NEW MEXICO TECH

Government Mission Outcomes

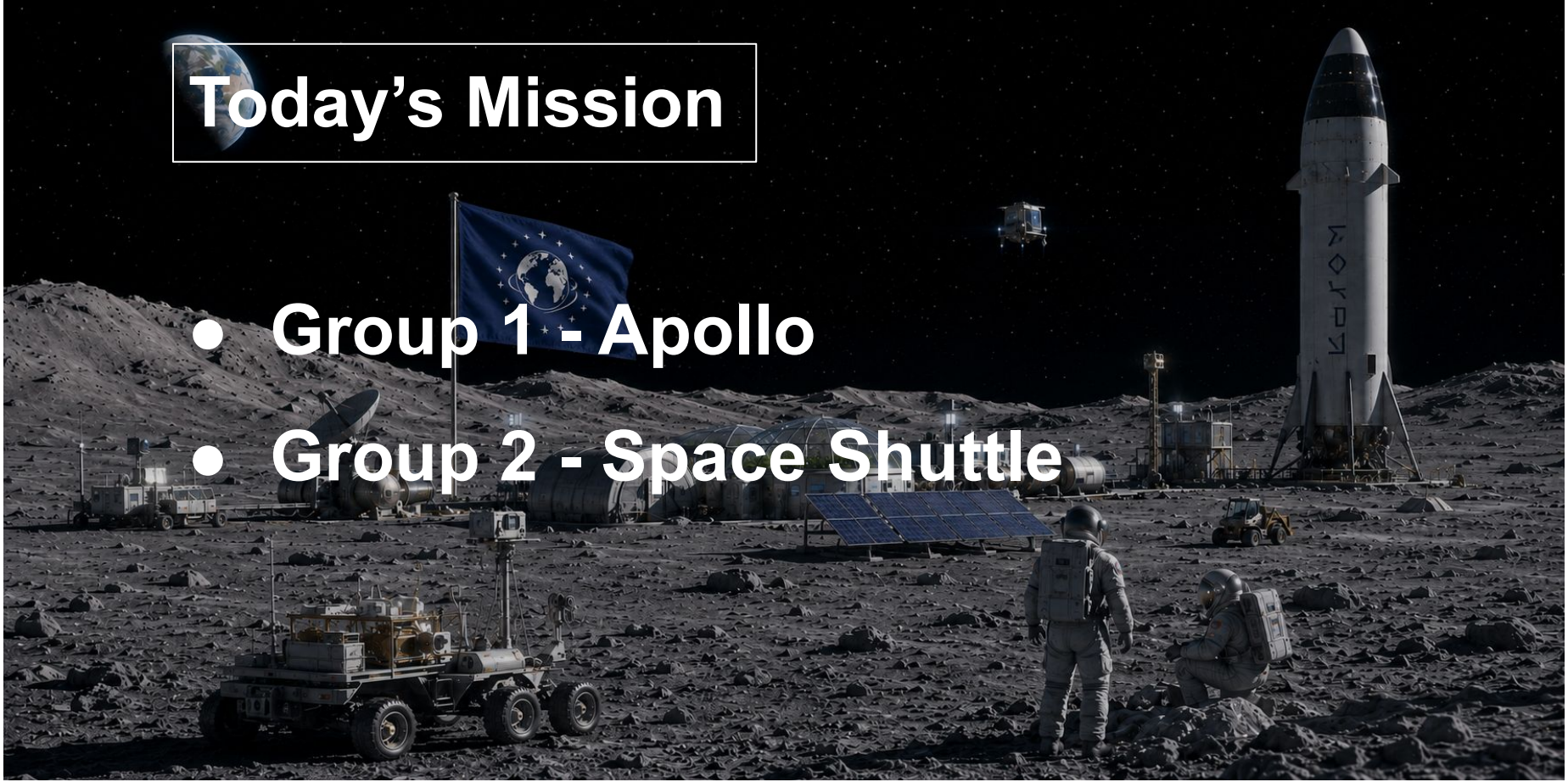
Breakout Session 1



EMGT 5061, Fall 2026
August 26, 2026

Student 1:
Student 2:
Student 3:

