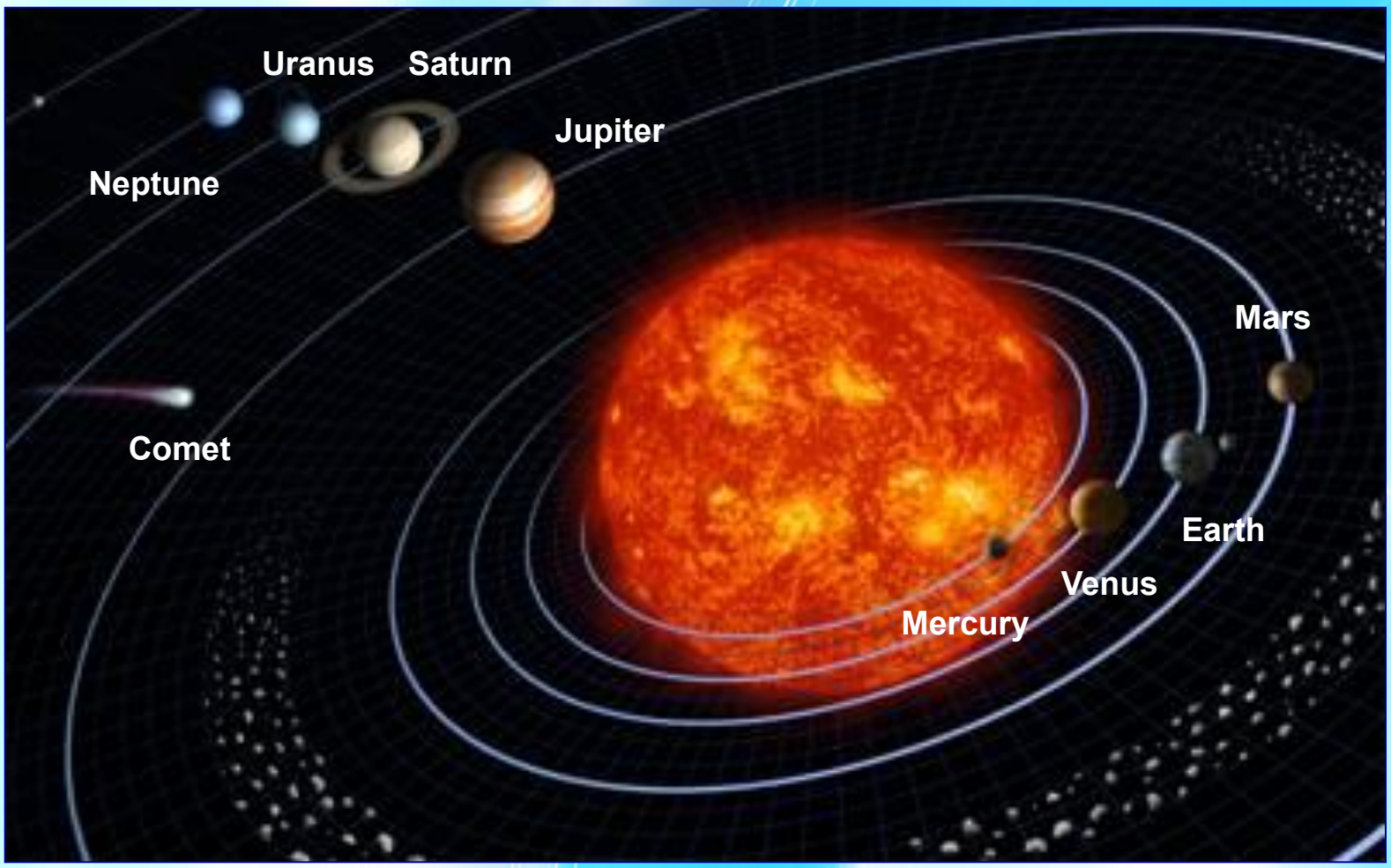
Space Exploration

Let's learn new words

English Words	Transcription	Translation
Mars	[ma:z]	Марс
Earth	[ɜ:θ]	Земля
Mercury	[ˊmɜ:kjərɪ]	Меркурий
Venus	[ˊvi:nəs]	Венера
Uranus	[ˊjʊərənəs]	Уран
Neptune	[ˊneptju:n]	Нептун
Saturn	[ˊsætən]	Сатурн
Pluto	[ˊplu:təʊ]	Плутон
Jupiter	[ˊʤu:pitə]	Юпитер
Solar system	[ˊsəʊlə sɪstəm]	Солнечная система

A galaxy is a massive system consisting of stars, an interstellar medium of gas and dust, and