

Why NASA Gold-Plated the Mirrors of the \$10 Billion James Webb Telescope

To help the mirror on a telescope reflect as much light as possible, it is often coated with some metal.

The James Webb Space Telescope is the largest and most powerful instrument ever launched into space. One of the most striking components of the \$10 billion telescope is its giant primary mirror, which is coated in a shimmering gold coating. The 6.5-meter-long mirror is made up of 18 hexagonal mirrors.

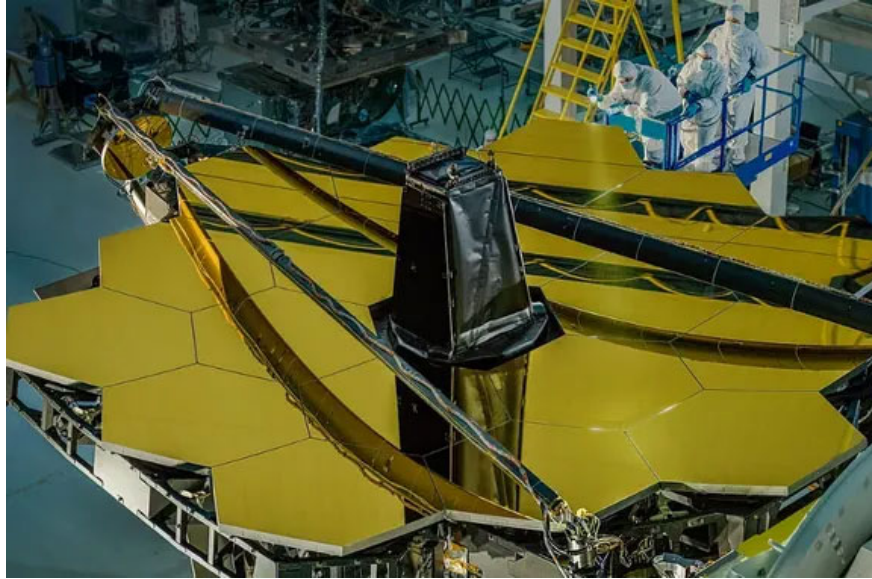


To help the mirrors on telescopes reflect as much light as possible, they are often coated with metals. Depending on the type of light the telescope is looking at, scientists will choose the appropriate metal. And gold was chosen to plate James Webb.

The first reason is because telescopes observe infrared rays, a type of light emitted from deep space. And according to the ranking of infrared light reflectivity, gold ranks first with 99%, silver is in second place with 95% and third is aluminum with 5%.

Gold is one of the least reactive metals. This means that it is very durable and does not oxidize or degrade in space. Silver and aluminum, in addition to being poor reflectors of infrared rays, also tarnish easily and are not as durable as gold.

Therefore, scientists chose to coat the mirror with a layer of gold to maximize the reflective properties of the metal.



This coating process is called 'vacuum vapor deposition', which means the mirrors are placed inside a vacuum chamber, where a small amount of gold evaporates and is deposited on the mirror surface.

This method achieves an ultra-thin plating. It takes about five gold men's wedding rings to cover 18 of James Webb's hexagonal mirrors.

1. Admire impressive space photos from the \$10 billion telescope

You finished reading the article "**Why NASA Gold-Plated the Mirrors of the \$10 Billion James Webb Telescope**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.