



ALEX WONG, GETTY IMAGES

Engineers and technicians assemble the James Webb Telescope on Nov. 2 in Greenbelt, Md.

# Most powerful telescope to peer back to beginning

Hubble successor, nearing completion, will launch in 2018

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It's the most powerful telescope ever made, one that will allow us to see deeper into space and further back in time than ever before.

The James Webb Space Telescope, two decades in the making and the successor to the Hubble Space Telescope, is finally nearing completion. The unmanned, \$8.7 billion machine is scheduled to blast into orbit around the sun in October 2018, where it will be the world's top space observatory for the next decade.

The size of a tennis court and three stories high, the Webb will be the largest telescope ever sent into space. It's an astounding 100

times more powerful than the famed Hubble.

"If you were a bumblebee, hovering out at the distance of the moon, it would be able to see you," said John Mather, a NASA astrophysicist and Nobel Prize winner.

Telescopes not only see things far away in distance, they also can look back in time because of how long it takes light from galaxies far away to reach Earth. That will allow the Webb telescope, using infrared wavelengths, to see the first stars and galaxies that formed about 13 billion years ago, shortly after the Big Bang.

"We will see things that we've never been able to see before," Mather said. "We are opening up a whole new territory of astronomy."

Scientists will look across our galaxy for Earth-like planets that could support life, as well as study the evolution of our solar system.

The shiny new telescope's

predecessor, the 26-year-old Hubble that orbits Earth, will continue to send back fascinating and awe-inspiring images from outer space even after the Webb is in place.

The Hubble will retain a distinct advantage over Webb — NASA can send manned missions to repair or upgrade it because of its close proximity to Earth. Once the Webb is in place, NASA doesn't plan to send humans in for any repairs.

NASA Administrator Charles Bolden unveiled the Webb's gigantic gold-coated mirror — actually 18 smaller mirrors attached together — at the Goddard Space Flight Center in Maryland. He called the telescope a "milestone" in space observation, one that was a long time coming.

Over the next year, the 21-foot-wide mirror will undergo punishing tests to ensure it can survive the vibration and noise of launch as well as the 390-degrees-below-zero temperatures of deep space.