

ARTEMIS II & THE NEW SPACE RACE?

AND CURRENT EVENTS



THE U.S. IN SPACE

- Space Race during the Cold War: The Soviets and the US competed in space exploration.
- The U.S. was behind the Soviet Union in space exploration for a while.
- U.S. lands the first man on the Moon during the Apollo program and wins the space race.
- After the Cold War ended, tensions chilled down, and we built the International Space Station.

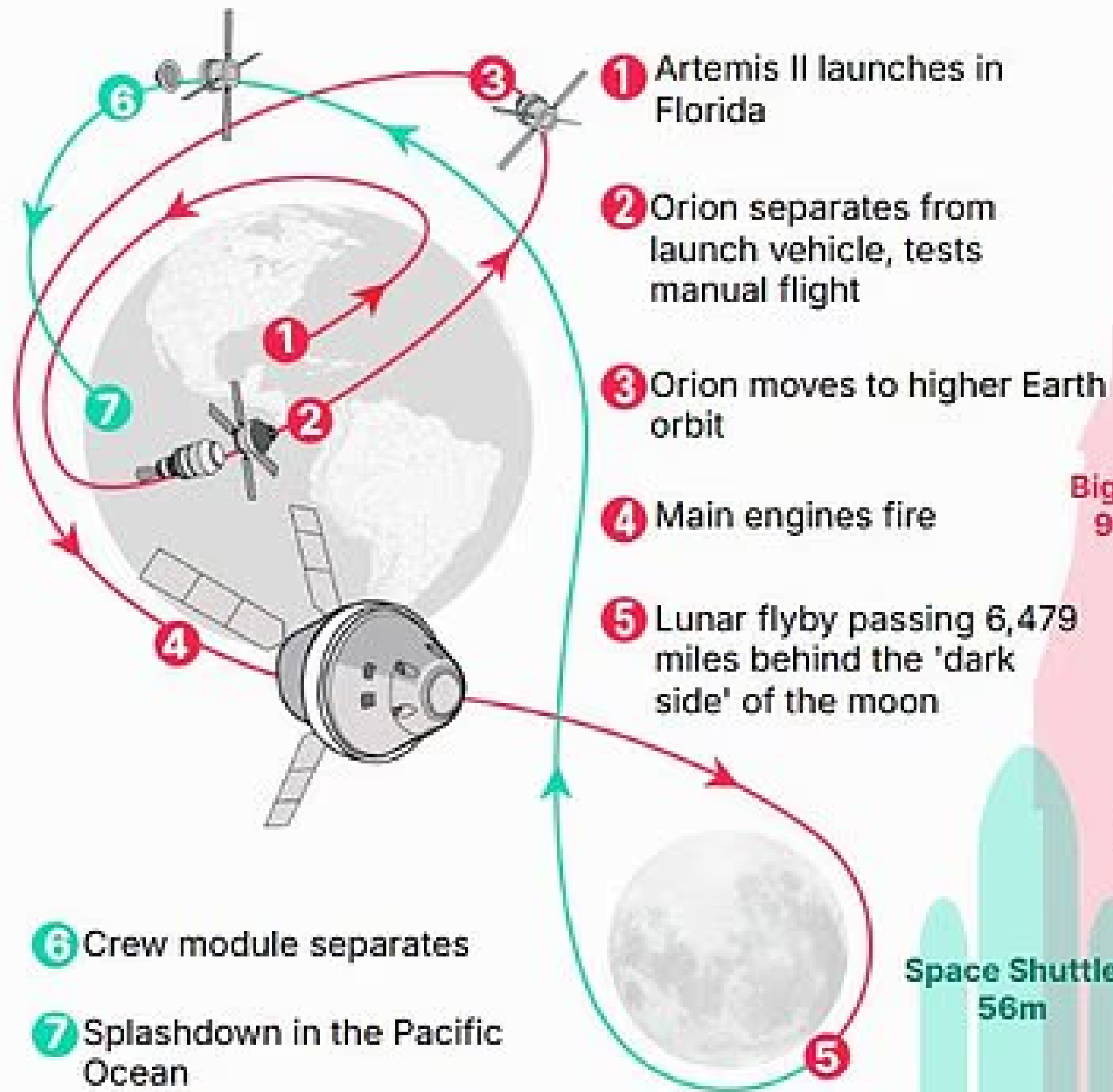


ARTEMIS PROGRAM

