

HOW DO WE EXPLORE THE SOLAR SYSTEM?

Phased Approach:

- Do What's Technically Possible
- Do What's Affordable
- Do the Easy Missions First (Successfully), Then More Complex

SSE: Missions of Increasing Difficulty & Complexity

- Planetary Fly-by (Initial reconnaissance)
- Planetary Orbiter (Global assessment of surface)
- Planetary Lander: Hard Landers, Then Soft Landers
- Planetary Rover: Mobility on Land or in Atmosphere
- Planetary Sample Return: Study Rock/Soil/Air Samples in Lab
- Outer Satellite Orbiter/Lander
- Crewed Missions: Orbiting, Landing

SOLAR SYSTEM EXPLORATION 2023

Planet	Telescopic Observation	Flyby	Orbiter	Lander	Rover	Sample Return	Crewed Mission
Mercury	1610	Mar10	B-C				
Venus	1610	Mar2	VERITAS	Ven7	DAVINCI+		
Earth		Gal					
Moon	1610	Lun1	LRO	Lun2/9	Lun17	Lun16	Apollo
Mars	1609	Mar4	Mar 9	Vik1-2	Cur/Pers	MSR	
Asteroids	1801	Gal	Psyche	NEAR		OSIRIS-REx	
Comets	1618	Gio	Rosetta	Rosetta		Stardust	
Jupiter	1610	Voy1	Gal/Juno	Gal-AP	-----	-----	-----
Io	1610	Gal					
Europa	1610	Gal	Europa Clipper				
Ganymede	1610	Gal	JUICE				
Callisto	1610	Gal					
Saturn	1610	Voy1	Cas	-----	-----	-----	-----
Titan	1655	Cas	-----	Huy	Dragonfly		
Enceladus	1787	Cas					
Uranus	1781	Voy2	Uranus Orbiter	-----	-----	-----	-----
Neptune	1846	Voy2	-----	-----	-----	-----	-----
Pluto	1930	New Horizons					
Kuiper Belt	1992	NH-2019					

Mar=Mariner (US), MES=MESSENGER (US), B-C=Bepi Columbo (ESA), Ven=Venera (USSR), Veg=Vega (USSR), Gal=Galileo (US), Lun=Luna (USSR), Ap=Apollo (US), Vik=Viking (US), MPF=Mars Pathfinder (US), Gio=Giotto (ESA), Ros=Rosetta (ESA), Pio=Pioneer (US), Cas=Cassini, Huy=Huygens (ESA), Voy=Voyager (US), NH=New Horizons (US), JUICE = Jupiter Icy Moons Explorer-Ganymede Orbiter (ESA)