

Today: Why Do We Explore Space?

Homework:

- Read: Report to President Eisenhower on [Intro to Outer Space](#) – see link on class webpage.
- Read: Chapter 1 of McDougall (Rocketry & Revolution).



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1

Today's Class

- Why Do We Explore?
- The Elusive Why of Space Exploration.
- How do we explore?
- What Objects should we explore?
 - The Moon
 - Mars
 - Europa
 - Exoplanets

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2

Why Do We Explore Space?



President John F. Kennedy at
Rice University, 1962

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3

Why Do We Explore Space?



“The situation today is like Europe before 1492. Spreading out into space will completely change our future but won't solve immediate problems.” *Stephen Hawking*

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4

Class Exercise: Why Do You Think We Explore Space Today?

- Search for life & places to support it.
- Make us better problem solvers.
- To study planets, asteroids, & origin of solar system
- Mine resources across the solar system.
- Enduring legacy of colonialism.
- How Earth affects space & space affects earth.
- Competition, international
- Opportunity to foster better relations with other countries.
- Space Tourism.
- General curiosity of the unknown.

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5

But, let's be inspirational

Humans are meant to explore. It is at our core. We explore to gain knowledge, satisfy our curiosity. Space is that next frontier. It is a simple answer to why we explore.



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6



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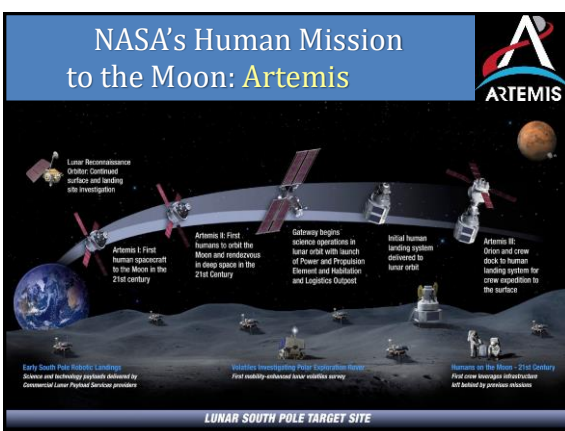
THE SPACECRAFT Orion

Apollo	Orion
3 crew members	4 crew members
~20 crew days	~84 crew days
Fuel Cell Powered (~14day max lifetime)	Solar Array Powered

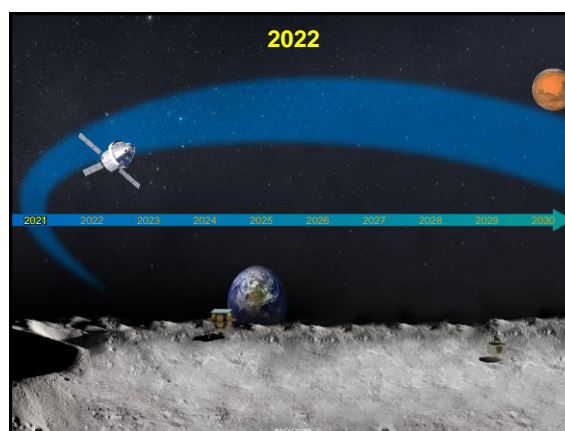
Command Module	Crew Module
Height: 10'7" (3.26m)	Height: 10'0" (3.1m)
Diameter: 12'0" (3.66m)	Diameter: 15'5" (4.7m)
Habitable Volume: 2,000 (4.5m³)	Habitable Volume: 3,540 (8.8m³)
Launch Weight: 11,202 lbm (5,121 kg)	Launch Weight: 22,000 lbm (10,000 kg)
Landing Weight: 10,577 lbm (4,779 kg)	Landing Weight: 25,000 lbm (11,340 kg)
Service Module	Service Module
Height: 22'7" (6.9m)	Height: 16' (4.9m)
Diameter: 22'0" (6.7m)	Diameter: 22'5" (6.8m)
Launch Weight: 11,208 lbm (5,100 kg)	Launch Weight: 14,000 lbm (6,350 kg)

Performance	Performance
Crew: 3	Crew: 4
Habitable Volume: 20,000 (45,000 liter)	Habitable Volume: 35,000 (78,000 liter)
Mission Support: 14 day/17 crew	Mission: 21 day/24 crew
Power Source: Fuel Cells	Power Source: Solar Arrays