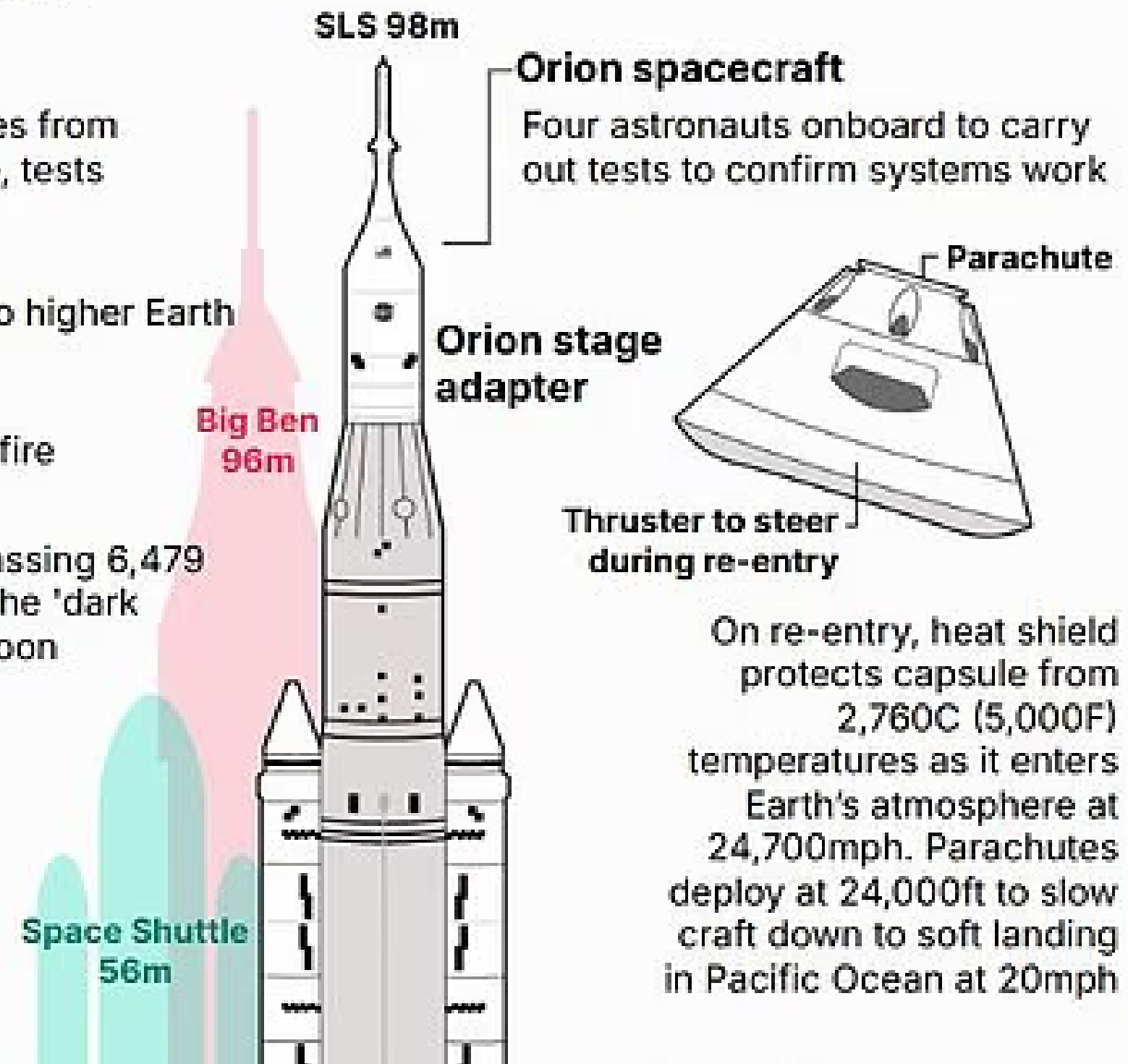
- Incorporates elements of many earlier programs, including the Constellation Program, aimed at creating a new space shuttle.
- Development of a rocket ramps up around the 2010s when Obama signed the NASA Authorization Act of 2010.
- The Artemis Program was formally launched in 2017 with the goal of returning people to the Moon (and beyond).
- Uses a lot of recycled parts from the Space Shuttle (Booster and RS25)
- Artemis II is a flyby mission