dark matter.Typical galaxies range from dwarfs with as few as ten million stars up to giants with one trillion stars. Galaxies can also contain many multiple star systems, star clusters, and various interstellar clouds.



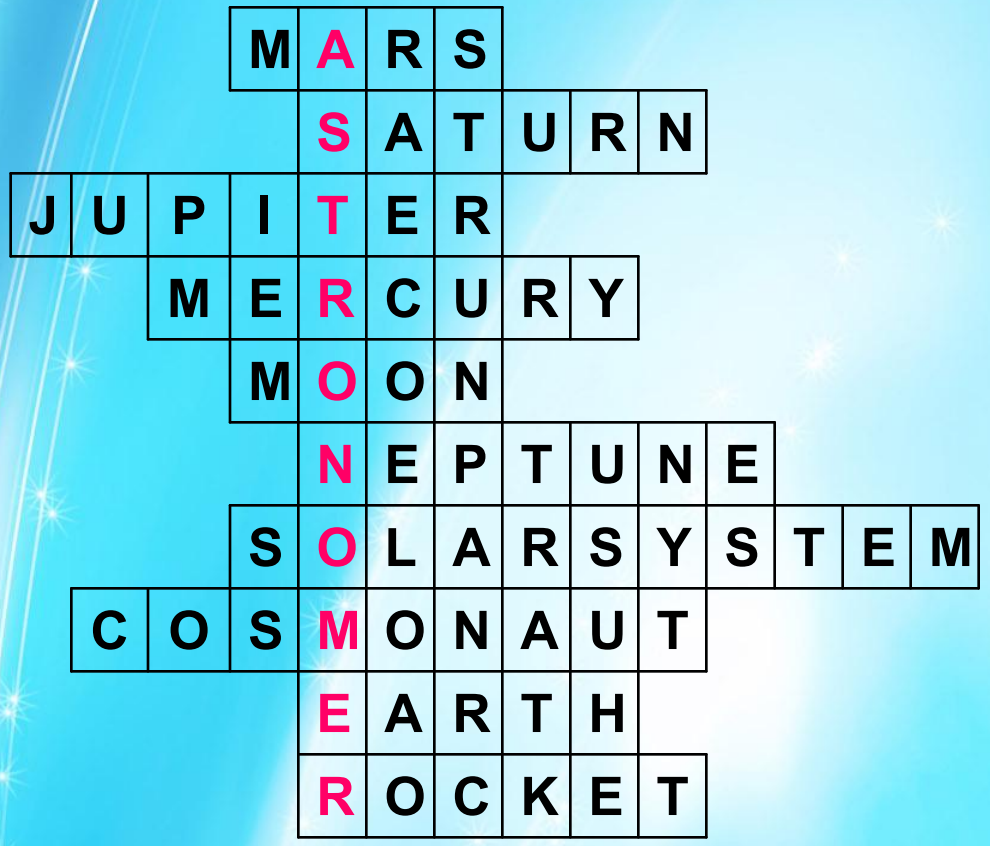
The Solar System ***consists of the Sun and the other celestial objects: the eight planets, three dwarf planets, and billions of small bodies: asteroids, comets, meteoroids, and interplanetary dust.***