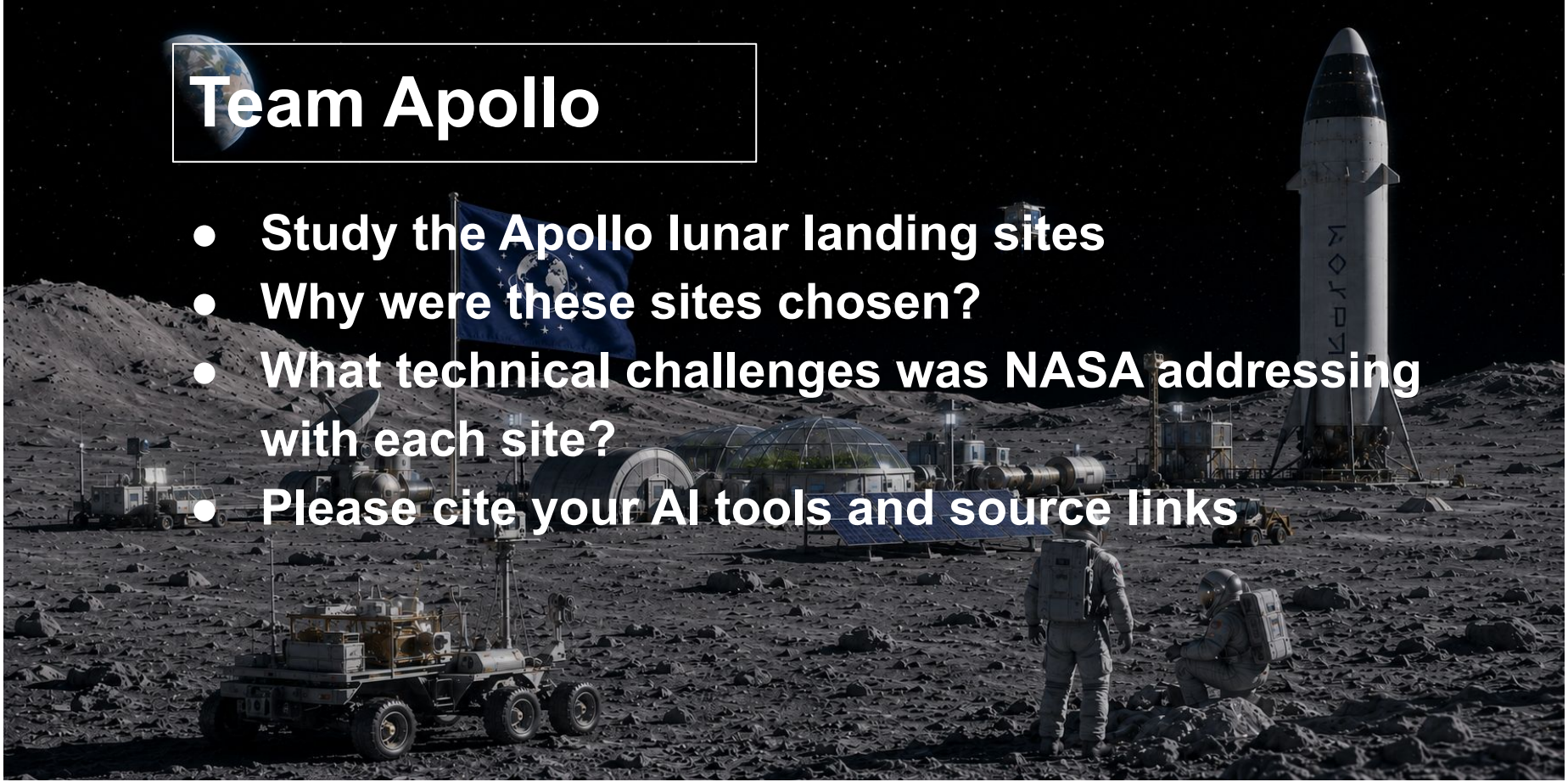
Today's Mission



