

vanguard 1



Vanguard 1, American satellite that was the fourth artificial Earth-orbiting satellite to be successfully launched, following Sputnik 1, Sputnik 2, and Explorer 1. It was launched 17 March 1958. Vanguard 1 was the first satellite to have solar electric power. Although communications with the satellite were lost in 1964, it remains the oldest human-made object still in orbit (67 years), together with the upper stage of its launch vehicle.

Vanguard 1 was designed to test the launch capabilities of a three-stage launch vehicle as a part of Project Vanguard, and the effects of the space environment on a satellite and its systems in Earth orbit. It also was used to obtain geodetic measurements through orbit analysis.

The spacecraft is a 1.46 kg (3.2 lb) aluminum sphere six inches (150 mm) in diameter, with antennas spanning three feet (0.91 m). It contains a 10 mW, 108 MHz transmitter powered by a mercury battery and a 5 mW, 108.03 MHz transmitter that was powered by six solar cells mounted on the body of the satellite. Six 30 cm (12 in) long antennas, 0.8 cm (0.31 in) diameter spring-actuated aluminum alloy aerials protrude from the sphere.

A backup version of Vanguard 1 is on display at the Smithsonian National Air and Space Museum, Steven F. Udvar-Hazy Center in Chantilly, Virginia.

After the mission

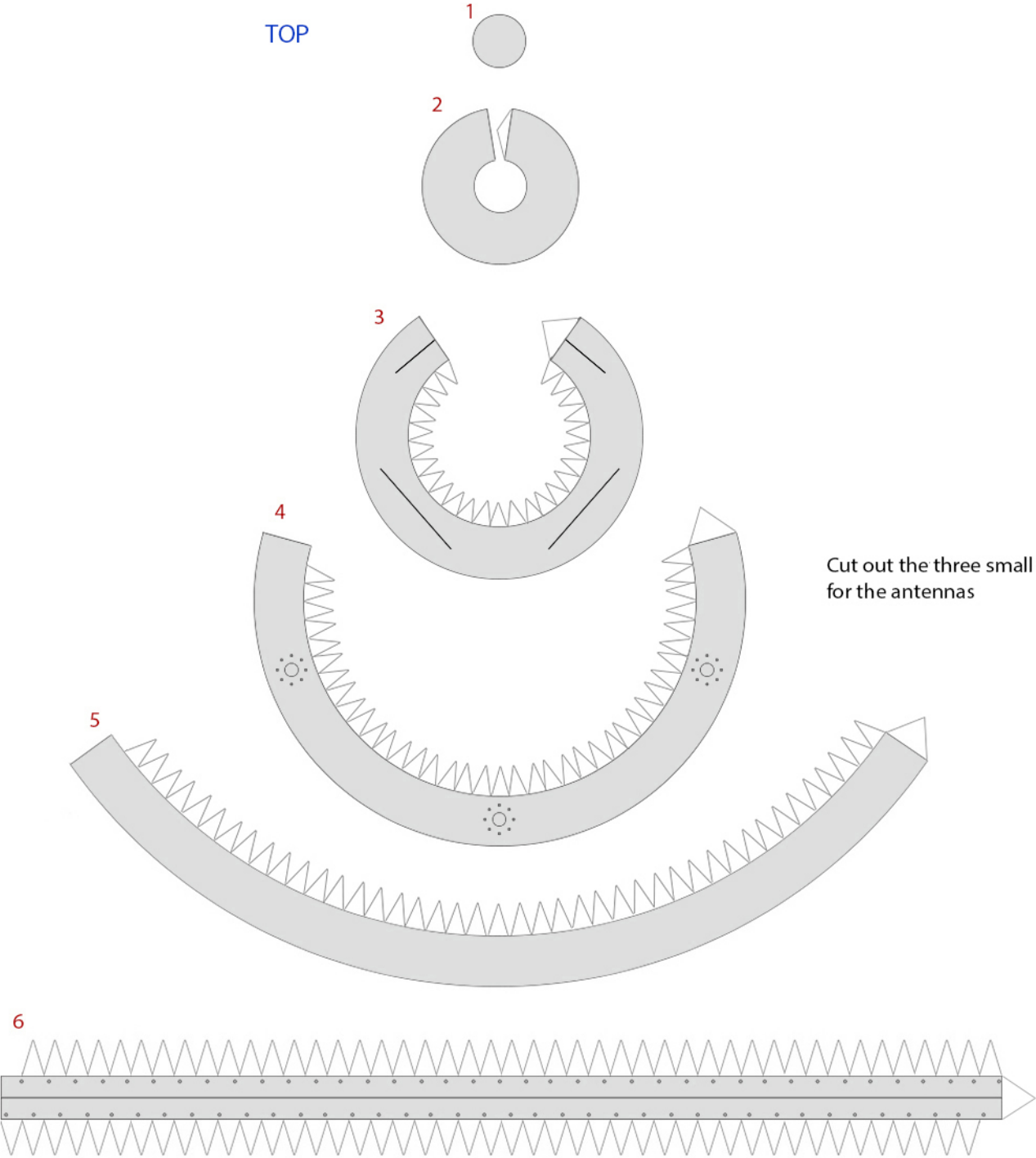
After its scientific mission ended in 1964, Vanguard 1 became a derelict object – as did the upper stage of the launch rocket, after it finished the delta-v maneuver to place Vanguard 1 in orbit in 1958. Both objects remain in orbit. It is expected to burn up in the atmosphere in about 240 years, sometime in the late 22nd century. As space travel becomes routine, and especially when its re-entry date draws near, some have suggested that the satellite might be retrieved as a valued artifact of early space exploration.