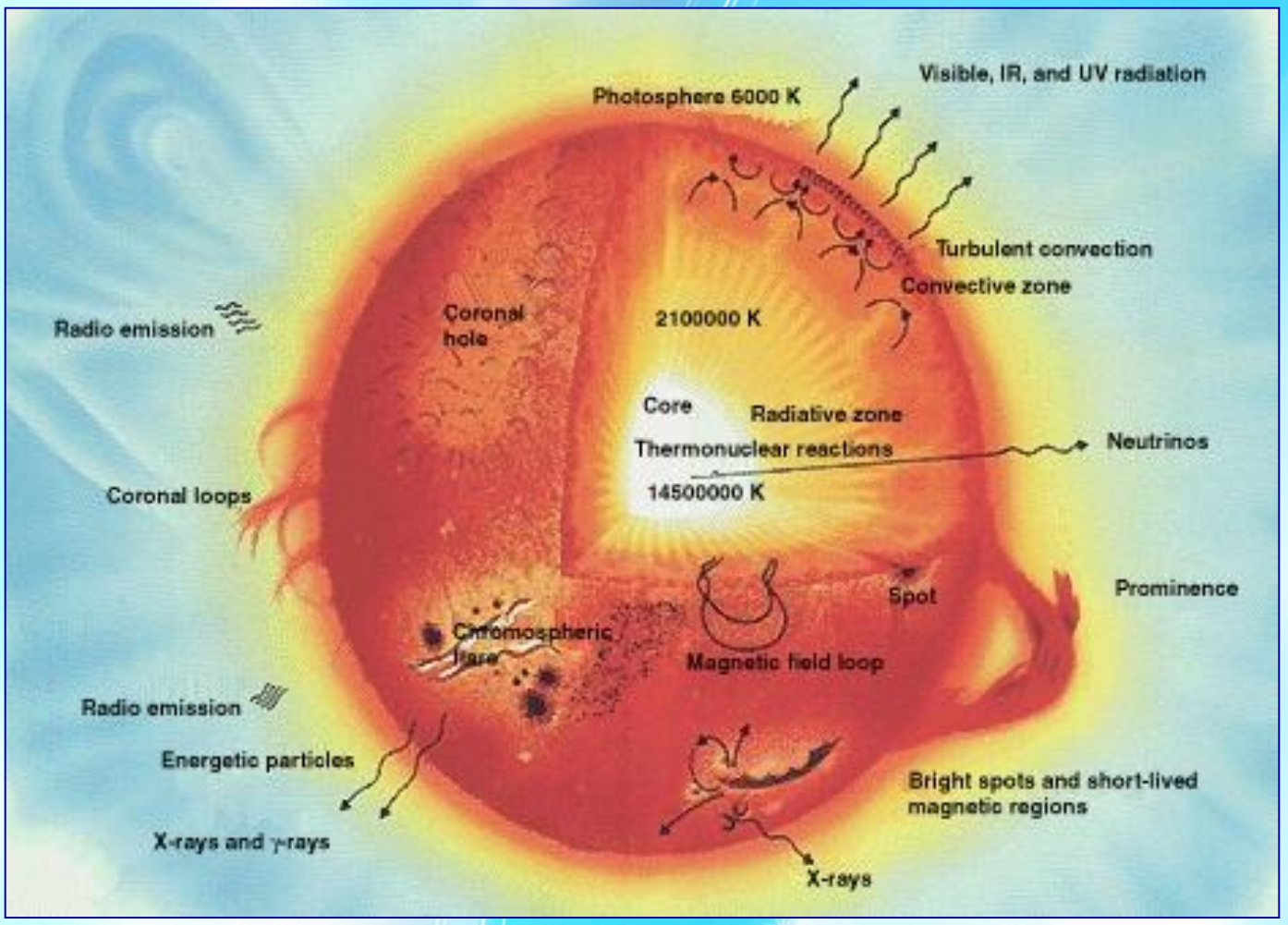
Solve the pronunciation crossword

1. [mɑ:z]
2. [ˊsætən]
3. [ˊʤu:pitə]
4. [ˊmɜ:kjərɪ]
5. [mu:n]
6. [ˊneptju:n]
7. [ˊsəʊlə sɪstəm]
8. [ˊkɒzmənɔ:t]
9. [ɜ:θ]
10. [ˊplu:təʊ]

Check yourselves

1. [mɑ:z]
2. [ˊsætən]
3. [ˊʤu:pitə]
4. [ˊmɜ:kjərɪ]
5. [mu:n]
6. [ˊneptju:n]
7. [ˊsəʊlə sɪstəm]
8. [ˊkɒzmənɔ:t]
9. [ɜ:θ]
10. [ˊplu:təʊ]



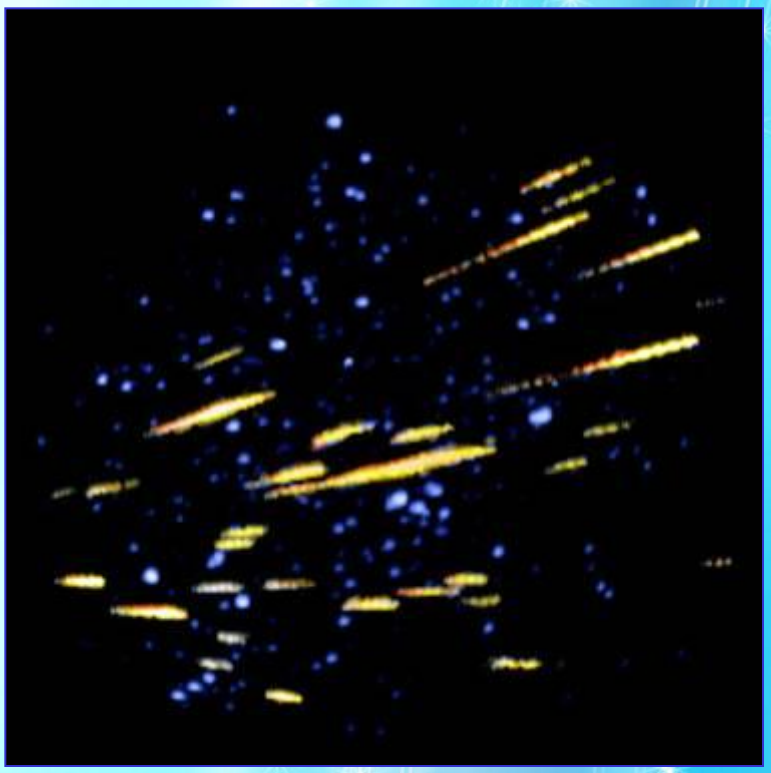


The Sun is the star at the center of the Solar System. The Earth, other planets, asteroids, meteoroids, comets and dust orbit the Sun. Energy from the Sun supports almost all life on Earth.

A star is a massive, luminous ball of plasma. Stars dominate the visible universe and they group together to form galaxies. The nearest star to Earth is the Sun, which is the source of most of the energy on Earth.

A comet is a small body in the solar system that orbits the Sun and exhibits a coma and/or a tail, which itself is a minor body composed of rock, dust, and ice. Very few are noticed by the general public. Such comets are often designated Great Comets. They are: Halley's Comet, Comet Hale-Bopp, Heaven's Gate, Comet Kohoutek, Comet West, Comet Hyakutake, Comet McNaught, and Halley's Comet.

A meteoroid is a small sand to boulder-sized particle of debris in the Solar system. The visible path of a meteoroid that enters Earth's (or another body's) atmosphere is a meteor, commonly called a "shooting star" or "falling star". Many meteors are part of a meteor shower.

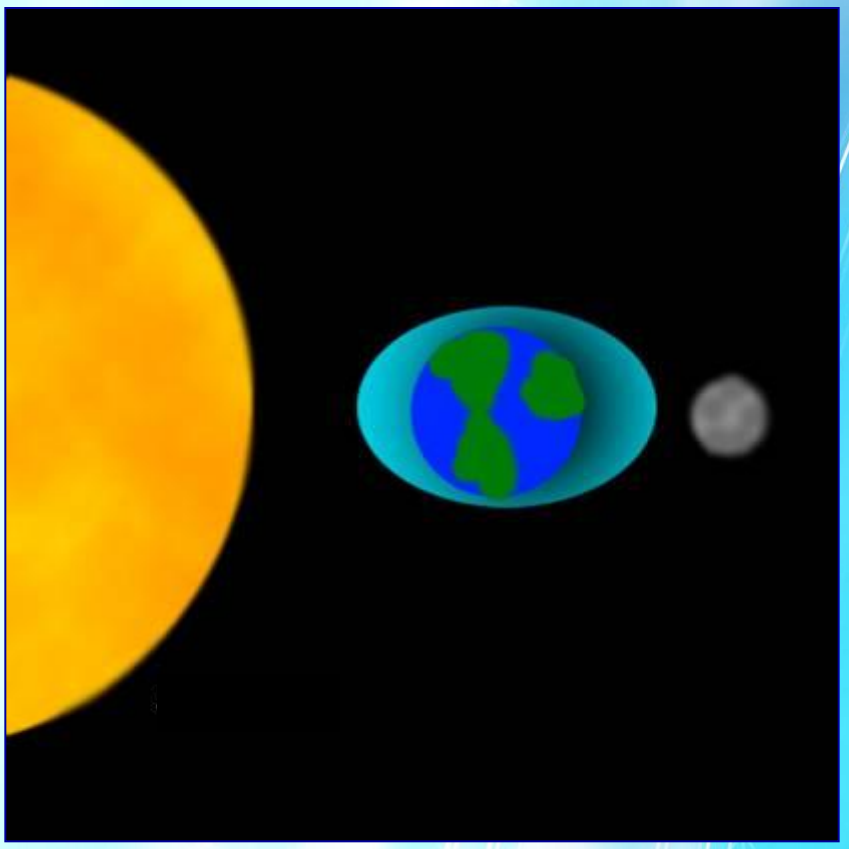


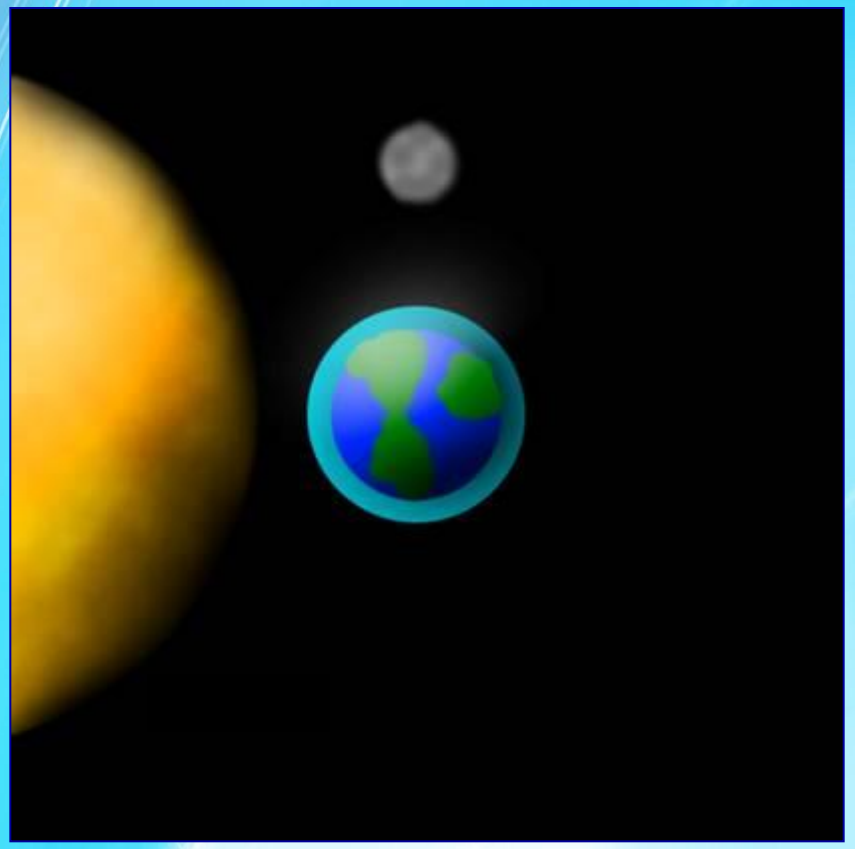
Earth

***The Earth** is the third planet from the Sun. Its diameter is 12,760 km. Means distance from the Sun is 150 millions of kilometers. The only natural satellite is the Moon.*

