

## Grammar exercises

**As** – (так как, по мере того как, когда; как, в качестве)

1. Physics is the most fundamental of the experimental sciences as it is the most precise and mathematical.
2. As altitude increases, the pressure and temperature changes.
3. As time went on, our knowledge of the structure of the atom increased.
4. Water may exist as liquid, steam or ice.
5. As the air speed rises, the airflow about the wing changes.
6. It's not just the payload that has mass. The rocket's body has mass as well, as does the fuel on board.
7. A smart composite material that senses cracks as they develop and then repairs the damage could make the next generation of aeroplanes safer.

**Since** (с; с тех пор когда; т.к.)

1. Since the distance of the electrons from the nucleus is about a hundred thousand times as large as the diameter of the nucleus, most of the atom consists of empty space.
2. Since the first rocket appeared many changes has taken place in this field of science.
3. Since the jet engine is a powerful source of energy, it is widely used for machines flying at supersonic speed.
4. Since the introduction of jet engines speeds of aircraft have greatly increased.

**While** – (в то время как; хотя)

1. Scientists discovered the existence of the binding force while they were investigating the phenomenon of radioactivity.
2. The transistor is a current-controlled unit, while the vacuum tube is vacuum-controlled.
3. While isotope power sources are more efficient than the electrochemical systems, they still have some limitations.
4. While the rocket is a very simple device in theory, it can become exceedingly complex in practice.

**Rather** - скорее, наоборот; довольно.

**Rather than** - а не

1. A rocket starts its trip rather slowly, but after its propellant supply is consumed its acceleration increases.
2. In mechanical systems energy will be stated in joules rather than in ergs.
3. The nuclear rocket does not use any combustion process. Rather, the hot exhaust gas is developed by passing a working fluid through a fission reactor.

## Правые определения

1. The scales in common use today are the Fahrenheit, Kelvin and Centigrade.
2. Very little has been published about guided missiles in production or under development.
3. The device in question is the one considered in the previous chapter.

## Причастия

1. When stressed, the two flanges are in tension and compression.
2. \*In the early days of the telephone operators working in the exchange made all the connections between callers by hand.
3. \*For improved channel separation matrix systems use complicated electronic logic circuitry.

**Независимый причастный оборот** (причем; когда; теперь когда; т.к.; деепричастие)

1. The nucleus is made up of neutrons and protons, the number of protons in the nucleus being equal to the number of electrons outside it.
2. With simple sensors installed on the end-of-arm tooling (рабочие органы), a robot can remove parts and materials from stacks, one piece at a time
3. A magnetic field surrounds a current-carrying wire, its strength decreasing as the distance from the wire surface increases.

4. The temperature of an object being raised, the velocity of electrons increases.
5. The Earth's orbit being an ellipse (not a circle), the distance between the earth and the sun constantly changes as the earth revolves around the sun.
6. With industrialization going on at its present rate, the world's fuel reserves will be exhausted within the near future.
7. The sun being near the zenith, its rays are nearly vertical.

### **Инфинитив во всех функциях**

1. To move from one astronomical body to another means to overcome gravitational forces.
2. To accelerate the gas a high pressure is needed in the rocket chamber.
3. To land a high speed aircraft is a delicate operation even when visibility is good.
4. To do work an object must have energy.
5. To coordinate the efforts of many groups of engineers constitutes a very difficult task.
6. Mars will probably be one of the first worlds to be reached by men.
7. There are many things to be taken into consideration when designing a spaceship.
8. Now we shall discuss the system of units to be employed later in our discussion.

### **Инфинитивный оборот с for**

1. If oxygen is present on Mars, its amount is too minute for our instruments to detect.
2. For the resistance of a conductor to be measured, it is necessary to have some fixed standard, say, the ohm.
3. For a body to be in equilibrium under the action of any number of forces, two conditions must be satisfied.

### **Complex subject – 1 (предполагалось, что.....)**

1. The first Earth's satellites were expected to stay on their orbits for a month or two.
2. Heat was thought to be a material substance.
3. Billions of stars are assumed to exist in the universe.
4. Some of the meteors are supposed to have formed when comets that passed near the Earth broke up (разрушаться).
5. The rocket may be said to work on the reaction principle.

### **Complex subject – 2 (по-видимому, очевидно, оказывается/оказалось)**

1. The surface temperature of Mars seems to range from 30 down to – 60 °C.
2. Our galaxy proved to be a spiral system.
3. In contrast to the Moon and the Earth, Mars appears to have a relatively smooth surface.
4. This method does not appear to offer any advantages for it depends on the production of materials with higher strength to weight ratios.
5. As the comet approaches the sun, gases seem to be exploded out of its head to form gigantic tail that points away from the sun and extends millions of miles into space.

### **Complex subject – 3 (вероятно, маловероятно, несомненно)**

1. The rocket is unlikely to generate a velocity much greater than twice its exhaust velocity (скорость истечения газов из сопла).
2. Since the majority of readers are not likely to have a detailed knowledge of nuclear problems this paper will discuss the problems.
3. The atmosphere of Mars is likely to contain very little oxygen.
4. The Moon is sure to be the first target of space travellers.

### **Relative clause**

1. It's not just the payload that has mass we need to cancel out with thrust against the downward force of gravity.
2. There are a few ways this can be done.
3. \*As an electron nears the cathode the net energy it has received from the four accelerating or retarding fields through which it has passed approaches zero.