Vanguard 1 is the oldest satellite orbiting Earth. Scientists want to bring it home after 67 years (As of April 4, 2025).

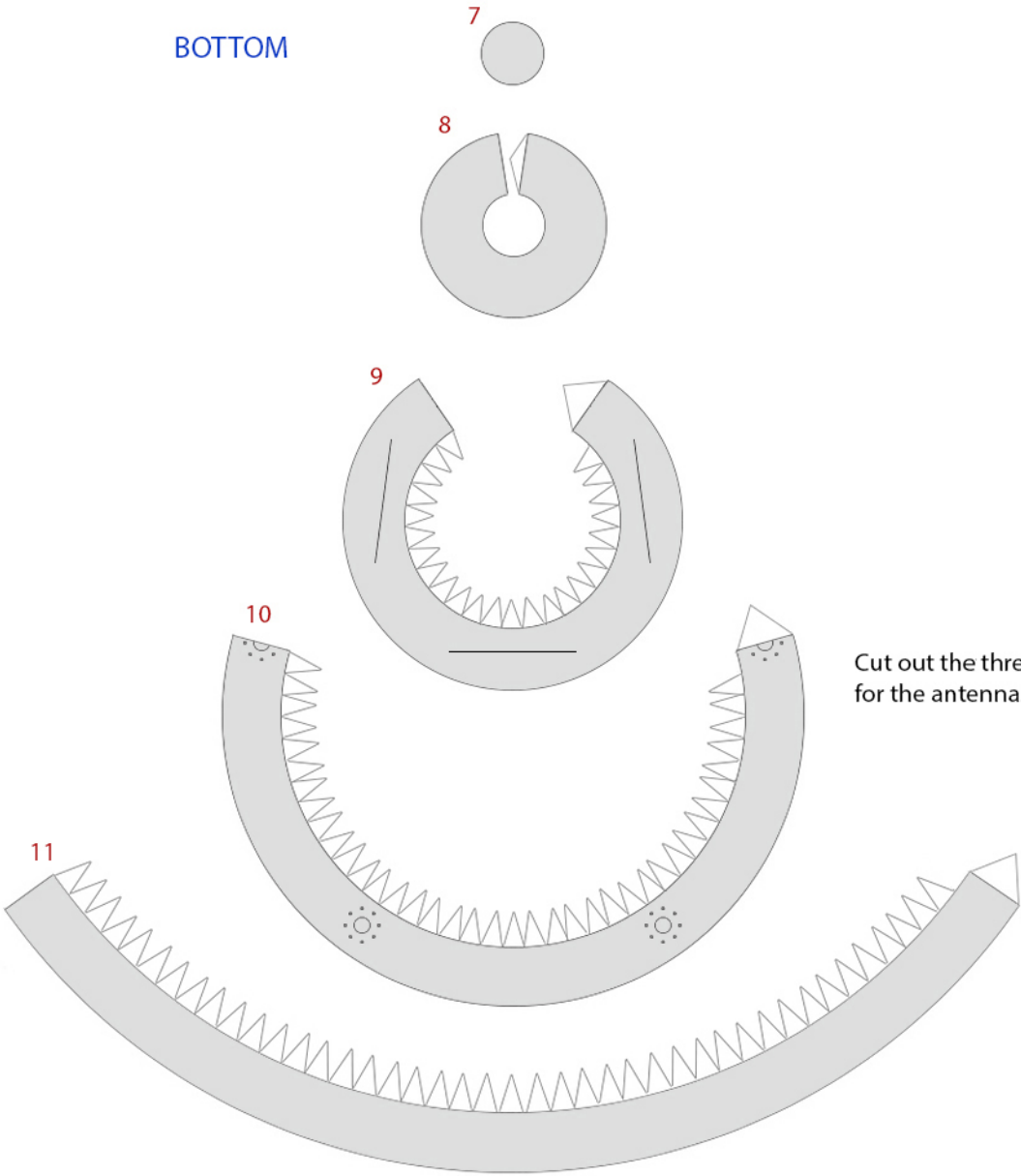
Today, the satellite is in an elliptical orbit with its perigee roughly at 410 miles (660 kilometers), swinging out to an apogee of approximately 2,375 miles (3,822 kilometers) from Earth, with a 34.25 degree inclination.

Vanguard 1 is a time capsule of the Space Age.

TOP



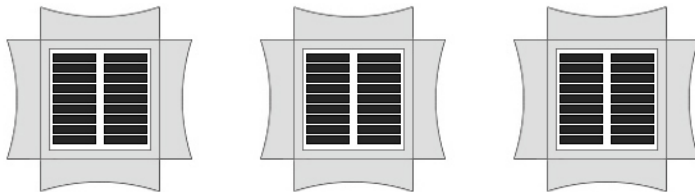
BOTTOM



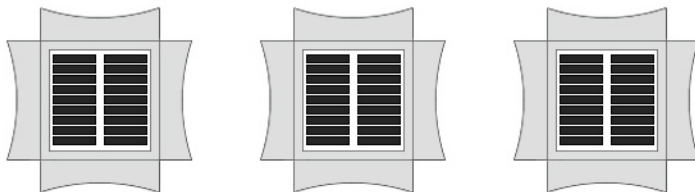
Cut out the three small circles from Part 10
for the antennas

Center
|

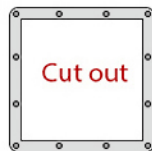
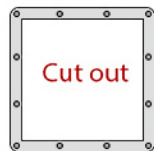
Cut a wooden skewer around 1.8 to 2.00 mm in diameter, the same length as the line above, colored light grey or silver. Mark the center with a marker.



12



Cut four (4) wooden skewers around 1.8 to 2.0 mm in diameter, the same length as the line above, colored light grey or silver.



13

