

5...4...3...2...1...

SPACE LAUNCH SYSTEM AT A GLANCE

The Biggest, Most Capable Rocket Ever Built
for Entirely New Human Exploration Missions
Beyond Earth's Orbit

- **Designed to be flexible and evolvable for crew or cargo missions**
- **Safe, affordable and sustainable to advance America's exploration of space**

SLS Initial Lift Capability

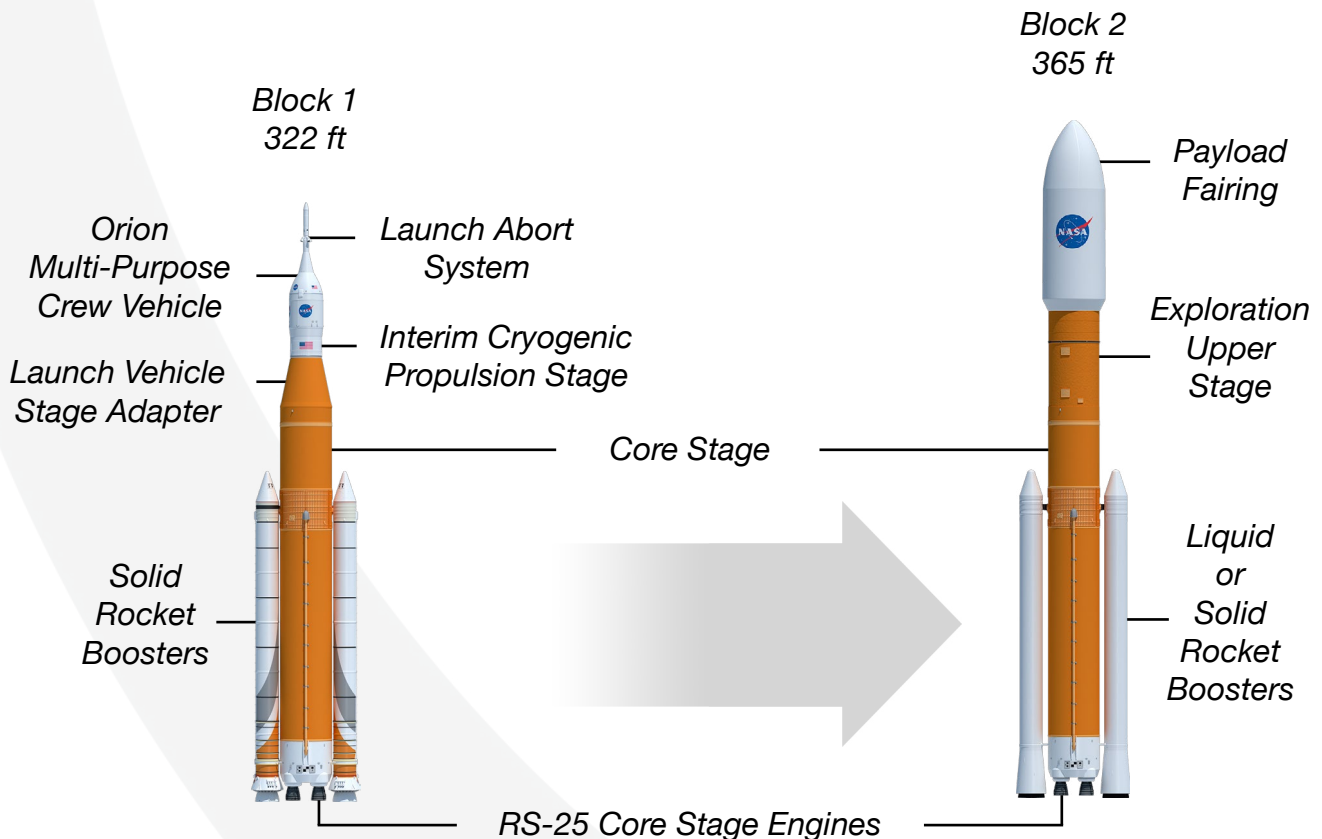
Block 1 70 metric tons (77 tons)

*More than double any operational vehicle today
(Crew configuration shown)*

SLS Evolved Lift Capability

Block 2 130 metric tons (143 tons)

*More than any past, present or planned vehicle
(Cargo configuration shown)*



SLS Block 1

Liftoff weight: 5.75 million pounds

- Comparable to 8 fully-loaded 747 jets

Height: 322 feet

- Taller than the Statue of Liberty

Cargo Volume:

- 9,000 - 22,000 ft³

Payload

Block 1 (154,000 pounds) to orbit

- ~77 1-ton pickup trucks' worth of cargo
- Equivalent of 12 fully grown elephants

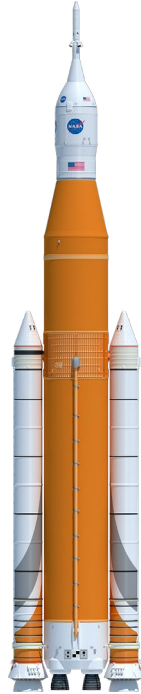
Thrust/Power

At liftoff, the Block 1 configuration has 8.8 million pounds of thrust, more than 31 times the total thrust of a 747 jet.

Produces horsepower equivalent to:

- 160,000 Corvette engines
- 13,400 locomotive engines

15 percent more thrust than the Saturn V at liftoff



SLS Block 2

Liftoff weight: 6.5 million pounds

- Comparable to 10 fully-loaded 747 jets

Height: 365 feet

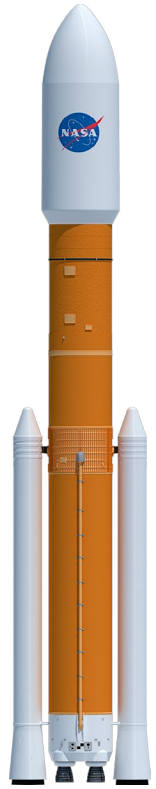
- Taller than a 30-story building

Cargo Volume:

- 58,000 ft³

Block 2 (286,000 pounds) to orbit

- ~143 1-ton pickup trucks' worth of cargo
- Equivalent of 22 fully grown elephants



At liftoff, the Block 2 configuration has 9.2 million pounds of thrust, more than 34 times the total thrust of a 747 jet.

Produces horsepower equivalent to:

- 208,000 Corvette engines
- 17,400 locomotive engines

20 percent more thrust than the Saturn V at liftoff

Propulsion

RS-25 Core Stage Engines

- Four RS-25 engines could keep eight 747 aircraft aloft.
- One RS-25 could power 846,591 miles of residential street lights – a street long enough to go to the moon and back and circle the Earth 15 times.
- Four RS-25 engines use 1,500 gallons of propellants per engine during the 480-second push to space. At that rate, they could drain an Olympic size swimming pool, plus several baby pools.

- The RS-25 turbopumps rotate 580 times per second, or nearly 35,000 RPM. By comparison, NASCAR engines and Formula 1 engines operate in the vicinity of 9,000 and 19,000 RPM, respectively.

Solid Rocket Boosters (SRBs)

- If their heat energy could be converted to electric power, the two SRBs firing for 2 minutes would produce 2.3 million kilowatt hours of power, enough to supply power to over 92,000 homes for a full day.
- Each burns 5 tons of propellant per second.

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www.nasa.gov/marshall

www.nasa.gov

For more info: www.nasa.gov/sls

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