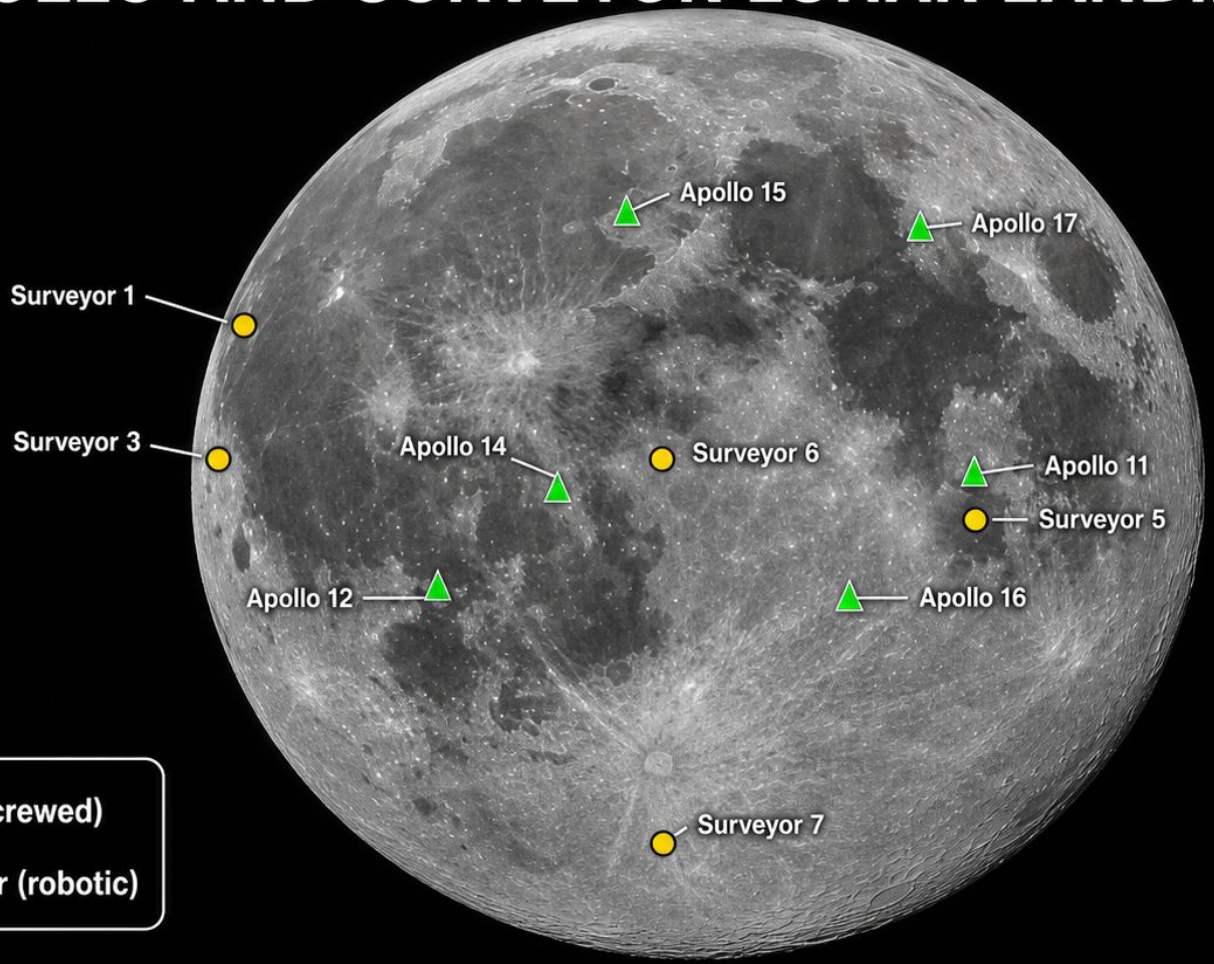
- Group 1 - Apollo
- Group 2 - Space Shuttle

Team Apollo

- Study the Apollo lunar landing sites
- Why were these sites chosen?
- What technical challenges was NASA addressing with each site?
- Please cite your AI tools and source links



APOLLO AND SURVEYOR LUNAR LANDING SITES



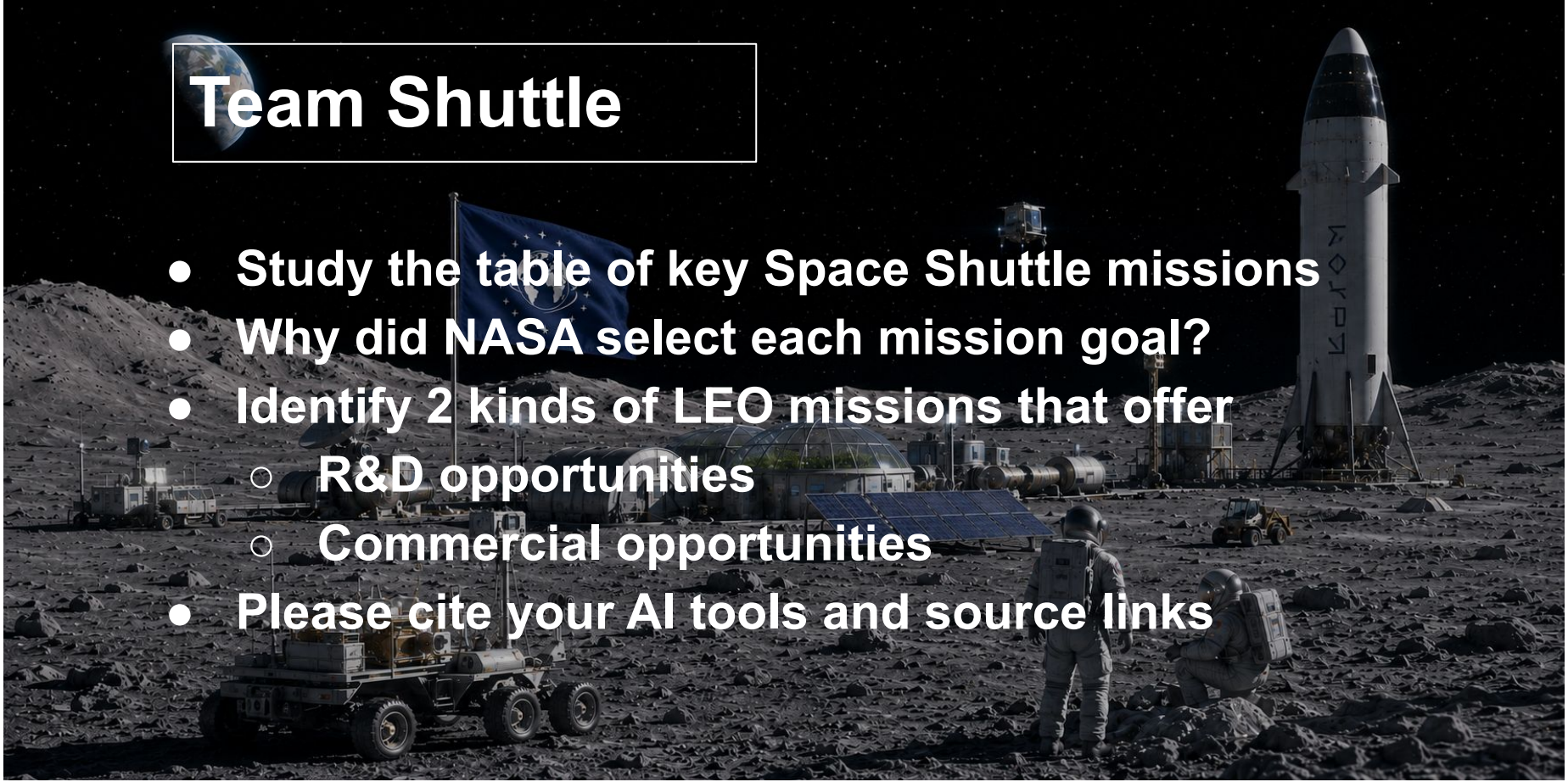
Surveyor and Apollo Landing Terrain

Robotic Precursors to Crewed Landings, 1966–1972

Mission	Landing Date	Terrain
Surveyor 1	Jun. 2, 1966	Oceanus Procellarum mare; cratered plain with scattered boulders
Surveyor 3	Apr. 20, 1967	Oceanus Procellarum; inside a small, shallow crater
Surveyor 5	Sep. 11, 1967	Mare Tranquillitatis; sloping inner edge of a rimless crater
Surveyor 6	Nov. 10, 1967	Sinus Medii; relatively level central mare
Surveyor 7	Jan. 10, 1968	Rough highlands and ejecta north of Tycho crater
Apollo 11	Jul. 20, 1969	Mare Tranquillitatis; mare plain with craters and boulders
Apollo 12	Nov. 19, 1969	Oceanus Procellarum; cratered mare near Surveyor 3
Apollo 14	Feb. 5, 1971	Fra Mauro; rough, rolling highland-impact ejecta
Apollo 15	Jul. 30, 1971	Hadley–Apennine; mountains, mare plain and deep rille
Apollo 16	Apr. 21, 1972	Descartes; hilly, heavily cratered lunar highlands
Apollo 17	Dec. 11, 1972	Taurus–Littrow; narrow valley, massifs and boulder deposits

Darker rows = Surveyor (robotic precursor); lighter rows = Apollo (crewed). Source: Lunar and Planetary Institute — Surveyor Program; NASA — "The Apollo Program."

Team Shuttle



- Study the table of key Space Shuttle missions
- Why did NASA select each mission goal?
- Identify 2 kinds of LEO missions that offer
  - R&D opportunities
  - Commercial opportunities
- Please cite your AI tools and source links

The Space Shuttle Fleet

Five Orbiters, 1981–2011 — 135 Missions Flown

LOST



Columbia

OV-102

28

missions flown

First: Apr 12, 1981 (STS-1)
Last: Jan 16, 2003 (STS-107)

Lost on reentry, Feb 1, 2003

LOST



Challenger

OV-099

10

missions flown

First: Apr 4, 1983 (STS-6)
Last: Jan 28, 1986 (STS 51-L)

Lost at launch, Jan 28, 1986

RETIRED



Discovery

OV-103

39

missions flown

First: Aug 30, 1984 (41-D)
Last: Feb 24, 2011 (STS-133)

Most-flown orbiter

RETIRED



Atlantis

OV-104

33

missions flown

First: Oct 3, 1985 (STS 51-J)
Last: Jul 8, 2011 (STS-135)

Flew the program's final mission

RETIRED



Endeavour

OV-105

25

missions flown

First: May 7, 1992 (STS-49)
Last: May 16, 2011 (STS-134)

Built to replace Challenger

Source: NASA — "The Space Shuttle" (nasa.gov/reference/the-space-shuttle/).

Space Shuttle Missions

Orbiter	First launch	Primary purpose of first mission
Columbia	Apr. 12, 1981	Test the complete Shuttle system in orbit and return it safely
Challenger	Apr. 4, 1983	Deploy NASA's first Tracking and Data Relay Satellite
Discovery	Aug. 30, 1984	Deploy three communications satellites
Atlantis	Oct. 3, 1985	Deploy two military communications satellites on a classified Defense Department mission
Endeavour	May 7, 1992	Capture, repair and redeploy the stranded Intelsat VI satellite