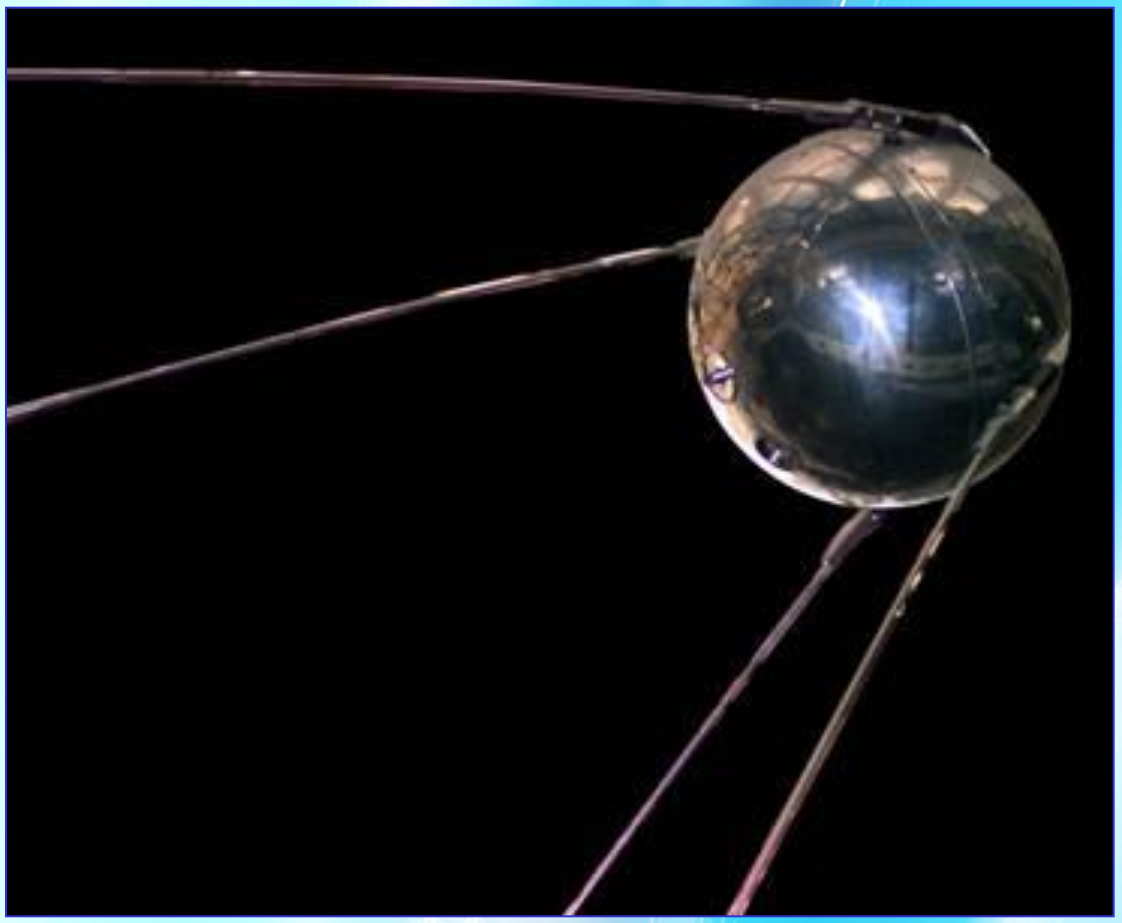
Moon

The Moon is the Earth's only natural satellite, and the fifth largest moon in the Solar System. The average centre-to-centre distance from the Earth to the Moon is 384,403 km. The Moon has a diameter of 3,474 km. The Moon makes a complete orbit around the Earth every 27.3 days.





The moon makes the tides – the changes in the level of the sea. The moon and the sun together pull the sea. In some parts of the world the difference between 'high tide' (when the sea is very near to the land) and 'low tide' (when the sea is far away from the land) is very big. This is very important for ships.



The space age began on October 4, 1957. On that day, the Union of Soviet Socialist Republics launched Sputnik 1, the first artificial satellite to circle the earth. Its capsule weighing 83.6 kg went into Earth orbit carrying a radio transmitter whose "bleeps" (pips) were received on the ground.

***Laika**, a dog, was the first animal in space. She left Earth on 3 November 1957, in a capsule on board **Sputnik 2**. It contained an air supply, food and water, together with instruments for recording her heartbeat, breathing and blood pressure.*

Data were transmitted back to scientists on Earth.

***Belka* and *Strelka* spent a day in space aboard Korabl-Sputnik-2 (Sputnik 5) on August 19, 1960 before safely returning to Earth. They were accompanied by a *grey rabbit*, *42 mice*, 2 rats, flies and a number of plants and fungi. All passengers survived. They were the first Earth-born creatures to go into orbit and return alive.**

Yuri Gagarin

