Space Journey

Flying the Space Shuttle



George Zamka

Colonel USMC (Ret)

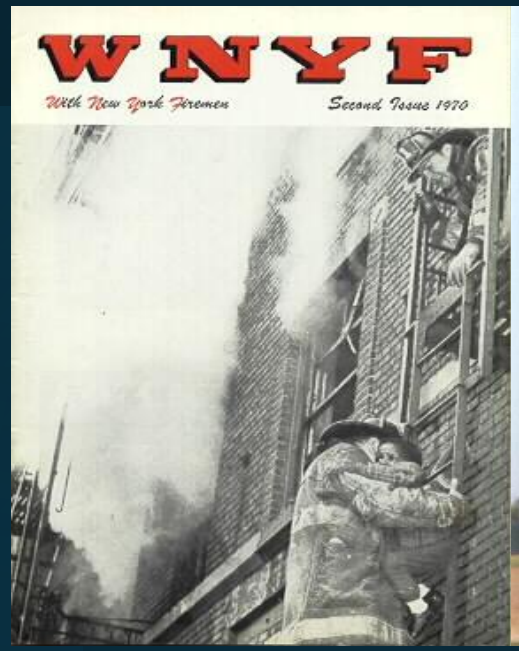
Nassau County Chapter

Military Officer's Association of America

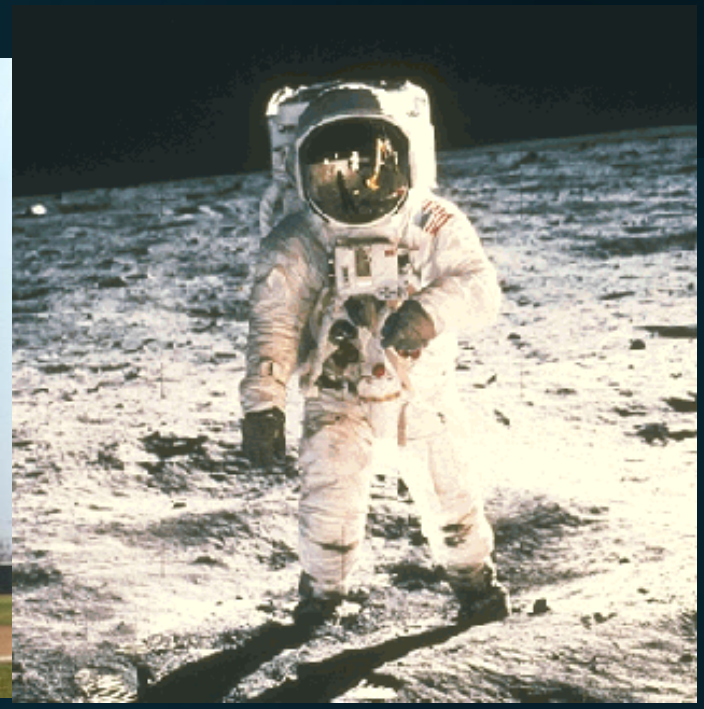
September 8th 2026

Early Influences









United States Marine Corps









What does it take to get into Space?



