 2 link:

Picture 2 caption:

Picture 3 link:

Picture 3 caption:

Picture 4 link:

Picture 4 caption: