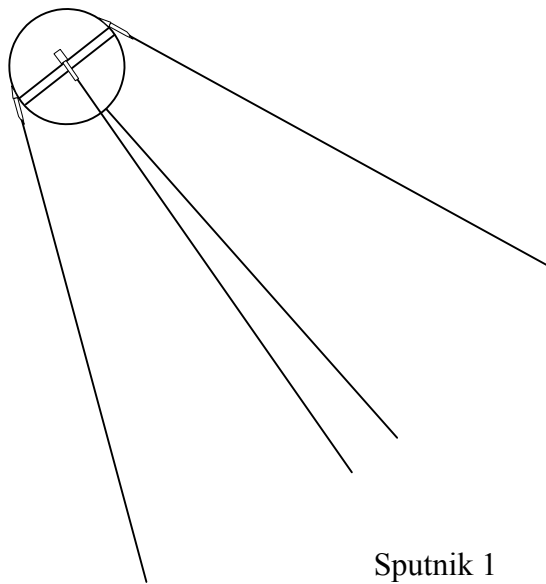


### The first artificial satellites

Prior to late 1957, the Moon was the only satellite orbiting Earth. However, On October 4, 1957, the Soviet Union successfully launched the first artificial satellite into low Earth orbit. The satellite was named **Sputnik 1**, and it brought humanity into the space age.

The official name of the satellite was *Iskustvennyi Sputnik Zemli*, which means “fellow world traveler of the Earth”. Sputnik 1 was an aluminum sphere that was 58 centimetres in diameter and weighed 83.6 kilograms. The satellite had four, protruding antennae. It contained instrumentation that measured density and temperature throughout its orbit. Sputnik 1 also collected data on the concentration of electrons in Earth’s ionosphere. The satellite was launched into an



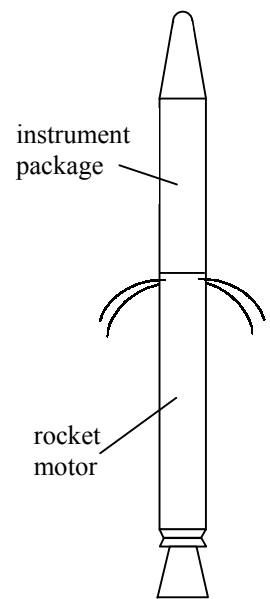
Sputnik 1

elliptical orbit, which ranged between 227 and 941 kilometres, with an orbital inclination of 65.1 degrees to Earth’s equator. Sputnik 1 transmitted radio signals for 21 days, and then it entered Earth’s atmosphere on January 4, 1958.

One month later, the Soviet Union launched **Sputnik 2** on November 3, 1957. Sputnik 2 weighed 508 kilograms, and it carried the first living passenger into Earth orbit; a female dog named Laika. There

was no provision to recover the satellite, so Laika was allowed to die in orbit. Sputnik 2 entered Earth’s atmosphere on April 14, 1958.

After the Soviet Union successfully placed two satellites into orbit, the United States finally launched its first successful satellite, called **Explorer 1**, on January 31, 1958. With the attached rocket motor, Explorer 1 was 205 centimetres long, 15.2 cm in diameter, weighed 14 kilograms, and had four protruding antennae, each 55.9 centimetres long. The satellite was launched into an elliptical orbit, which ranged between 360 and 2,534 kilometres, with an orbital inclination of 33.2 degrees to Earth’s equator. Instrumentation in the satellite included, thermometers, a micrometeoroid detector, and a radiation detector. Data from Explorer 1 were used to predict the existence of radiation belts around Earth. These radiation belts were later verified and named the Van Allen radiation belts.



Explorer 1

Explorer 1 continued to transmit data until May 23, 1958, and it entered Earth’s atmosphere on March 30, 1970.

Since this early beginning of the space age, the Soviet Union, the United States, and several other countries have launched several thousand spacecraft into Earth orbit and throughout the solar system.

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