International Space Station viewed from Earth

Space Shuttle 1981 – 2011 135 Orbital Missions



4.5 million pounds Shuttle weight

Orbiter weight at landing: 195,000 pounds

Shuttle/Vehicle = 5%

Thrust at liftoff: 7.5 million pounds

Thrust to Weight 1.7

ARTEMIS Rocket
2022 – Present
2 Lunar Missions

6 million pounds Rocket Weight

Orion Capsule Weight: 22,900 pounds

Orion/Vehicle = 0.4%

Thrust at liftoff: 8.8 million pounds

Thust to Weight: 1.5

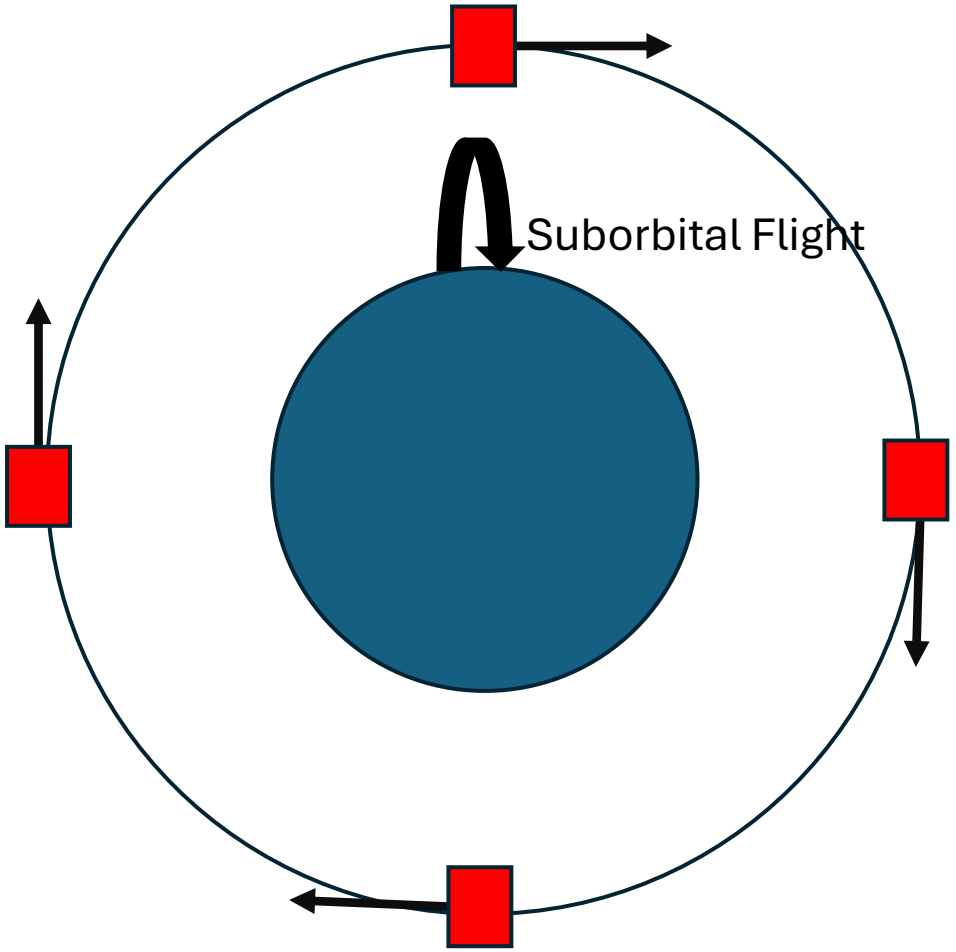


STS-130 Ascent
Space Shuttle Endeavour

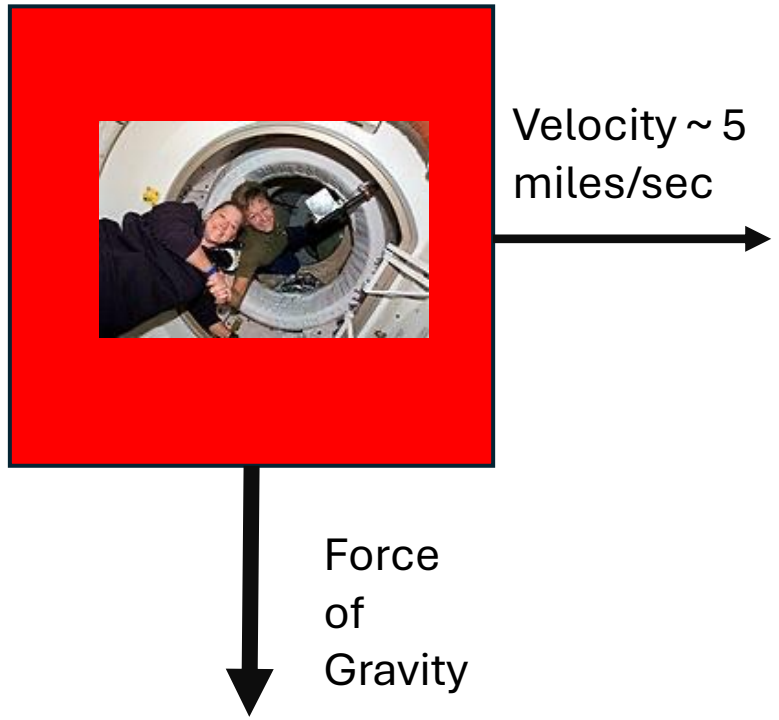
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What does it Feel Like?