***Yuri Alekseyevich Gagarin**, a Soviet air force pilot, was the first human to travel in space. The Soviet cosmonaut circled the earth on April 12, 1961. From blastoff to landing, his trip around the earth lasted 1hour and 48 minutes. The news about space flight of the Soviet cosmonaut immediately flew over the world.*

Velantina Tereshkova

***Valentina Tershkova** was the first woman-cosmonaut in the world. From June 16 until June 19, during a group flight with V.Bykovsky, the spaceship "Vostok-6"piloted by Tereshkova made in 70 hours and 41 minutes 48 circuits around the earth, covering a distance of about 2 million kilometers.*

The first manned moon landing on the Moon was the United States' Apollo 11 mission with Neil Armstrong and Edwin Aldrin.

Armstrong landed the lunar module 'Eagle' on the surface of the Moon at 4:17:42 p.m. July 20, 1969. He described walking on the Moon as 'one small step for a man, one giant leap for mankind'.

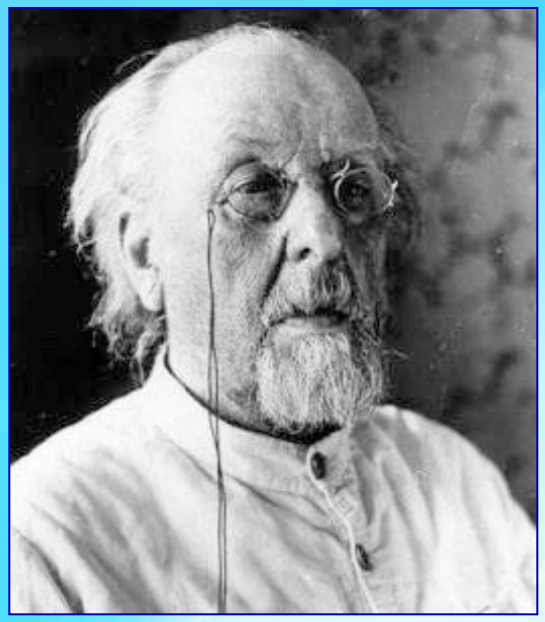
The Apollo-Soyuz Test Project was the first joint flight of the U.S. and Soviet space programs. The mission took place in July 1975. For the United States of America, it was the last Apollo flight, as well as the last manned space launch until the flight of the first Space Shuttle in April 1981.