Artemis II



The SLS Rocket



FUTURE PLANS

- Artemis I (2022): Uncrewed Test
- Artemis II (2026): Crewed Flyby
- Artemis III (2027): Testing Lander
 - Lander is launched on a separate rocket: Either a SpaceX Moon Starship or a Blue Origin lander
- Artemis IV (2028): First Landing since 1972
- Artemis V (2028): Lunar Base
 - Plans to build a base on the moon.
- Potential Mars missions in talks, but no plans are currently in the works.
- Expectations have reduced a lot: The previous plan for Artemis III was to create a lunar gateway space station



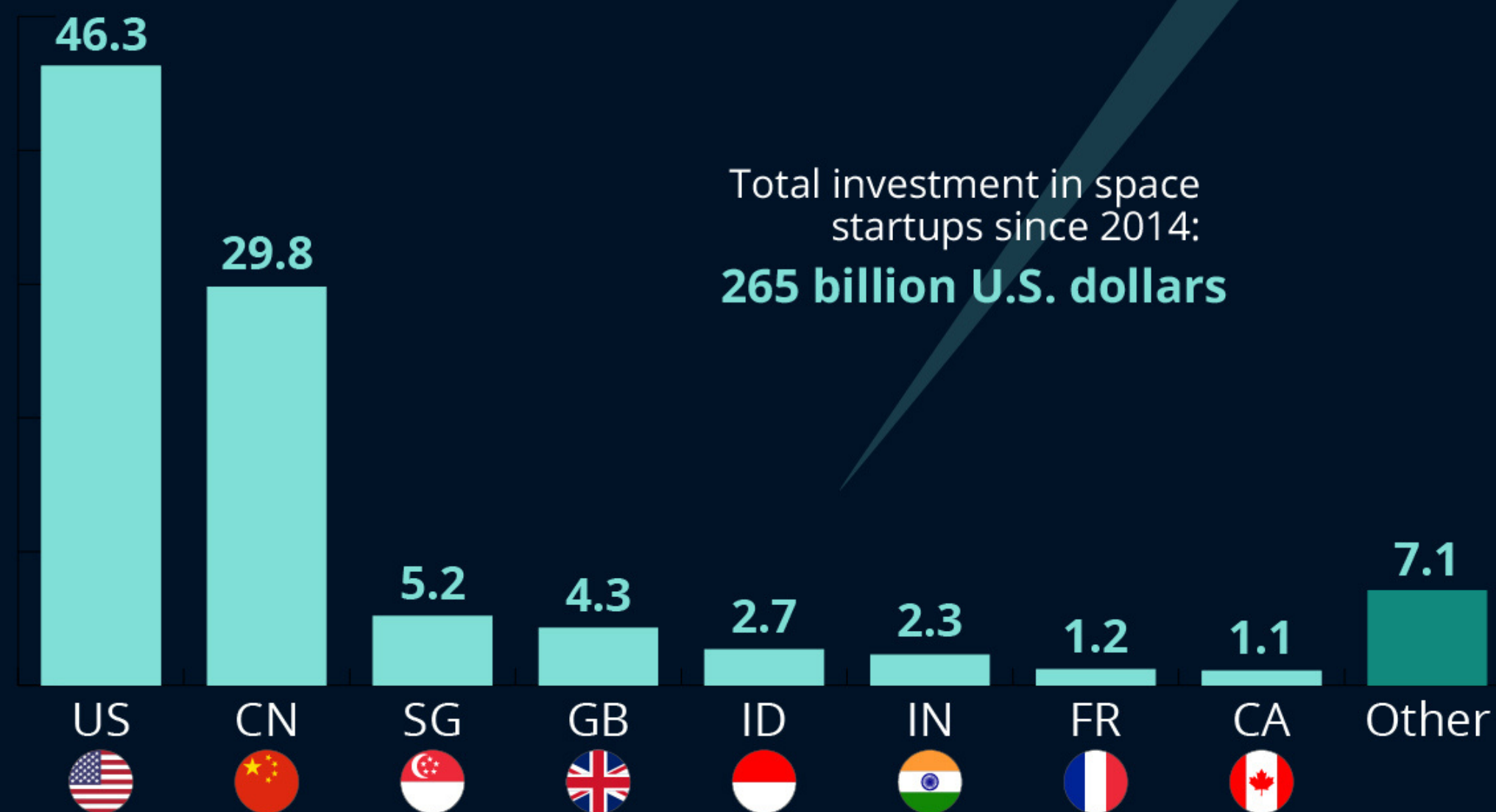
A NEW SPACE RACE?