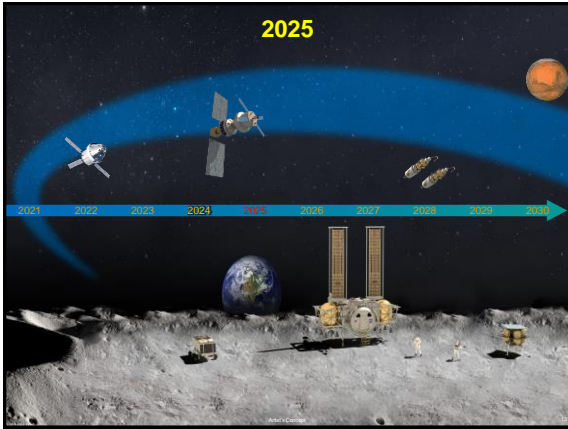
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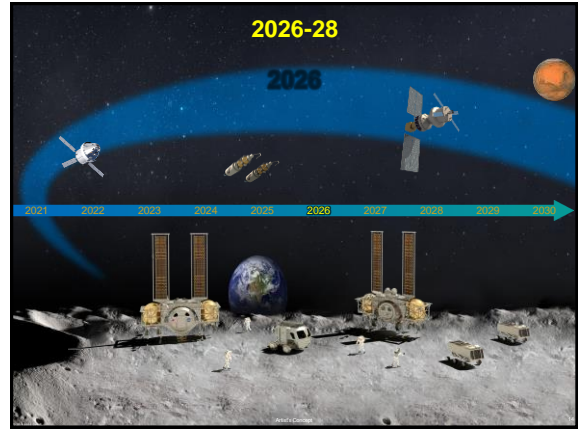
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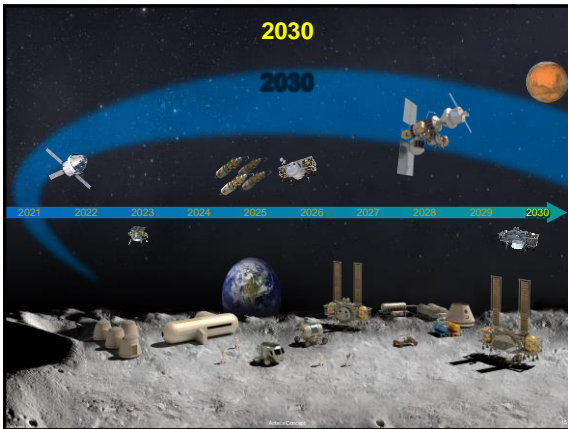
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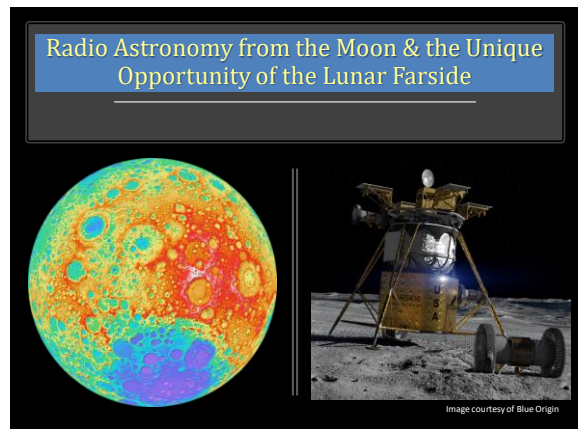
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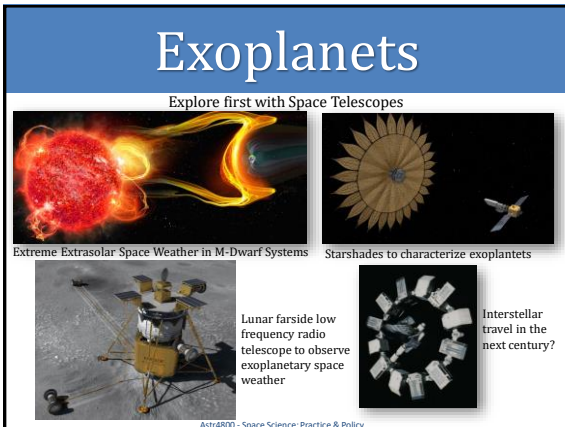
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22