The Soviet space station Mir was launched in 1986. It was designed to stay in orbit for long periods for scientific experiments to be carried out on board.

How does a rocker work?

From Physics, we know that for every action there is an opposite reaction. Modern rockets have liquid fuel and something to help it burn (an oxidizer). This makes a powerful exhaust through the back of the rocket and pushes the rocket up.

Konstantin Edyardovich Tsiolkovsky



was the founder of astronautics in Russia, put forward several ideas about space travel.

Tsiolkovsky's idea of spaceship was based on the use of liquid fuels. His calculations were used in modern theory of cosmonautics and practical space travel.

Sergey Pavlovich Korolyov

is a famous scientist and founder of practical cosmonautics. He was the chief constructor of the first Earth sputniks and spaceships. Then followed rockets to the Moon, Mars, Venus.

Match the dates and achievements in the exploration of space:

1969 1986 1962 1971 1957 1963 1975 1986 1961

- USSR launches first satellite, Sputnik 1.
- Yuri Gagarin (USSR) is the first man in space.
- USA launches first communications satellite.
- Valentina Tereshkova (USSR) is the first woman cosmonaut.
- Apollo 11 astronauts Neil Armstrong and Edwin Aldrin (USA) land on the Moon.
- USSR sends two probes to Mars.
- USA and USSR cooperate in space; Apollo and Soyuz craft dock (link) in orbit.
- Pioneer spacecraft (USA) leaves solar system.
- The Soviet space station Mir is launched into space.

True or False:

1. *Konstantin Eduardovich Tsiolkovsky – the founder of astronautics in Great Britaina, put forward several ideas about space travel.*
2. *Sergei Pavlovich Korolyov was the chief constructor of the first telephone.*
3. *On October 4, 1967 the Union of Soviet Socialist Republics launched Sputnik 1, the first artificial satellite to circle the earth.*
4. *Yuri Alekseyevich Gagarin, a Soviet air force pilot, was the first human to travel to Mars.*
5. *Valentina Tershkova was the first woman-cosmonaut in the world.*
6. *Alexei Leonov went outside wearing a space suit connected to the capsule by a line which also carried his oxygen supply, becoming the first person to "walk" in space.*

Key: *1- false, 2 - false, 3 - false, 4 - false, 5 - true, 6 - true.*

Complete the sentences using the verbs from the table:

competed, enable, developed, explored, orbited, was based, launched, receive, are transported, benefit

1. *On that day, the Union of Soviet Socialist Republics _____Sputnik 1, the first artificial satellite to circle the earth.*
2. *But both nations began to realize that they could _____ from working together.*
3. *As a result, the Soviet Union and the United States_____ with one another in developing their space programmers.*
4. *Weather forecasts _____ warning of storms with pictures taken by weather satellites.*
5. *Signals from navigation satellites_____ ship navigations and search and rescue forces to determine their positions with great accuracy.*
6. *The space age _____ a huge industry called the aerospace industry to design and build space equipment.*
7. *For about two hours Armsrong and Aldrin_____ near the module and set up experiments.*
8. *Today, American astronauts _____ into space by the Space Shuttle.*
9. *The first manned space flight was made on April 12, 1961, when a Soviet cosmonaut, Yuri Gagarin, _____ the earth in a spaceship.*
10. *Tsiolkovsky's idea of spaceship_____ on the use of liquid fuels.*

Key: 1- launched, 2 - benefit, 3 - competed, 4 - receive, 5 - enable, 6 - developed, 7 - explored, 8 - are transported, 9 - orbited, 10- was based.

The End