- A more complex and multipolar era.
- ISS coming to an end: Planned De-Orbit in 2031.
- China disinvented over human rights concerns and started its own space station (Tiangong).
- China is also investing heavily in landing people on the moon, with a target of 2030.
- Japanese and Indian space programs are collaborating.
- The private sector is playing a bigger role in all countries involved.
- Potential strategic/military implications involved

Space agency	Demonstrated capability					
	Operates flyby spacecraft	Operates extraterrestrial orbiter	Controlled surface impact	Uncrewed soft landing	Uncrewed rover operation	Sample return
 CNSA ^[16]	✓ (Chang'e 5-T1)	✓ (Chang'e 1)	✓ (Chang'e 1)	✓ (Chang'e 3)	✓ (Yutu-1)	✓ (Chang'e 5)
 ESA ^[17] [show]	✓ (Ulysses)	✓ (Mars Express)	✓ (Rosetta)	✓ (Huygens)	✗	✗
 ISRO ^[18]	✓ (Chandrayaan-3)	✓ (Chandrayaan-1)	✓ (Moon Impact Probe) ^[19]	✓ (Chandrayaan-3)	✓ (Pragyan)	✗
 JAXA ^[20]	✓ (Hiten)	✓ (Hiten)	✓ (Hiten)	✓ (Hayabusa)	✓ (MINERVA-II)	✓ (Hayabusa)
 Soviet space program †	✓ (Luna 1)	✓ (Luna 10)	✓ (Luna 2)	✓ (Luna 9)	✓ (Lunokhod 1)	✓ (Luna 16)
 NASA	✓ (Pioneer 4)	✓ (Lunar Orbiter 1)	✓ (Ranger 7)	✓ (Surveyor 1)	✓ (Sojourner)	✓ (Apollo 11)
 Roscosmos	✗	✓ (Exomars Trace Gas Orbiter)	✓ (Luna 25)	✗	✗	✗

The U.S. and China Lead The Space Race 2.0

Distribution of investment in private space companies since 2014, by target country



As of Nov 3, 2022

Source: Space Capital



QUESTIONS

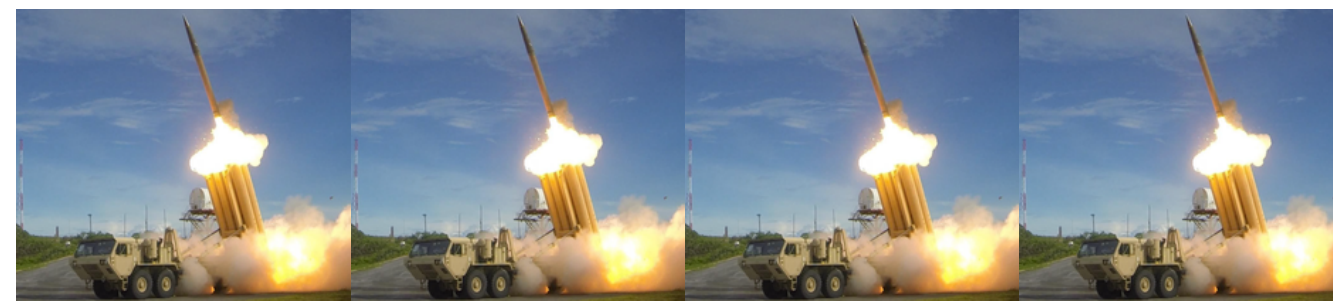
- Do you think space research and exploration are worth it?
 - For Ref: Over the past 10 years, the Artemis program has cost around \$93 billion, and so far, it has flown around the Moon.
 - Some have argued this money should be redirected to do good domestically (That clip in Space Force where the AOC parody asks about oranges)
- Do you care about being first to the moon?
- Is a “New Space Race” actually happening?
- Private or Public sector? What’s the appropriate balance?

CURRENT EVENTS

- A two-week ceasefire was negotiated between Iran and the US on April 8.
- After recent failed negotiations in Pakistan, Trump threatened to blockade the Strait of Hormuz, which is partially reopened but with a toll and mines that the Iranians haven't been able to relocate.
 - Lwk, what did we gain?
- Emperor Penguins declared endangered



all budget spent on THAAD missiells



THANK YOU