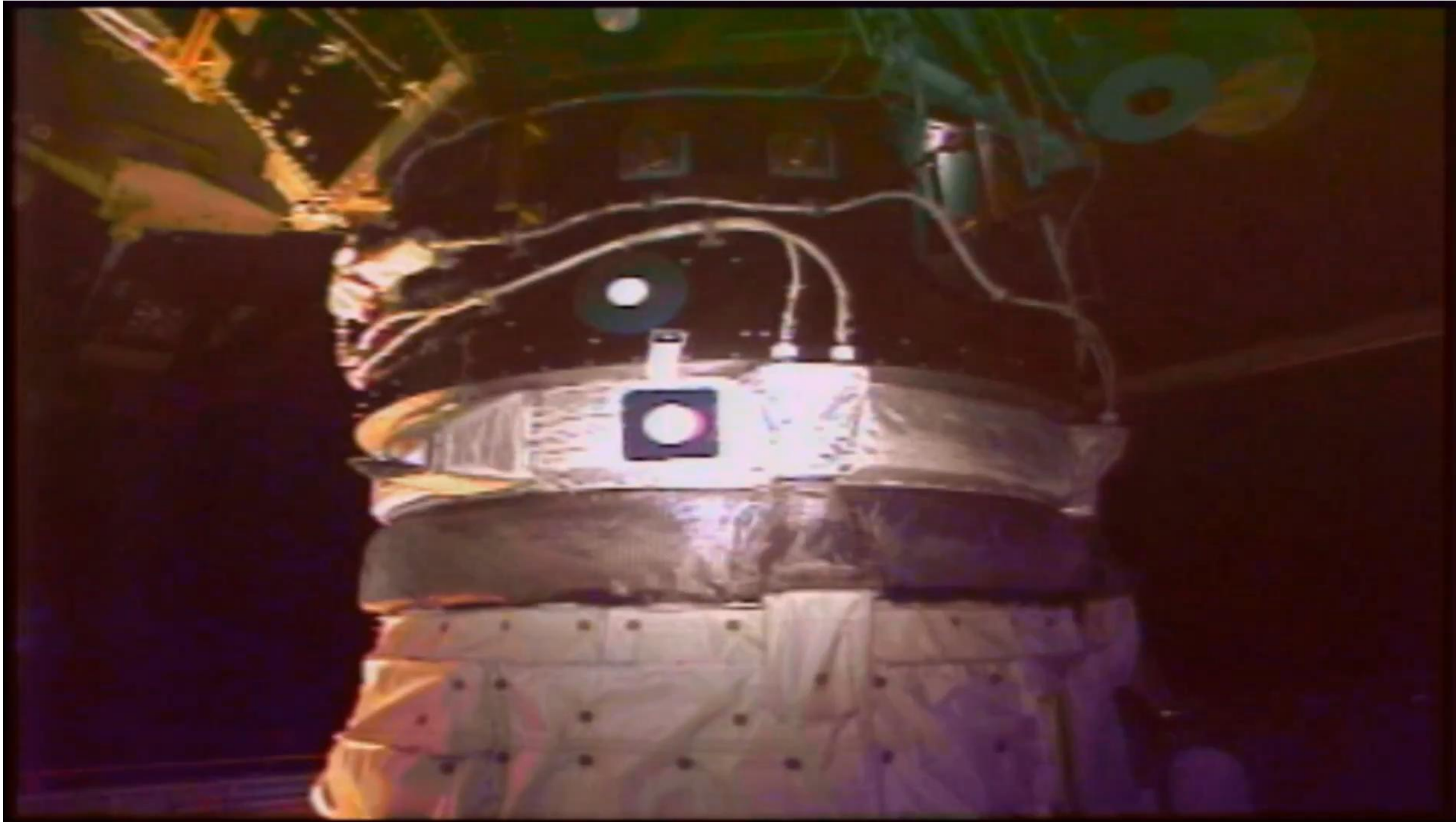
Orbital Flight





Living in Space


Returning
from Space





Space Story

STS-120 November 2007


WHEELOCK PARAZYNSKI MELROY
ZAMKA WILSON NESPOLI
TANI
STS-120

Next Steps – Back to the Moon!



Key ARTEMIS Milestones

Next Up!

- **Artemis III (2027):** Focused test mission in Earth orbit to dock with one or both lunar landing systems and validate integrated systems and operations in advance of the Artemis IV lunar landing.

- Artemis IV and V (2028): Completion of lunar landings
- Post–Artemis V: Increasing use of commercially procured, reusable hardware to support frequent and affordable crewed lunar surface missions, initially targeting landings every six months, with cadence rising as capabilities mature.

Competing Lunar Landers





Why Go Into Space?



“The city was not the endless succession of canyons that he had supposed, but that it had limits, fading out into the country on all sides into an expanse of green and blue. That alone was limitless.”

— F. Scott Fitzgerald,

From atop the Empire State Building

Why Go Into Space?



"We choose to go to the moon in this decade and do the other things,

not because they are easy, but because they are hard,

because that goal will serve to organize and measure the best of our energies and skills."

President John F Kennedy 9/12/1962
Houston, Texas